

**BOReal Ecosystem-Atmosphere Study
(BOREAS) biometry and auxillary sites:
soils and detritus data**

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Abstract

As part of BFTCS (Boreal Forest Transect Case Study) and BOREAS (BOReal Ecosystems–Atmosphere Study), close to 100 sites were established across a transect spanning the boreal forest of Manitoba and Saskatchewan. Most of the sites are concentrated in two major study areas near the boreal forest's northern (Nelson House, Manitoba) and southern (Prince Albert, Saskatchewan) limits. Additional sites have been placed to extend the transect as far southwest as Rosthern, Saskatchewan, and as far northeast as Gillam, Manitoba.

This report—third of a series of three—provides details regarding soil conditions, duff, and woody debris at the sites. The first section of the report discusses field and analysis methods. The second section presents soils data, including physical site conditions, soil profile descriptions, results of laboratory tests, and estimates of soil carbon. The third section presents detritus data, giving information on woody debris by size class—including volume, mass, and carbon estimates— and duff measurements—including depths, densities, and carbon values. The other two reports in the series provide details regarding site locations, and data covering overstory and understory vegetation.

Preface

As a contribution to the Boreal Forest Transect Case Study (BFTCS) and the BOReal Ecosystem–Atmosphere Study (BOREAS), the Canadian Forest Service (CFS) has prepared three reports describing basic forest characteristics at close to 100 sites in a transect spanning the boreal forest from Northern Manitoba to southern Saskatchewan. The purpose of the work carried out by CFS is two-fold. The first objective was to collect data relevant to ongoing CFS work in ecological monitoring and carbon budget modeling. The second objective was to provide information on basic forest characteristics, for use by other project scientists in BFTCS and BOREAS. The information collected includes basic stand data for comparison with remotely sensed data, and input data for various forms of modeling (e.g. distributed hydrological modeling, forest growth, etc.). As a result, the reports reflect these two goals: analysis of data for a specific CFS research project, and provision of a detailed data base.

The CFS work has been divided into three basic reports. This first document, *Biometry and auxiliary sites: locations and descriptions*, provides information on the site locations and gives descriptions of the sites, which ensures that future researchers will be able to locate the sites for comparative studies.

The second report, *Biometry and auxiliary sites: overstory and understory*, summarizes the data collected on the vegetation at each of the study sites. The overstory section provides information on individual trees (species, height, DBH, and evidence of poor tree health) as well as values calculated at the stand level, such as the basal area, stem density, total stem volume, and total biomass density. The understory section lists species by percentage cover on each of the plots within a site, as well as the average cover for all plots at a site.

The last report in the series is *Biometry and auxiliary sites: soils and detritus data*. It provides more detailed information on two sets of data collected at the study sites: soils descriptions (both landform and horizon characteristics), and duff and woody debris (distribution by size and species, as well as mass estimates). The soil descriptions include the results of various laboratory tests, such as carbon, particle size, density, and nutrients. Estimates of total soil carbon are provided. Duff measurements include mean depths, densities, and organic content. Both duff and woody debris measurements are used to estimate carbon totals.

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Introduction

The Boreal Forest Transect Case Study (BFTCS), as discussed by Price and Apps (1995), is a multi-disciplinary ecological study that focuses around a 1000 km transect crossing the climatically-sensitive boreal forest biome. The transect is oriented along an ecoclimatic gradient, ranging from agricultural grasslands in southern Saskatchewan through the boreal forest to tundra in northern Manitoba. The BFTCS has been selected as one of a number of transect studies in various global ecosystems, under the guidance of the Global Change and Terrestrial Ecosystems (GCTE) Core Project of the International Geosphere-Biosphere Programme (IGBP) (Koch *et al.*, 1995).

BFTCS was originally proposed by the Canadian Forest Service (CFS) as an extension to the BOREal Ecosystem-Atmospheric Study (BOREAS), to address longer term issues of global change in the boreal zone. BOREAS is a major international field experiment integrating land surface climatology, tropospheric chemistry, and terrestrial ecology. For BOREAS, two major study areas have been established near the boreal forest's northern (Nelson House, Manitoba) and southern (Prince Albert, Saskatchewan) limits. The BFTCS transect extends beyond these core regions, to the grasslands southwest of Prince Albert and the tundra north of Gillam, Manitoba. Observation of the BOREAS sites is being performed from the ground, from the air, and from space, and combined with an extensive modelling program. The aim of the project is to improve understanding of the biological and physical processes and states that govern the exchanges of energy, water, heat, carbon, and trace gases between boreal forest ecosystems and the atmosphere. Particular reference is given to those processes and states that may be sensitive to global change. The summer of 1994 was a major period of detailed field work. An overview of the project and preliminary results of the 1994 work are described in Sellers *et al.* (1995).

BOREAS entails measurements at a variety of temporal and spatial scales. Within the project, sites were selected to meet varying data needs, and are organized in a hierarchical fashion based on the type of observations being made. Three distinct site classes can be described. The first class is sites with detailed mass and energy exchange observations carried out using instrumented towers. These sites are categorized as "tower flux" or "TF" sites. The second class of sites provide less sophisticated tower access to the forest canopy, for biophysical measurements and sampling. These sites are labelled "terrestrial ecology" or "TE" sites. The third class of sites represent the lowest level of ground-based observation, with no special provision for instrumentation. This last class is intended to provide additional sites for verification of various remote sensing data. These sites are described as "auxiliary sites" (focused within the limits of the major study areas) or "transect sites" (more generally spread across the boreal forest, following the BFTCS transect from southwest of Prince Albert, Saskatchewan, to Gillam, Manitoba).

As a contribution to BFTCS and BOREAS, CFS has prepared three reports describing basic forest characteristics at close to 100 sites in the transect. The field data in these reports were collected during the summers of 1993 and 1994. The purpose of the work carried out by CFS is two-fold. The first requirement is to collect data relevant to ongoing CFS work in ecological monitoring and carbon budget modelling. The work will be used in validating portions of the Canadian Forest Sector carbon budget model used in Kurz and Apps (1995). The second requirement is to provide information on basic forest characteristics, for use by other project scientists in BFTCS and BOREAS. These needs include basic stand data for comparison with remotely-sensed data, and input data for various forms of modelling (e.g., distributed hydrological modelling, forest growth, etc.). As a result, the reports reflect these two goals: analysis of data for a specific research project (CFS work), plus provision of a detailed database for use as a resource by people with differing needs.

The CFS reports have been divided on the basis of related needs. The first document, *Biometry and Auxiliary Sites: Locations and Descriptions*, provides information on the site locations and gives cursory descriptions of the sites visited. One requirement is that the site locations be well-documented, so that future researchers can relocate them if desired. The second

report, *Biometry and Auxiliary Sites: Overstory and Understory Data*, summarizes the data collected on the vegetation at each of the study sites. The overstory section provides information on individual trees (species, height, dbh, and evidence of poor tree health) as well as values calculated at the stand level, such as the basal area, stem density, total stem volume, and total biomass density. The understory section lists species by percentage cover on each of the plots within a site, as well as the average cover for all plots at a site. This report, *Biometry and Auxiliary Sites: Soils and Detritus Data*, is the last report in the series. It provides more detailed information on two sets of data collected at the study sites: soils descriptions (both landform and horizon characteristics), and duff and woody debris (distribution by size and species, as well as mass estimates). The soil descriptions include the results of various laboratory tests, such as carbon, particle size, density, and nutrients. Estimates of total soil carbon are provided. Duff measurements include mean depths, densities, and organic content. Both duff and woody debris measurements are used to estimate carbon totals.

Using this Report

This report has been divided into three sections. This first section describes the data fields and entries used in the data sections of the report. There are four parts. *General Information* discusses entries concerning site locations found in both the soils and the detritus data sections. *Soils Section* presents the data fields relating solely to data tables in the soil descriptions. *Detritus Section* discusses the data fields found in the detritus and duff tables, along with the methods used to calculate volumes and detrital masses. Within these three parts of this section, background information is provided regarding field methods or data analysis, where appropriate. The fourth part, *Discussion*, looks at a few of the assumptions used in the methods section, and provides some comparisons of the results. The second section of the report provides the tabulated soils data. The third section provides the tabulated detritus and duff data. Within these last two sections, sites are organized into four groups: Tower sites, Northern Study Area (NSA) Auxiliary sites, Southern Study Area (SSA) Auxiliary sites, and Transect sites.

Site codes in this report are based on the Canadian Forest Service identifiers used in the first report in this series: *Biometry and Auxiliary Sites, Locations and Descriptions*. BOREAS investigators usually identify most of the sites using the BOREAS Information System (BORIS) identifiers. Table 1 provides a cross-reference list of the CFS site codes and BORIS identifiers for the sites included in this report. For further details regarding the BORIS identifier terminology, refer to the *Locations and Descriptions* report.

The site selection procedure is described in detail in the *Locations and Descriptions* report. Initial site selection was based on air photographs and forest cover maps. This information allowed identification of stands showing reasonable homogeneity within a stand of no less than roughly 100(100 m. Subsequent aerial and ground observation provided additional information.

Each stand selected for biometry was assigned a site code (explained below). If a particular site exhibited increased likelihood of variability (e.g., an uneven-aged mixedwood stand), then the stand was spatially subdivided into sampling strata. This was denoted by appending suffixes of a/b/c to the site code (explained below). While generally this was done based on information from air photographs, occasionally it was done in the field when it was observed that conditions had changed since the air photograph had been taken. Within each stand, one or more points were selected in the field. These points provided a centre for overstory and understory sample plot placement, with various measurements being carried out over a 15-20 m radius of the central point. Generally, the different sampling points were located within 100-200 m of each other, but distances can range from less than 100 m to more than 500 m. The *Locations and Descriptions* report provides instructions on finding sampling points (plots), along with maps of each site showing forest cover map information and plot locations.

In this report, the following terminology is used to describe the site sampling hierarchy:

Site: a stand or group of stands identified and selected for sampling purposes.

Stratum: a sampling stratification. This usually coincides with the usage of suffixes a, b, etc.: stratum 1 of site MW-1 is called MW-1a; stratum 2 is called MW-1b, etc. Multiple strata occur when the initially identified stand was subdivided, as discussed above. This should not be confused with the use of stratum to indicate layers within a plant community, which is the common meaning in ecology (as opposed to forestry). Cauboue et al. (1996) list both meanings.

Plot: fixed geographical sampling point within a stratum or stand, where measurements of overstory and understory characteristics, soils, etc., are taken. Plot numbers were assigned within each site. If a site has more than one stratum, plot numbers may be spread across strata, for example, plots 1 and 3 in stratum 1 (site XXX-Na), and plot 2 in stratum 2 (site XXX-Nb).

Soils and detritus data were not collected at all plots within a site. Plot numbers indicated in this report may therefore be non-sequential. The use of the term "plot" is maintained to provide consistency with the overstory/understory data.

Site Codes

The site code consists of three parts. The first part lists the province in which the site is located: either MAN (Manitoba) or SASK (Saskatchewan). The second part of the site code lists the site identifier in the Canadian Forest Service (CFS) database. This identifier is an alphanumeric string of up to 14 characters, generally giving information about the overstory at the site.

Interpretation of the identifier depends upon whether the site is an auxiliary site, a transect site, or a tower site.

Auxiliary sites:

Typically, the site identifier begins with a three letter code. The code describes the dominant species, the stand age/maturity, and the productivity of the stand. Both age and productivity assessments were based on a preliminary, qualitative examination of the sites during early BOREAS field visits. This code is followed by a number designating the stand, and optionally followed by a letter indicating a sampling stratum within a site.

| | |
|--------------------|--|
| Species code: | A - aspen B - black spruce J - jack pine |
| Age/maturity code: | D - recently Disturbed (young) I - Immature M - Mature |
| Productivity code: | L - Low M - Medium H - High |

Exceptions: Sites with no single dominant species are designated as mixed-wood stands, and are assigned the two letter site code MW. These stands have not been graded for age or productivity. One mixedwood site in the SSA has been given the name "Jail House", due to its location.

Examples JIH-5 refers to stand 5 of immature, high productivity jack pine.
MW-1b refers to mixed-wood site 1, stratum b.

Transect sites:

Transect site identifiers begin with a one or two letter code indicating the general geographic location of the site. The abbreviations are as follows:

| | | | |
|----|---------------|----|-----------------------------|
| B | Batoche | P | Paint Lake |
| F | Flin Flon | PA | Prince Albert National Park |
| G | Gillam | S | Sapochi River |
| M | Montreal Lake | SO | Soab Creek |
| N | Nelson House | T | Thompson |
| NI | Nisbet | | |

The location code is then followed by a two-letter code indicating the dominant species and stand age, following the codes used for the auxiliary sites. Mixedwood sites are given the single letter M, with no age class.

Examples B-AM-1 refers to mature aspen site 1 near Batoche, Sask.
PA-M-1 refers to mixed-wood site 1 near Prince Albert National Park.
P-AM-1 refers to mature aspen site 1 near Paint Lake, Man.

Tower sites:

Tower site identifiers begin with a two or three-letter code indicating the nature of the tower measurements carried out at the site, as follows:

| | |
|-----|--|
| TE | Terrestrial Ecology tower (BOREAS) |
| TF | Flux tower (BOREAS) |
| POM | Hydrological sites (John Pomeroy, NHRI) ¹ |

The site code is then completed by a two or three-letter code indicating the species and age, using the following abbreviations:

| | | | |
|-----|------------------|-----|-----------------|
| MW | Mixed-wood | OJP | Old Jack Pine |
| OA | Old Aspen | YA | Young Aspen |
| OBS | Old Black Spruce | YJP | Young Jack Pine |

Examples: TE-OA is a terrestrial ecology tower in an old aspen site.
POM-YJP is a hydrological tower in a young jack pine site.

For all sites, the site code is completed with a number (in brackets) indicating the sampling stratum. Most sites consist of a single sampling stratum; presence of multiple strata are the result of variability within a site. In most cases, the presence of sampling strata within a site is also indicated by the use of a, b, or c suffixes in the site identifier, as discussed earlier. The example site identifier MW-1b also has a stratum number of 2. However, some sampling strata are not keyed as a/b: for example SASK BIH and SASK BMH are two strata within one site. At one time, these had been designated as BIHa and BIHb, but field examination revealed a significant difference in stand age.

Table 1: Cross-reference from BORIS ID to Canadian Forest Service (CFS) site identifiers

| Northern study area tower and auxiliary sites (MAN) | | Southern study area tower and auxiliary sites (SASK) | | Transect sites | |
|---|-----------------|--|-----------------|-----------------|-----------------|
| <u>BORIS ID</u> | <u>CFS code</u> | <u>BORIS ID</u> | <u>CFS code</u> | <u>BORIS ID</u> | <u>CFS code</u> |
| Q1V2M | MW-2 | B9B7A | AIM-13 | (SASK) | |
| S9P3A | AIH-14 | C3B7X | TE-OA | | |
| T0P5M | MW-1 | D0H4X | TF-YA | A1A | B-AM-1 |
| T0P7S | BMM-8 | D0H6S | BMM-1 | A2P | NI-J-1 |
| T0P8S | BMH-7 | D6L9A | ADH-2 | H1E4S | M-BD-1 |
| T2Q6A | TE-OA | D9G4A | AMH-16 | H2D1M | PA-M-1 |
| T3R8X | TE-OBS | D9I1A | AIH-3 | H2D1S | PA-BM-1 |
| T3U9S | BIM-12 | D9I1M | TE-MW | H3D1M | PA-M-2 |
| T4U5A | AIM-1 | E7C3A | AMM-12 | O1P | F-JM-1 |
| T4U91-S | BIM-1 | F1N0M | Jail House | O2S | F-BM-1 |
| T4U92-S | BIH-1 | F5I6P | JIH-4 | O3S | F-BD-1 |
| T5Q7S | BMH-6 | F7J0P | JMH-5 | O5P | F-JM-2 |
| T6R5S | BIH-9 | F7J1P | JMH-A2 | O6P | F-JD-1 |
| T6T6S | BIL-2 | F7J1P | JMH-A1 | O7S | F-BM-2 |
| T7Q8X | TE-OJP | F8L6X | TF-YJP | | |
| T7R9S | BDH-3 | G1K9P | JMM-6 | (MAN) | |
| T7S9P | JIM-4 | G2I4S | BMH | | |
| T7T3S | BML-21 | G2I4S | BIH | O8M | SO-M-1 |
| T8Q9P | JIH-2 | G2L3X | TE-OJP | O9P | N-JM-1 |
| T8S9P | JDH-3 | G2L7S | B?L | P7V1A | P-AM-1 |
| T8T1P | JDM-1 | G4I3M | MW-1 | Q3V3P | P-JM-1 |
| T9Q8P | JIL-1 | G4K8P | JMM-5 | R8V8A | T-AM-1 |
| V5X7A | AIH-30 | G6K8S | BMH-9 | T8S4A | S-AD-1 |
| W0Y5A | AIM-20 | G7K8P | JMM-8a | | |
| | | G8I4X | TE-OBS | | |
| | | G8K8P | JMM-8b | | |
| | | G8L6P | JDM-8 | | |
| | | G9I4S | BDL-20 | | |
| | | G9L0P | JMH-10 | | |
| | | I2I8P | JIH-7 | | |

Soils Section

Soil observations were carried out on one plot at each site. The plot is listed after the site code, at the top of each page. A total of five tables are provided in the soils section for each site. The first three tables, presented in one row, outline summary data for the site as a whole. The fourth table provides a description of the soil horizons encountered, based largely on field observations. The fifth table provides the results of laboratory analysis of samples collected from each horizon.

The decision to restrict detailed soil measurements to a single plot at each site is the result of limited resources. A thorough investigation and description of soils at the sites would require greater time and expertise than was available. Horizon descriptions in particular are an area where experience is important, and the descriptions provided in this report were completed by field personnel with a variety of backgrounds. As a result, the more subjective descriptions represent a weak link in the chain. In spite of this limitation, the data presented here should serve as a preliminary survey of soil characteristics at these sites, and will be of use as a starting point for more extensive investigations by anyone interested in working in the transect region.

General information

General information is provided that applies to the site as a whole:

Date

Provides the date (year/month/day) on which the soil description and sample collection were done.

Soil type

The soil type was determined following the Canadian System of Soil Classification (Agriculture Canada Expert Committee on Soil Survey, 1987). Soils were identified at least to the level of *order* and generally to *great group* and *subgroup* level as well. Classifications are based on a combination of field descriptions and laboratory results. In a few cases, insufficient data exists for a complete classification. In these cases, a classification has been inferred from the limited data, and marked as "probable".

Drainage class

Soil drainage was qualitatively assessed for all sites visited. System of classification is based on Land Resource Research Institute (1983). Entries are selected from the following list:

very rapid: water is removed very rapidly in relation to supply. Soils have a very low available water storage capacity (usually less than 2.5 cm) and are usually coarse-textured, or shallow, or both. Water source is precipitation.

rapid: water is removed rapidly in relation to supply. Soils have a low available water storage capacity (2.5-4 cm) and are usually coarse-textured, or shallow, or both. Water source is precipitation.

well: water is removed readily but not rapidly. Soils have intermediate available water storage capacities (4-5 cm) and are generally intermediate in texture and depth. Water source is precipitation.

moderately well: water is removed from the soil somewhat slowly in relation to supply, due to low perviousness, shallow water table, lack of gradient, or some combination of these. Soils have intermediate to high water storage capacities (5-6 cm) and are usually medium to fine textured. Precipitation is usually the dominant source of water; significant additions by subsurface flow are necessary in coarse-textured soils.

imperfect: water is removed from the soil sufficiently slowly in relation to supply to keep the soil wet for a significant portion of the growing season. Precipitation will be the main source of water if soil storage capacity is high, but contribution by subsurface flow is more important as storage capacity decreases. Soils have a wide range in available water storage capacity, texture, and depth, and are gleyed phases of well drained subgroups.

poor: water is removed so slowly in relation to supply that the soil remains wet for a comparatively large part of the time it is not frozen. Subsurface flow and precipitation are the main water sources, and there may be a perched water table. Soils have a wide range in available water storage capacity, texture, and depth, and are gleyed subgroups, Gleysols and Organic soils.

very poor: water is removed so slowly in relation to supply that the water table remains at or near the surface for the greater part of the time it is not frozen. Subsurface flow is the major water source; precipitation is less important. Soils have a wide range in available water storage capacity, texture, and depth, and are either Gleysolic or Organic.

Moisture conditions during visit

The moisture condition of the soil was qualitatively assessed as *wet*, *moist*, or *dry*. This classification only applies at the time of site visit, and is not necessarily indicative of long-term conditions (for which "Drainage class" provides a better indication).

Landform class

Based on site characteristics, each site was classified in the field as being *lacustrine*, *fluvial*, or *morainal*. (Other classes exist, but are not encountered in this data set.) Detailed descriptions of each class are given in Agriculture Canada Expert Committee on Soil Survey (1987). The classification gives an indication of the origin of the unconsolidated mineral parent material of the soil.

Depths in soil profile

In the soil pit, five depths were recorded that relate to overall growing conditions. All depths are given in centimetres, and are measured relative to the zero depth point in the soil profile (i.e. they are not necessarily measured from the forest floor surface—see the "Field observations" section, where soil horizon depths are discussed.) If the condition in question is not found (e.g., no bedrock is encountered) within the depth of the soil pit, it is listed in the table as "not present". If the field crews failed to note presence or absence of the condition, it is listed in the table as "not recorded".

Limit of effective rooting

This is the depth to which roots effectively penetrated. Nominally, this depth was qualitatively assessed as the point where root abundance declines to "few". (See the discussion of root observations in the "Horizon description" section of "Field observations".) In practice, different field observers appear to have followed different conventions, and this entry should be interpreted as being a depth at which there was a noticeable decrease in the number of roots, without reference to an absolute value. Most of the roots will be located in the soil layers above this depth.

Root-restricting layer

This is the depth at which there was a significant impediment to root penetration, due to the physical or chemical characteristics of the soil. An example would be a Bt horizon (illuvial clay layer), where increased clay fractions restrict root depth. A root restricting layer will have no greater than "few" roots, but observation of a root-restricting layer does not require that roots reach this depth. (The "Limit of effective rooting" entry is an indicator of actual root penetration.)

Carbonates

This is the depth at which carbonate accumulations were encountered in the soil profile. This assessment is made on the basis of strong effervescence using a 10% HCl solution (see "Effervescence", in the "Field observations" table). Above this depth, effervescence is either "none" or "weak". Typically, the soil above this depth has had carbonates leached out.

Water table

This is the depth at which the water table was reached in the soil profile. This value is measured directly at the time of sampling, and is not inferred from indirect evidence (e.g., mottling). Long-term conditions should be inferred from entries under "Drainage class" in the "General information" table, or from indications of mottling listed in the "Horizon description" in the "Field observations" table.

Bedrock

This is the depth at which bedrock was reached in the soil profile. This entry will coincide with the presence of an R horizon in the soil profile.

Soil carbon

Laboratory tests on soil horizons (discussed below) provide an indication of the organic content of the soil. This table provides sums based on the horizon data. Details regarding the horizon values are discussed under "Laboratory measurements". Since some horizons use estimates (rather than measured values) for either bulk density or organic content, the accuracy of the profile totals will vary. The "Discussion" section of this report covers this in more detail. All values are given in $t\ C\ ha^{-1}$. Five values are listed:

All horizons

This is the total of all horizon values listed in the profile, either organic or mineral.

Organic horizons

This is the total of the horizons in the organic surface tier only. For mineral soils, these will be the horizons at depths above the zero depth point (organic/mineral surface). This measurement is essentially equivalent to the duff carbon estimate provided in the detritus section, using a slightly different methodology. A comparison between the two methods of estimation is provided "Discussion" section of this report.

Mineral horizons

Three values are listed, to different depths in the mineral soil. The first value is the total for all mineral horizons recorded in the profile. The depth of each soil pit varies, so the total depth of mineral soil is listed. This first value is, therefore, based on the entire observed profile, without truncation or extrapolation.

Values based on varying depths are difficult to compare between sites, however, so mineral horizon estimates are given for two standardized depths: 20 cm and 100 cm. Both standardized estimates are prepared in the same manner: sums are accumulated starting with the uppermost mineral horizon, and continue downward until the standard depth is reached. If a horizon extends past the standard depth, only the fraction down to the standard depth is included, assuming a uniform organic content for the horizon. For example, in a horizon extending from 15 to 28 cm (a

thickness of 13 cm), only 5 cm of the horizon lies within the 20 cm standard depth, so 5/13 of the horizon soil carbon value is used to complete the "Mineral horizons, to 20 cm" total.

In the case where the lowermost horizon stops short of the standard depth, the horizon value is extrapolated to complete the profile, assuming the same density and organic content. For example, if the last horizon extends from 50 to 90 cm, it is used in the summation as if it had a thickness of 50 cm instead 40. Extrapolation usually only occurs for the "to 100 cm" value. Since most pits were excavated to about 100 cm depth, the amount added by extrapolation usually represents a small fraction of the total: half of the values are less than 10%. In some instances, observations of mineral horizons are limited in depth—e.g., in organic soils. In these cases, a thin mineral horizon is being extrapolated over a greater thickness, and the potential for error is higher. If more than 30% of the calculated "to 100 cm" soil carbon value comes from the extrapolation procedure instead of the observed horizons, then the value is discarded and the table lists "no estimate". This occurs in 24 of the 92 soil pits.

In a few instances, soil profiles end at bedrock, and soil carbon values have been extrapolated assuming zero organic content for the rock. At a few sites with organic soils, no mineral horizons are recorded, and soil carbon for mineral horizons is listed as "not present".

Field observations

The following data were collected for each soil horizon encountered in the profile.

Soil horizon

Each horizon was identified according to the Canadian System of Soil Classification (Agriculture Canada Expert Committee on Soil Survey, 1987). Field identifications were updated after laboratory data became available.

Upper depth/thickness

The first entry provides the depth (in cm) of the upper surface of the horizon, relative to the soil surface. For non-organic soils, the soil surface (zero depth) is taken as the boundary between the organic and mineral horizons. Thus, litter and organic horizons were considered to be above the soil surface and hence the uppermost organic surface is at a negative depth. For organic soils, zero depth is taken as the upper surface of the organics. The upper depth is followed by a slash, and then the thickness of the horizon (in cm).

Munsell colour

The hue, value and chroma of each horizon were recorded as determined by a Munsell soil colour chart. The moisture condition at the time was noted as either moist (m) or dry (d). In the case of horizons with mottles, mottled colours were not recorded, so the observations should be interpreted as the matrix colour.

pH

The pH of each horizon was determined in the field using pH paper. For a comparison of field pH and laboratory pH values, see the discussion section.

Effervescence

The effervescence of the soil horizon refers to the chemical reaction when a 10% solution of HCL is applied to the soil. The test was performed in the field. The strength of the reaction was classified as follows:

| | |
|--------|------------------------------|
| none | no evidence of effervescence |
| weak | bubbles readily observed |
| strong | bubbles form foam |

von Post or texture

This column gives an indication of the physical condition of the horizon. For organic horizons, the level of decomposition is given using the von Post scale. For mineral horizons, the soil texture class is listed.

The von Post scale is a field assessment of the decomposition of the organic matter within the soil. The classification scheme is described in Agriculture Canada Expert Committee on Soil Survey (1987, p29), and reproduced here. A sample of wet organic material is squeezed and the colour of the solution produced, the nature of the plant remains, and the proportion of the original sample remaining are observed. A numeric value from 1-10 is assigned using the following descriptions:

- 1 Undecomposed: plant structure remains unaltered; yields only clear water coloured light brown.
- 2 Almost undecomposed: plant structure distinct; yields only clear water coloured light yellow brown.
- 3 Very weakly decomposed: plant structure distinct; yields distinctly cloudy brown water; no peat substances pass through the fingers; residue not mushy.
- 4 Weakly decomposed: plant structure distinct; yields strongly cloudy water; no peat substances pass through the fingers; residue is mushy.
- 5 Moderately decomposed: plant structure clear but becoming indistinct; yields much cloudy brown water; some peat escapes through fingers; residue is very mushy.
- 6 Moderately strongly decomposed: plant structure somewhat indistinct but clearer in squeezed residue than in the undisturbed peat; about a third of the peat escapes between the fingers; residue strongly mushy.
- 7 Strongly decomposed: plant structure indistinct but recognizable; about half the peat escapes between the fingers.
- 8 Very strongly decomposed: plant structure very indistinct; about two-thirds of the peat escapes between the fingers; residue almost entirely resistant remnants such as root fibres and wood.
- 9 Almost completely decomposed: plant structure almost unrecognizable; nearly all the peat escapes between the fingers.
- 10 Completely decomposed: plant structure unrecognizable; all the peat escapes between the fingers.

The decomposition classes can also be grouped under the organic horizons as follows: Of (Fibric), classes 1-4; Om (Mesic), classes 5-6, Oh (Humic), classes 7-10.

The texture of mineral soils was based on particle size analysis carried out on soil samples in the laboratory, using the Bouyoucos hydrometer method (Kalra and Maynard, 1991). The values for percent sand, silt, and clay are listed in the "Laboratory measurements" table. The textural class is assigned according to the soil textural triangle, as indicated in figure 1. Texture was also determined in the field, using the "feel" method. If laboratory test results are not available, then the field texture is listed in the table (indicated by a footnote).

A qualitative comparison between laboratory texture determinations and field observations showed several trends. Out of 229 samples with both field and laboratory textures, 73 were done correctly in the field, 102 were off by one (i.e., the field texture class was adjacent to the laboratory texture class in figure 1), 10 were in a cornering class (i.e., the classes shared a corner, but not a side, in figure 1), and 44 fell outside this range. Field classifications tended to overreact to either sand or clay, in that sandy or clayey soils were often placed in classes closer to the sand or clay points of the textural triangle (figure 1) than they should have been. For intermediate textures, misclassifications can go any way, although there was a slight tendency to assign finer textures in the field. This information should be kept in mind when interpreting field textures in the tables.

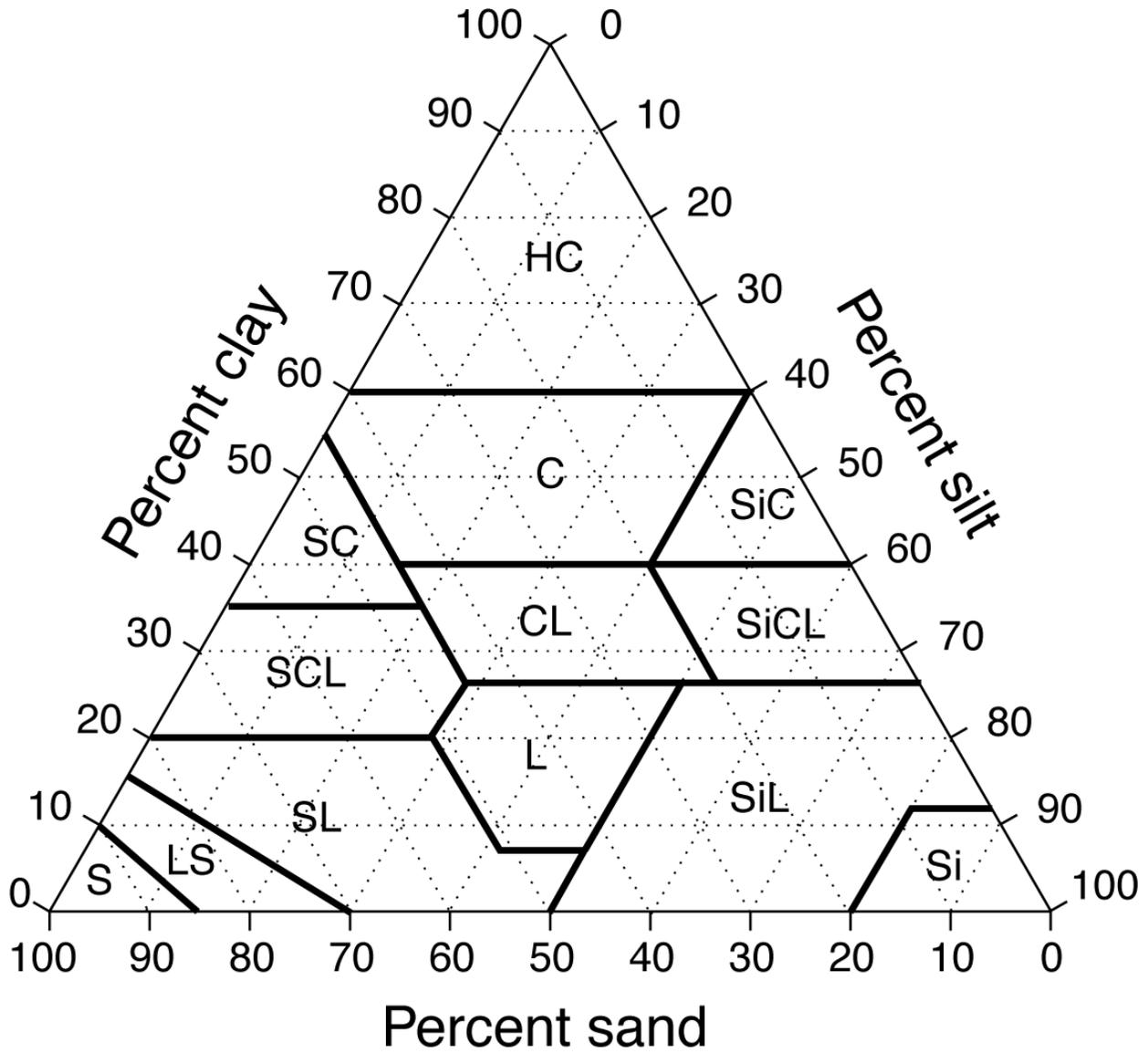


Figure 1. Soil textural triangle.

Coarse fraction

This value is a visual estimate, in the field, of the percentage of the soil horizon that is made up of particles larger than sand (2 mm). These larger size classes consist of gravel, cobbles, and stones. When present, the type of material found is listed in the "Horizon description". The quality of the data varies: observations were not made consistently, and sometimes the data is missing.

Horizon description

This column provides a verbal description of soil structure, the presence of roots, mottling, coarse fragments, and any other observations of the horizon. Structure, roots, and mottling were coded with abbreviations in the field, and the text is based on an expansion of the coded data. The field coding is described as follows:

Structure

The structure of the soil is an indication of the aggregation of soil particles and how these are organized in relation to adjacent aggregates. An aggregation of individual particles into a cohesive grouping is referred to as a ped. There are three categories to a description: *grade* (G), *kind* (K), and *class* (C), based on guidelines in Ministry of Environment (1990), pp 46-47. Classification was done in the field.

Grade is the degree to which structure is present, and is selected from the following possible levels:

| | |
|-----------|---|
| <i>W</i> | weak: Peds are either indistinct or barely evident. Separates into a mixture of only a few entire peds, many broken peds, and much unaggregated material. |
| <i>WM</i> | weak to moderate. |
| <i>M</i> | moderate: Peds are moderately durable, and are evident but not distinct in the undisturbed soil. Separates into many well-formed entire peds, some broken peds, and little unaggregated material. |
| <i>MS</i> | moderate to strong. |
| <i>S</i> | strong: Peds are durable and evident in the undisturbed soil. Separates mainly into entire peds. |

Kind refers to the shape of individual soil peds, and is selected from the following classifications:

| | |
|------------|--|
| <i>ABK</i> | angular blocky: Flattened, rectangular faces intersecting at relatively sharp angles. |
| <i>SBK</i> | subangular blocky: Slightly rounded, subrectangular faces, with sub-rounded intersections. |
| <i>GR</i> | granular: Curvy or very irregular faces. |
| <i>PL</i> | platy: Flat or platelike; horizontal planes more or less well-developed. |
| <i>PR</i> | prismatic: Well-defined vertical faces; sharp edges, tops essentially flat. |
| <i>COL</i> | columnar: Vertical edges near top of columns not sharp; column tops flat, rounded, or irregular. |
| <i>SGR</i> | single grained: Loose, incoherent mass of individual primary particles. |
| <i>MA</i> | massive: amorphous; no evidence of any distinct arrangements of soil particles. |

Class is a rough indication of the size of the peds, and is selected from:

| | |
|------------|-------------------|
| <i>VF</i> | very fine |
| <i>VFF</i> | very fine to fine |
| <i>F</i> | fine |
| <i>FM</i> | fine to medium |
| <i>M</i> | medium |
| <i>MC</i> | medium to coarse |
| <i>C</i> | coarse |
| <i>VC</i> | very coarse |

Roots

Root characteristics within the soil were described according to the *abundance* (A), *size* (S), and *orientation* (O).

Abundance has the following levels:

| | |
|----------|-----------|
| <i>X</i> | none |
| <i>V</i> | very few |
| <i>F</i> | few |
| <i>P</i> | plentiful |
| <i>A</i> | abundant |

Size class is based on diameter:

| | | |
|---|-----------|--------|
| V | very fine | <1 mm |
| F | fine | 1-2 mm |
| M | medium | 2-5 mm |
| C | coarse | >5 mm |

Orientation of the roots has the following categories:

| | |
|---|---|
| V | mainly vertical |
| H | mainly horizontal |
| O | mainly oblique |
| R | random (no dominant plane of orientation) |

Mottling

Mottling refers to the presence of discolourations due to oxidation and reduction caused by periodic saturation within the soil horizon. A mottle is a spot or blotch that is of a different colour or shade from the dominant soil colour. These were described according to three characteristics: *abundance* (A), *size* (S), and *contrast* (C).

Abundance is based on the percentage of the exposed surface that is mottled:

| | | |
|-----|--------|-------|
| X | none | 0% |
| few | | <2% |
| C | common | 2-20% |
| M | many | >20% |

Size has the following levels:

| | | |
|---|--------|---------|
| F | fine | <5 mm |
| M | medium | 5-15 mm |
| C | coarse | >15 mm |

Contrast has the following levels:

| | | |
|---|-----------|---|
| F | faint | evident only on close examination |
| D | distinct | readily seen, but only moderate colour contrast |
| P | prominent | contrasts strongly |

Mottle colours were not recorded, so it is impossible to check or confirm the field descriptions of the mottling. Horizon designations have been assigned presuming that the mottle descriptions are correct.

The horizon description also lists the presence of gravel, cobbles or stones, and any comments regarding sampling (e.g., a single sample that covers more than one horizon) or any other characteristic.

General comments

Any addition field comments relating to the site or soil pit are listed at the bottom of the table, following any footnotes.

Laboratory measurements

Most horizons in the soil profile were sampled for laboratory analysis. Usually, two samples were collected: one of known volume, for bulk density determinations, and one larger sample for chemical and physical tests. For samples collected in 1993, testing included exchangeable acidity, cation exchange capacity (CEC), exchangeable cations for calcium, magnesium, sodium and potassium, pH, inorganic and organic carbon, nitrogen, particle size, and bulk density. The chemical tests were carried out under contract to Darwin Anderson, at the University of Saskatchewan, while the physical tests were performed by CFS personnel. Samples collected in 1994 were subject to a less comprehensive suite of tests: loss on ignition (LOI), nitrogen, particle size, and density. All tests on 1994 samples were conducted by CFS personnel.

Soil carbon values were calculated for all horizons, using estimates of density and organic carbon where necessary. Details on the various tests and calculations are as follows.

Exchangeable acidity

Given in meq/100 g, this value was determined by taking a 10 g sample of soil and extracting with 0.5 N BaCl₂ - 0.055 N triethanolamine adjusted to pH 8.0. The solutions were filtered and made up to volume (200 mL). A 20 mL aliquot was titrated to pH 5.2. The exchangeable acidity was calculated using the difference between this reading and an equivalent titration on the extracting solution.

Buffered CEC

Given in meq/100 g, this test used the soil from the exchangeable acidity determination. The soil was leached with water to remove excess barium, the solution discarded, and the soil then leached with N-NH₄OAC to recover the absorbed barium. The leachate was made up to volume, and the barium analyzed by atomic absorption spectrometry.

Exchangeable cations

Given in meq/100 g, these values were determined by using atomic absorption spectrometry on the BaCl₂ extracting solution obtained from the exchangeable acidity procedure.

pH

Soil was prepared in either a 1:2 (mineral soils) or 1:10 (organic soils) soil:CaCl₂ ratio. Once prepared, the suspensions were stirred, left to sit for one hour, then stirred again and pH measured. For a comparison of laboratory pH and field pH values, see the discussion section.

Carbon, inorganic and organic

Total carbon was measured using a Leco CR-12 Carbon Determinator 781-600. Inorganic carbon was determined using the acid digestion and two-endpoint titration method described by Tiessen *et al* (1983). The samples (containing between 0.5 and 15 mg as carbonate) were digested in 5 N HCl under a stream of nitrogen gas, followed by the determination of the evolved carbon dioxide in a sodium hydroxide trap. The carbon dioxide was titrated directly as carbonic acid in a two-endpoint titration between pH 8.3 and 3.7. Blanks were used to correct for carbonates in the reagents. Organic carbon was then calculated as total carbon minus inorganic carbon. The tabulated values report inorganic carbon as %CaCO₃ (by weight), and the organic carbon as %C (by weight).

Only samples from 1993 were analyzed using this method. For 1994 samples, organic carbon was estimated using loss on ignition (LOI), as discussed below. For 1993 samples without organic carbon measurements, a value was estimated (indicated by enclosing the value in brackets) for use in soil carbon calculations. For estimation methods, see the discussion section.

Loss on ignition (LOI)

Loss on ignition values were determined using the method described in Kalra and Maynard (1991). The process involves heating about 5 g of oven-dried sample at 375°C for a minimum of 16 hours. LOI is expressed as the percentage (by weight) of material lost during the heating process. Field samples were first oven-dried and weighed for bulk density determination (see below), and then ground into powder and a 5 g portion taken for the LOI test.

Only samples from 1994 were analyzed using this method. For 1993 samples, organic carbon was estimated in conjunction with inorganic carbon measurements, as discussed above. For 1993 samples without LOI measurements, a value was estimated (indicated by enclosing the value in brackets) for use in soil carbon calculations. For estimation methods, see the discussion section.

Total nitrogen

Total nitrogen was determined using a Kjeldahl method. The 1994 samples were analyzed according to the methods described in Kalra and Maynard (1991). The 1993 samples, analyzed at the University of Saskatchewan, used a variation of the same technique. Kalra and Maynard (1991) point out that there are many variations of the Kjeldahl digestion technique available, but that they should all recover similar quantities of total nitrogen.

Particle size

Percentages (by weight) of sand, silt, and clay were determined by the Bouyoucos hydrometer method (Kalra and Maynard, 1991). Approximately 50 g of sample are prepared in water, mixed, and allowed to settle. Hydrometer readings at two specified times allow determination of % (silt+clay), and % clay. From the total sample weight, % sand, % silt, and % clay are calculated.

Bulk density

Soil samples were taken from mineral horizons using a bulk density sampler. The sampler consists of a metal ring of known diameter (typically about 50 mm) and width (about 40 mm), giving a known sample volume (about 90 cm³). The ring is pressed into the side of the soil pit, and then excavated with the sample inside. Samples were bagged, labelled, and returned for drying in the lab. Sample bulk density is calculated from oven dry (105°C) weight and sampler volume, in g cm⁻³ (Kalra and Maynard, 1991). The diameter of the sampler prohibits sampling in thin horizons, so data are not available in these cases.

Soil carbon

For each horizon, a total quantity of soil carbon (in t C ha⁻¹) was calculated by multiplying organic carbon, bulk density, and horizon thickness. For horizons with an LOI value rather than an organic carbon value, LOI was converted to organic carbon by dividing by 1.724 (Van Bemmelen factor) as suggested by Kalra and Maynard (1991). (David (1988) suggests that a single conversion factor for both mineral and organic horizons may not be appropriate, but individual curves provided for forest floor and mineral soils lie within ±3% of the Van Bemmelen values, so the distinction is not made here.) If any of these values were missing, an estimate was provided. Estimation methods are presented later, in the discussion section of this report. No adjustment was made to account for the coarse fraction in horizons where it was noted. Coarse fraction observations were not always done, and the percentage is a visual estimate that is not directly usable as a volume or weight ratio.

Detritus and Duff Section

Information was collected on detritus (dead and downed woody debris) and duff (litter and humus layers on the forest floor). Typically, measurements on detritus and duff were made at two of the three plots for each site. These data are presented in four tables. The first table presents details of the detritus data, including estimates of detrital mass and carbon by debris diameter class. The second table supplements the first, providing additional detail on individual items 7 cm or larger in diameter. The third table provides information on duff depths at each plot, along with an indication of the percentage mineral exposure (i.e., no duff) on the surface. The fourth table provides details of the organic content of the duff layer.

Analysis of the detritus data follows the methods described in Van Wagner (1982) and McRae *et al* (1979). The method is referred to as the "line intersect" method, and involves setting out a line of known length, and tabulating the diameter of each debris item that intersects the line. The detrital volume per hectare is calculated from:

$$V = \frac{n}{2L} \sum_{i=1}^n A_i \quad (1)$$

where L is the length of the sample line, A_i is the cross-sectional area of the *i*th piece at intersection, and $\frac{n}{2L}$ is a probability factor derived from sampling theory. The final result was converted to m³ ha⁻¹.

The probability factor of $\frac{n}{2L}$ assumes a random directional piece orientation, with all pieces being horizontal (untilted). In practice, this is often not the case. To minimize orientation bias, three lines were established at each plot, in the form of a 30 m equilateral triangle, as recommended

by Van Wagner (1982) and used in McRae *et al* (1979). Van Wagner states that the maximum error due to orientation bias for this configuration is 9%, and this would only occur when all items are aligned in the same direction, and that direction is one particular, least-favourable orientation. In most situations, the error is considerably less than 9%. The effects of tilt were not included. The correction factor for items tilted at an angle of θ is $1-\cos(\theta)$, which is 3.4% for 15° .

For small debris items, tabulation of individual diameters is time-consuming. Instead, items less than 7 cm diameter were divided into five diameter classes, and field tallies simply counted the number of items in each class. Individual diameters were recorded only for items >7 cm. In addition, the length of the sample line was reduced for the smaller classes, ranging from 5 m for the smallest class (0-0.5 cm) to 25 m for the largest class (5-7 cm). The full 30 m length was used only for tallies of items >7 cm. The line lengths for a single side of the triangle, for each diameter classes, are listed in Table 2.

Table 2: Diameter classes and related information for the line intersect sampling of debris

| Parameter | Diameter Class (cm) | | | | | |
|----------------------------------|---------------------|----------|----------|----------|----------|-------------------|
| | <0.5 | 0.5-<1.0 | 1.0-<3.0 | 3.0-<5.0 | 5.0-<7.0 | ≥7.0 |
| Line length (m) | 5 | 10 | 15 | 20 | 25 | 30 |
| Mean diameter (cm) | | | | | | |
| <i>Abies balsamea</i> | 0.19 | 0.73 | 1.80 | 3.46 | 5.83 | — ^a |
| <i>Larix laricina</i> | 0.21 | 0.70 | 1.56 | 3.78 | 6.19 | — |
| <i>Pinus banksiana</i> | 0.27 | 0.71 | 1.76 | 3.95 | 5.93 | — |
| <i>Picea glauca</i> , sp. | 0.21 | 0.72 | 1.69 | 3.96 | 6.00 | — |
| <i>Picea mariana</i> | 0.22 | 0.70 | 1.77 | 4.01 | 5.85 | — |
| <i>Populus balsamifera</i> | 0.32 | 0.71 | 1.78 | 3.80 | 5.99 | — |
| <i>Populus tremuloides</i> , sp. | 0.32 | 0.73 | 1.76 | 3.93 | 5.87 | — |
| All others | 0.25 | 0.71 | 1.73 | 3.92 | 5.94 | — |
| Specific gravity | | | | | | |
| <i>Abies balsamea</i> | 0.43 | 0.37 | 0.41 | 0.40 | 0.42 | 0.40 ^b |
| <i>Larix laricina</i> | 0.50 | 0.52 | 0.52 | 0.50 | 0.54 | 0.54 |
| <i>Pinus banksiana</i> | 0.47 | 0.52 | 0.51 | 0.46 | 0.44 | 0.42 |
| <i>Picea glauca</i> , sp. | 0.45 | 0.56 | 0.55 | 0.48 | 0.44 | 0.40 |
| <i>Picea mariana</i> | 0.46 | 0.58 | 0.56 | 0.50 | 0.47 | 0.44 |
| <i>Populus balsamifera</i> | 0.46 | 0.42 | 0.42 | 0.39 | 0.36 | 0.34 |
| <i>Populus tremuloides</i> , sp. | 0.53 | 0.46 | 0.44 | 0.42 | 0.42 | 0.42 |
| All others | 0.48 | 0.52 | 0.50 | 0.46 | 0.45 | 0.44 |

^a For pieces ≥ 7 cm, the actual diameter was measured in the field.

^b In the ≥ 7 cm diameter class, the listed specific gravity was used for items indicated as "sound". For items with conditions "sloughing", "punky", and "rotten", specific gravity was reduced in equal steps, with "rotten" items 0.10 less than the listed value.

In the field, debris items were assigned to diameter classes using a "go-no-go" gauge. This is a small card, prepared from sheet metal or plastic, with notches of 0.5, 1, 3, and 5 cm. One side of the card measures 7 cm. Each debris item can be rapidly assigned to the appropriate diameter class by comparison with the known dimensions on the card. Items larger than 7 cm were measured for diameter using either a diameter caliper or a standard diameter tape. In addition, items >7 cm were identified by species, if possible, and assessed for the amount of decomposition. The details of these measurements are discussed below.

To calculate volume in diameter classes <7 cm using equation 1, a mean diameter must be assigned to the class. The diameters used in this report are given in Table 2, and are based on values for similar sites along the BFTCS area (Ian Nalder, Dept. of Renewable Resources, University of Alberta, pers. comm.). Considerable discussion is found in the literature regarding

selection of appropriate mean diameters. Some of the concerns are discussed in Van Wagner (1982) and McRae *et al* (1979). Equation 1 actually sums area rather than diameter, so use is often made of the quadratic mean diameter instead of the arithmetic means. The values in Table 2 are quadratic means, and are used directly to determine mean area for each diameter class, for use in equation 1.

Species of the woody debris was recorded only for items ≥ 7 cm (see below). For items < 7 cm, the overstory data (provided in the second report in this series: *Biometry and Auxiliary Sites: Overstory and Understory Data*) from each plot at a site as used to determine the dominant species present. (Percentage of total basal area was used to assess dominance, although little difference would occur if biomass were used.) The diameters for that species (Table 2) were then applied to all detritus counts for calculation of volumes. Most sites are dominated by one of *Pinus banksiana*, *Picea mariana*, or *Populus tremuloides*, which together comprise 92% of all trees recorded in the overstory data. On a plot basis, 63% of the overstory plots have a dominant species that comprises more than 90% of the basal area in the sample, and 96% of the plots have a dominant species that comprises more than 50% of the sample.

Volumes for each diameter class were converted to detrital mass using the specific gravities listed in Table 2. The values for items < 7 cm are based on data from Ian Nalder (pres. comm.), and the values for items ≥ 7 cm are extrapolated from the smaller diameter classes. For debris items ≥ 7 cm, the specific gravity accounts for decomposition state, using the condition code recorded for each item (see below). It was assumed that "rotten" items had a specific gravity 0.10 less than "sound" items, as listed in Table 2. "Sloughing" and "punky" items were assigned specific gravities interpolated at equal intervals (0.033) between the "sound" and "rotten" values.

Halliwell *et al* (1995) reported results from the same data set used here, but used the midpoint of each diameter class for the mean diameters, and used specific gravities that did not vary by species. The difference in mean diameter can have a strong relative effect on the volumes calculated for the smallest diameter class (< 0.5 cm): a reduction of 46% if the *Abies balsamea* values are used, or an increase of 62% if the *Populus balsamifera* values are used. When the total volume for all diameter classes at each plot is considered, however, the differences are very slight: on average, the volumes calculated in this report are 0.5% less than those calculated using the diameters assumed in Halliwell *et al* (1995), with an r^2 of 0.9996 between the two sets of values (on a plot basis). Most of the volume is in the larger classes, where mean diameters are closer to the midpoint of the diameter class. The greatest volumes are in the ≥ 7 cm diameter class, where diameters were measured and need not be assumed, which helps explain the small effect on plot totals.

The differences in detrital mass between this report and Halliwell *et al* are somewhat greater, though. The values of specific gravity assumed in Halliwell *et al* (1995) are at the low end of those given in Table 2. Once again, the largest relative differences occur for the smallest diameter classes, but little variation is seen for plot totals. On average, the values reported here are 5.8% greater than those in Halliwell *et al* (1995), with an r^2 value of 0.9978 between the two sets.

Several factors not accounted for in these calculations may affect volume and detrital mass estimates. Correction factors can be applied to account for non-horizontal orientation of debris items, and for ground slope. No measurements were made of item orientation. The data set from Nalder (pers. comm.) included item orientation, but correction factors are very small: up to 4% for the smallest diameter class (< 0.5 cm), and generally less than 1% for the largest diameter class (5.0- < 7.0 cm). Slope measurements were made at each site/plot, for each side of the line-intersect triangle, but correction factors are less than 1% and were not included. In view of the minor nature of these corrections, one can conclude that the values reported here are at most only slightly underestimated.

Additional questions can be raised regarding specific gravity values. For some sites, percentage species composition was estimated on each side of the triangle for two diameter ranges - debris < 1 cm, and debris from 1-7 cm - but these data are not reported here. This could have a

slight effect on calculated detrital mass values. A more important question is the variation in specific gravity on a site-to-site basis. The data from Ian Nalder (pers. comm.) used to generate the values in Table 2 show considerable site-to-site variation in both quadratic mean diameter and specific gravity. Much of the variation in specific gravity is likely due to varying amounts of decomposition. Nalder (pers. comm.) also provided data showing that specific gravity depends on site origin (natural versus harvested), for similar measurements in the boreal forest of northern Alberta and the Northwest Territories. In this report, decomposition is included in the most important diameter class (≥ 7 cm). Any attempt at a site to modify assumed specific gravities for smaller classes would depend on the ability to relate observed variation (e.g., the Nalder data set) with measured stand characteristics. Such analysis is beyond the scope of this report.

The field tallies and calculated volume, detrital mass, and detrital carbon are tabulated in the first two tables for each site, as follows.

Woody debris

Listings are provided for each plot. Within each plot, a value is given for each of the six diameter classes, plus a total for the plot. The date on which measurements were taken is listed following the plot number. The values presented in the table are:

Intersections

The total number of items tallied within the diameter class, on all three sides of the triangle. (A total for all diameter classes is not given, since the value would be meaningless.)

Volume

The detrital volume, in $\text{m}^3 \text{ha}^{-1}$, calculated for each diameter class according to equation 1.

Detrital mass

The total detrital mass, in t ha^{-1} . This value is calculated from the detrital volume, using the densities given in Table 2.

Detrital carbon

This value is the detrital mass expressed in t C ha^{-1} , and is calculated from the total detrital mass using a conversion factor of 0.5.

The "Woody debris" table provides sufficient information to reproduce site and plot calculations for all diameter classes except " ≥ 7 cm". The additional information required for this diameter class is listed in the second table, described below.

Data on individual items 7 cm or larger

This table supplements the first table. For each item at each plot, the following are provided:

Species

The species name is indicated by a four-letter code comprised of the first two letters of the genus and species names. Full species names are provided in a footnote following each table. The following species may be found in the database:

| | |
|------|----------------------------|
| Abba | <i>Abies balsamea</i> |
| Alcr | <i>Alnus crispa</i> |
| Bepa | <i>Betula papyrifera</i> |
| Lala | <i>Larix laricina</i> |
| Piba | <i>Pinus banksiana</i> |
| Pigl | <i>Picea glauca</i> |
| Pima | <i>Picea mariana</i> |
| Pisp | <i>Picea</i> sp. |
| Poba | <i>Populus balsamifera</i> |
| Posp | <i>Populus</i> sp. |
| Potr | <i>Populus tremuloides</i> |
| Unid | unidentified |

Diameter

The diameter, in cm, of the item at the point of intersection, measured using either callipers or a diameter tape.

Condition

A qualitative estimate of the state of decomposition of each item. In the field, a code was assigned according to the following system:

| | |
|-----|------------------------------------|
| I | Sound; foliage and or bark intact |
| II | Bark sloughing; branches intact |
| III | Punky; not incorporated into soil |
| IV | Rotten; not incorporated into soil |

Within the tabulated data, the condition is indicated by a single word—sound, sloughing, punky, or rotten.

Duff depth measurements

Measurements of the depth (in cm) of the litter and humus layers were made at 5m intervals along each of the three sides of the triangle (at 5, 10, 15, 20, and 25 m), providing a total of 15 measurements per plot. In sites with moss covers, no attempt was made to distinguish live moss from dead. Strictly speaking, live moss should not be included in duff, but the distinction is not important for determination of total ecosystem carbon. This point is discussed below, where carbon estimates are described. The following values are summarized in the table.

Location

Lists the plot number.

Date

The date on which the measurements were taken.

Sample size (n)

The number of duff depths recorded at the plot. Usually this should be 15. On occasion, measurements were not taken on all three sides of the debris triangle, and n is less than 15. If no duff was present at a point, it was recorded as zero and included in the total. Thus, "missing data" is not equivalent to "no duff".

The value of n is followed by a number, in brackets, indicating how many of the sample depths were limited by the presence of water or frozen soil. In probing or digging for duff depth, some field crews stopped when the water table was reached (and indicated this on the tally sheets). This is a common procedure when sampling duff for the purposes of establishing fuel loading for fire danger, since organic material below water level is unlikely to provide a fuel source. For the purposes of carbon estimation, this represents an error. Likewise, probing that is stopped by frozen soil also causes an underestimation of duff carbon. For plots where the bracketed value is non-zero, the reader must recognize that the mean duff depth listed in the table is less than the true value, by an unknown quantity.

Mean

The mean of all duff depths recorded at the plot. This includes depths that were limited by frozen soil or water.

Standard deviation (SD)

The standard deviation of all duff depths, calculated using n-weighting.

% mineral exposure

The mean percentage of the three lines (sides of the debris triangle) that show exposed mineral soil. This value is an indicator of duff conditions at the plot, independent of the duff depths: since the duff depths include zero values where no duff is found, % mineral exposure should not be used to adjust mean duff depths.

Duff carbon estimates

In 1994, the duff measurements were supplemented by the collection of duff samples at the midpoint of each side of the debris triangle. The sample was collected adjacent to the 15 m point, 1 m to the outside of the triangle. If this point was blocked (e.g., by a tree or shrub), then the sample was collected 1 m to the inside of the triangle. These samples were taken by inserting a tin can (approximately 14 cm diameter) into the duff, and cutting out a sample as deep as possible. Usually, this sample comprised the entire duff layer, but on occasions the sample only included the uppermost layers. Duff depth at each sampling point was also recorded. These samples were then analyzed in the laboratory to determine bulk density and loss on ignition (LOI).

Once the duff sample collection was initiated, part way through the summer of 1994, the samples were collected at the same time as the other woody debris and duff measurements. Since measurements were lacking for sites visited in 1993 and early 1994, these sites were revisited in July and August of 1994. Field crews returned to plots established previously, set up a new debris triangle (the original ones were not permanently marked), and collected samples. For these revisited sites, the exact location will not match earlier measurements, so duff depths vary. (In some cases, the same plot was not visited.)

For sites with moss or lichen covers, the sample includes living moss or lichen at the surface. Strictly speaking, living moss or lichen represents biomass, not duff. To determine the magnitude and importance of this, samples were divided into living and dead portions and weighed in the laboratory. The amount of living material included as duff is small: usually it is only a few percent of the sample. Although the living fraction can be greater for thin duff layers, the amounts are still small in absolute terms. As a result, all organic material was categorized as duff for carbon storage purposes. The deviation represents an error in apportioning carbon to living or dead pools, but will not affect total ecosystem carbon storage summations.

The following values are recorded in the table:

Location

The plot number and line number (side of debris triangle) where the sample was taken.

Duff depth

Total duff depth (cm) at the location, from the top of the organic cover to the contact with mineral soil.

Sample depth

The depth (cm) to which the sample extends. Whenever possible, this is the entire duff depth.

Sample density

Bulk density of the sample (g cm^{-3}), determined from the oven-dry weight at 105°C and the sample volume (calculated from the sample depth and the known area of the sampling tin).

Sample loss on ignition (LOI)

The percentage weight loss on ignition at 375°C , as previously discussed for the soil samples.

Duff carbon

Estimated total carbon in the duff layer (t C ha^{-1}). Carbon in the sample is calculated from the total weight of the sample and the LOI. LOI was converted to organic carbon using the Van Bemmelen factor of 1.724, as discussed previously for soil carbon. Sample carbon is then converted to a value in t C ha^{-1} using the sample density and the measured duff depth. When the sample does not extend the entire duff depth, this is equivalent to assuming that density and LOI of the sample apply to the entire duff layer. The duff carbon estimate covers a layer equivalent to the carbon value for organic horizons listed in the soils section. For a comparison of the two estimates, see the "Discussion" section of this report.

Discussion

This section of the report has four purposes: to discuss means by which soil horizon bulk density, organic content, or thickness were estimated when missing (required for calculation of soil carbon values), to compare carbon estimates for the organic surface tier based on soil pit data and duff layer measurements, to compare field and laboratory measurements of soil pH, and to present detrital, duff, and soil carbon summaries. The section closes with a brief concluding statement.

Bulk density, organic content, and horizon thickness estimates

The soils database contains information on 408 horizons at 92 sites. In order to calculate a total soil carbon value for a site, all horizons require a value for the density, organic content (either organic carbon or LOI), and thickness. Not all horizons were sampled for both density and chemical analysis, and for a few soil pits the bottommost horizon thickness was not recorded. In total, 152 horizons were missing density measurements, 58 horizons were missing organic content measurements (52 of which were also missing density), and 16 were missing thickness measurements. Five of the horizons in question were R (rock) horizons, and were assigned an organic content of zero, an arbitrary density of 2.65 g cm^{-3} , and were assumed to extend to a depth of at least 1 m. The remaining horizons were dealt with in the following manner:

When a mineral horizon was missing bulk density information, the first step was to examine the values for overlying and underlying horizons. A qualitative judgement was made regarding the uniformity of the soil density in the profile, and if deemed reasonable a density was interpolated for the horizon in question. This was done for a total of 34 horizons. Organic horizons tend to show a much greater variation in density with depth, so this procedure was not followed

for them. Instead, a relationship between density and von Post scale of decomposition was established, using data from organic horizons with complete data. This relationship (figure 2) was then used for 35 horizons where a von Post scale measurement was available.

The second approach for bulk density estimation was to use the organic carbon or loss on ignition (LOI). Numerous authors have examined density versus organic content relationships for mineral and organic soils. For this analysis, the method selected was the relationship from Grigal *et al* (1989) applicable to both organic and mineral horizons, as reported by Siltanen *et al* (1997):

$$Density = 0.075 + 1.301e^{-0.060LOI} \quad (2)$$

For horizons with organic carbon measurements, rather than LOI, the organic carbon was converted to LOI by multiplying by 1.724 (Van Bemmelen factor), as discussed earlier.

Figure 3 illustrates the extent to which the Grigal *et al* curve fits the observed data from this study. There is a tendency for some systematic error at low organic contents, where the Grigal *et al* equation is limited to a maximum density of 1.376. It was decided to use the Grigal *et al* equation to maintain consistency with the database developed by Siltanen *et al*. In total, 50 horizons use a density estimate based on organic content.

The procedure used to estimate density for the remaining 28 horizons was based on the horizon designation. This was primarily required for organic horizons without von Post scale measurements. The densities used are given in Table 3, and are based on an examination of the database, and consideration of the description of the von Post scale and its link to organic horizon designations (discussed earlier).

Table 3. Values used as estimates for bulk density and organic content based on horizon designations.

| Horizon designation | Density (g cm ⁻³) | Organic content (% weight) |
|---------------------|-------------------------------|----------------------------|
| L,F,H | 0.13 | 30.0 |
| O | 0.03 | 40.0 |
| Of | 0.08 | 40.0 |
| Om | 0.19 | 35.0 |
| Oh | 0.43 | 30.0 |
| Ah | (none) | 2.4 |
| Ae | (none) | 1.3 |
| Bm | (none) | 0.9 |
| Ck | (none) | 0.8 |
| Mineral | 1.5 | 1.0 |

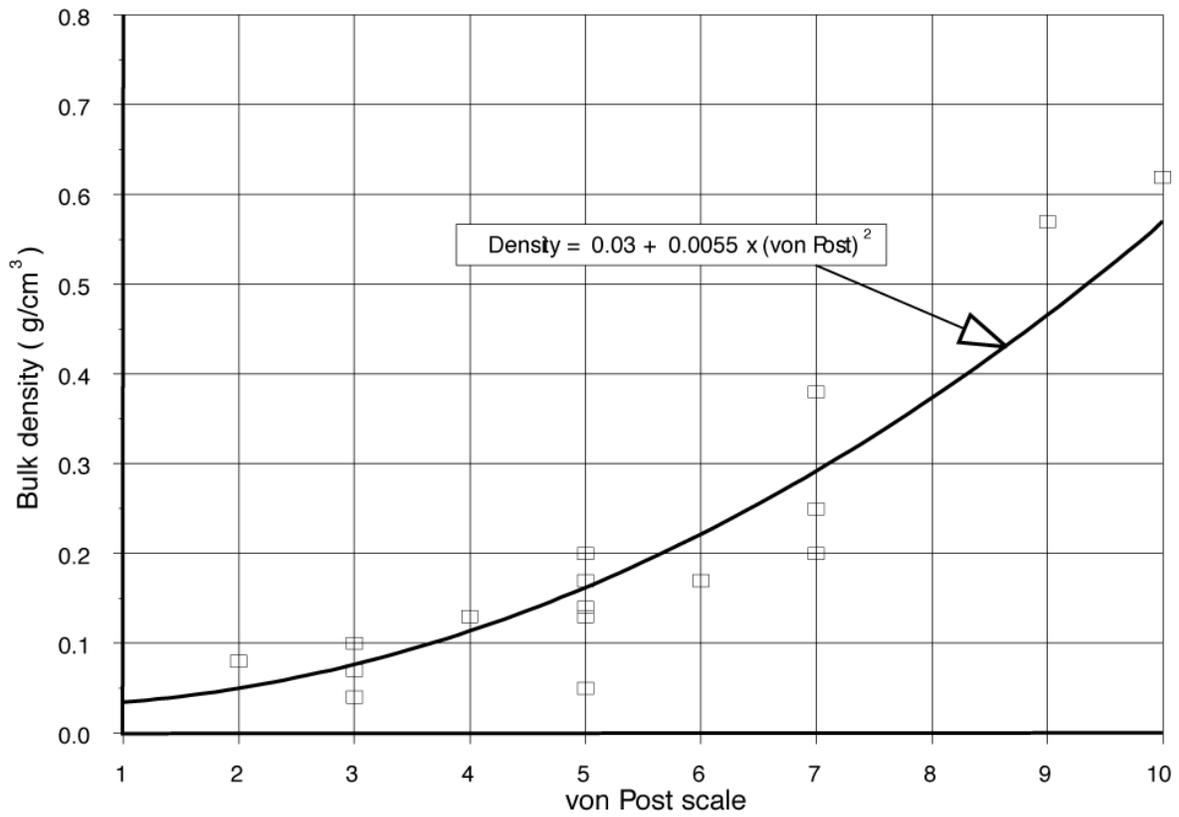


Figure 2. Bulk density of organic horizons as a function of decomposition (measured on the von Post scale).

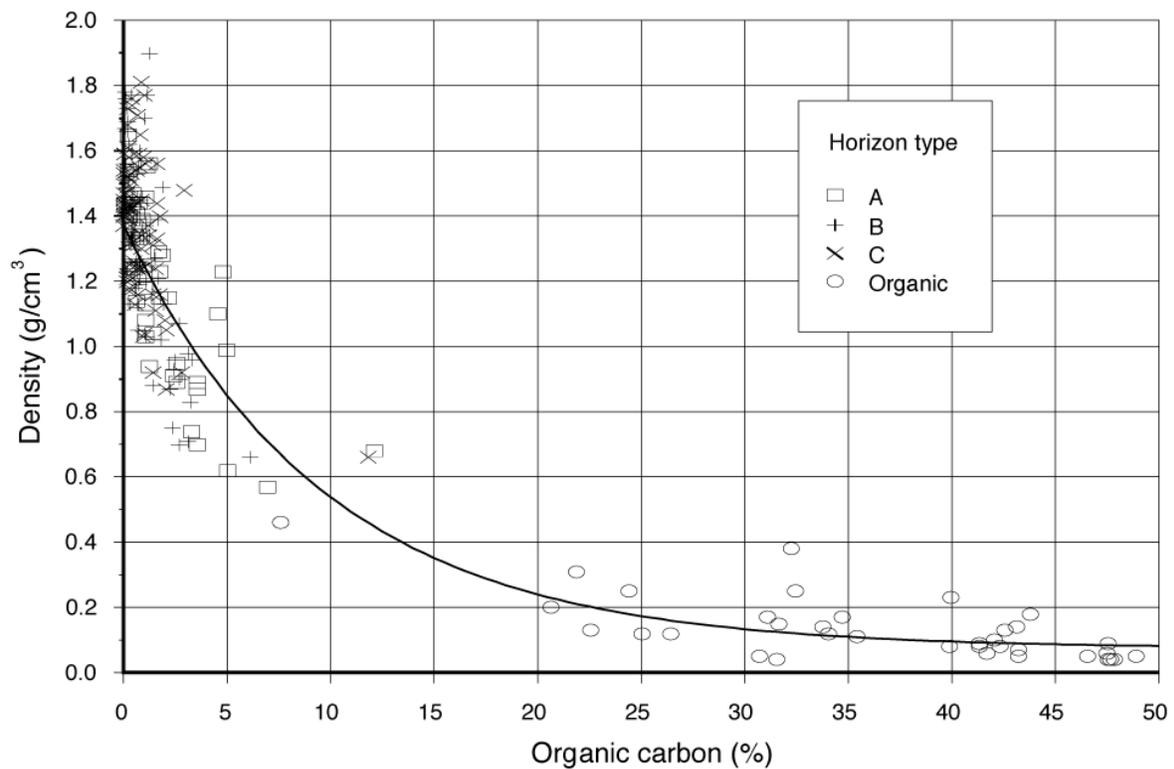


Figure 3. Horizon bulk density as a function of organic content (expressed as loss on ignition).

Of the 53 horizons (excluding rock) for which organic content measurements were missing, 39 were organic and the remainder were mineral. The estimates for these horizons were based on the horizon designation. For organic horizons with measured organic content, the values in the database show a wide range with little regularity, and cannot be used as indicators. Instead, fixed values were selected for each horizon type, as listed in Table 3. For mineral horizons, estimates were based the mean value for similar horizons in the database. These values are also listed in Table 3. This procedure is broadly similar to the one used in Siltanen *et al* (1996). In the tabulated data in this report, these estimated organic contents have been converted to LOI values where needed for consistency with other horizons at a site. This procedure for estimating organic content is likely subject to large relative errors, but these values are typically missing for thin horizons where samples were not taken. As a result, the absolute error in total soil carbon for the site is smaller (unless most or all horizons at a site lack measured data).

Horizon thickness data is missing for 16 horizons (excluding rock). All of these cases are the lowermost horizon, where neither a horizon thickness nor a total pit depth were recorded. The assumed thickness follows the procedure used by Siltanen *et al* (1996): the horizon has either a thickness of 25 cm, or sufficient thickness to reach a depth of 100 cm (e.g., 12 cm for a horizon beginning at 88 cm), whichever is smallest. In the database, 12 horizons have assumed thicknesses of 25 cm, two of less than 25 cm, and two of zero (since the 100 cm depth had already been surpassed). This assumed thickness is only required for horizon soil carbon calculations, and is not listed in the field observations table. It is given as a footnote to the soil carbon value, in the laboratory measurements table.

Although the number of horizons without density or organic content measurements seems high, the effects on total carbon estimates are not as serious as one might expect. Most of the missing horizons are thin organic horizons, and do not represent a large percentage of the total carbon. For mineral horizons, 54 of 87 sites are missing no data, and averaged across all sites less than 10% of the total carbon is based on calculations that use estimates of density or organic content. Generally, the mineral soil values can be considered reliable (although six sites occur where all horizons required estimates of either density or organic content). For organic horizons, the situation is different: only 22 of 92 sites have no missing density or organic content data, and 61 sites are missing this data for all organic horizons. (Note that this typically means that data is missing for the only organic horizon in the profile.) As a result, the soil carbon data for organic horizons is less reliable than for mineral horizons. The impact for any individual site can be determined by examining the soil carbon values for individual horizons in the profile, to see how much of the total is dependent on estimates rather than measured densities or organic contents. As an alternative to the carbon estimates for organic horizons, one can examine the carbon estimates for the duff layer, in the detritus section of the report. This layer is equivalent to the surface organic tier in the soil pit, and the sampling methodology used for the duff values gives better spatial representation and more complete coverage than the single soil pit value. The two sets of value are compared in the following section.

Carbon estimates for the organic surface tier

The surface organic layers are included in measurements of soil carbon in both the soil pit and the duff depth measurements. The two methodologies are slightly different, and a comparison of the results illustrates the complexity and accuracy of the derived carbon values.

The first difference is in methodology used for sample collection. For the duff measurements, samples consisted of a 14 cm diameter core extend from the surface downward, usually for the full depth of the duff layer. Total carbon can be estimated directly from the total weight and loss on ignition. When the entire duff layer is sampled, depth and density are not needed, and there is no concern about sample distortion. Accuracy is less subject to error from multiple sources. For the soil pits, some surface layers in 1994 were sampled the same way, but

typically the sample was derived from a small bulk density sampler inserted sideways into the pit side. Sample volume is usually much smaller. The sample is used to estimate density and loss on ignition (1994 samples) or organic content (1993 samples), and then the sample values are applied to the measured horizon thickness. Errors in density, arising from distortion (e.g., compression) during sampling, could plausibly be larger than with the duff sampling method.

The second difference in methodology concerns the location and number of samples. For duff sampling, three samples are collected at each plot from random locations. Although the three sample locations are fixed at the midpoints of the sides of the triangle, location of the triangle is established without consideration to where these points will fall. Since there is no connection between triangle position and terrain features, the duff samples become random with respect to terrain or observer bias. The only exception to this is the decision to switch to a position inside the triangle, instead of outside, when the original point is blocked by vegetation. This is in contrast to the location of the soil pit, which by necessity will be located in a fairly open spot, due to the area required to excavate a pit to 1 m depth. The soil pit also consists of only one sample location. Thus, the measurement from the soil pit is more likely subject to bias due to terrain or observer selection.

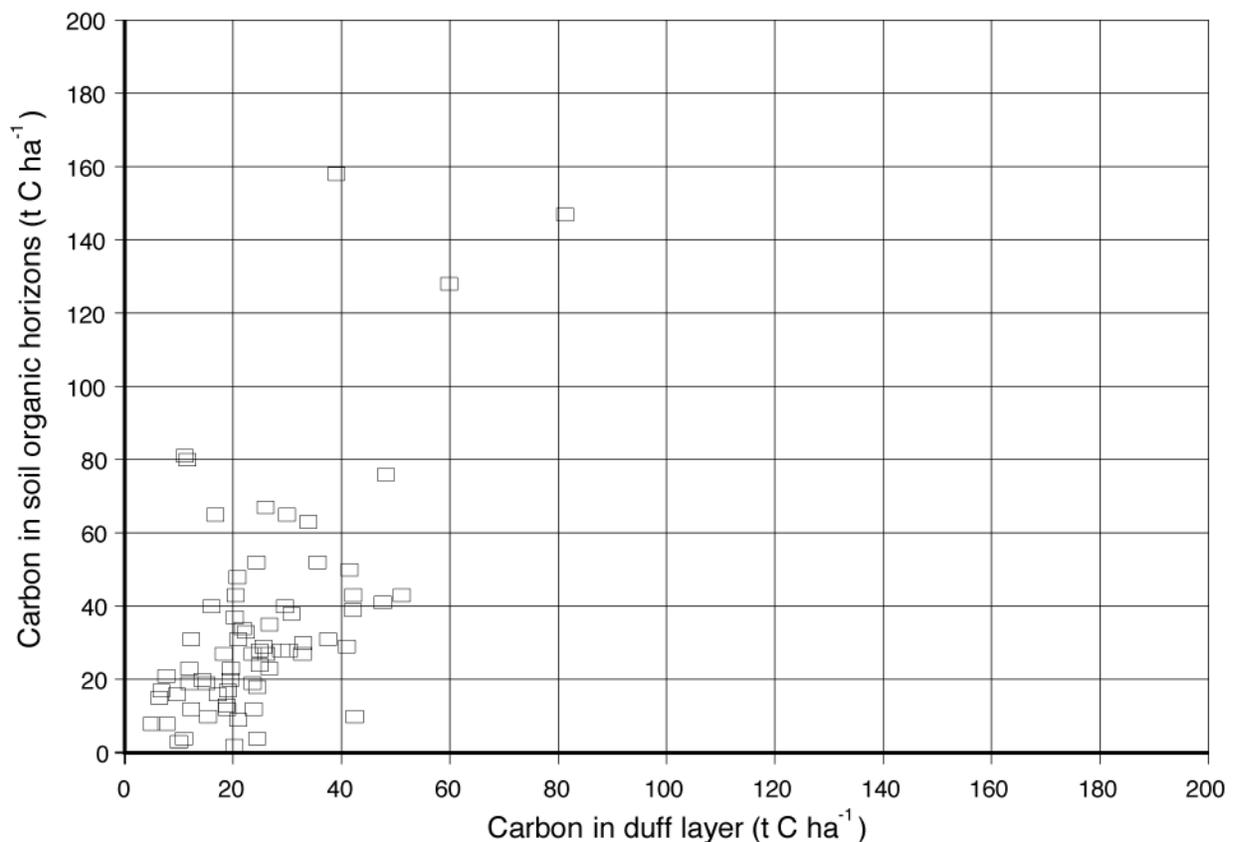


Figure 4. A comparison of carbon in the organic surface tier, as measured in soil pits and in the duff sampling. Axes have been truncated at 200 t C ha⁻¹, which estimates a few high carbon sites from the graph.

Soil pits were excavated at only one of the three plots at each site, and duff samples were usually only collected at two of the three plots, so not all sites have both measurements at the same plot. As a result, a comparison of organic soil and duff carbon estimates can only be carried out at 75 sites. Figure 4 shows the comparison for sites where the soil pit is located at a plot that also has duff layer samples. The two sets of values only have an r^2 value of 46%, and it is clear that there are a few sites with rather divergent estimates. Closer examination of the data shows that sites with large relative differences fall into two classes. In the first, totalling 13 sites, the soil pit value is

much larger than the duff value, and all except one are black spruce sites. (The 13th is a mixedwood site.) Three sites show duff values being much larger than soil pit values, and all of these are jack pine sites. In the case of the black spruce sites, duff depths are highly variable, and the differences in duff depths between the soil pit and the duff sampling points likely explain most of the discrepancies. It appears that the bias associated with soil pit placement is towards locations with deep moss accumulations. For the three jack pine sites with duff estimates much larger than soil pit estimates, the situation is one of large relative errors, but small absolute carbon values: soil pits are all less than 10 t C ha^{-1} , and the duff carbon values are from $20\text{-}43 \text{ t C ha}^{-1}$. Two of the sites show marked differences in duff depth between the soil pit and duff sample locations, whereas the third has a very low organic content (2.3%) for the LFH horizon in the soil pit. Another source of error is the rather large number of soil horizons for which either density or organic content were estimated rather than measured, as discussed earlier.

Figure 5 provides a summary of carbon estimates in the surface organic tier, using both the soil pit data and the duff data. The graph provides site means and ranges for duff sampling (which is usually available from at least two of the plots), along with the soil pit estimate. Sites are grouped according to the nominal species dominance and age/maturity class, as indicated by the CFS site identifier. Within each age class, the sites are sorted by increasing basal area. Given all the caveats discussed above, the agreement is generally good. The black spruce sites are a notable exception, but these are also sites where the range of values for duff samples at different plots is also larger. Clearly, spatial sampling is a greater concern at these sites. Figure 5 provides a slightly different view from figure 4, since figure 5 is on a site basis rather than a plot basis. This facilitates a comparison between duff and soil pit values at sites where the measurements were taken at different plots. The results suggest that the soil pit values are not unreasonable, despite the concerns about lack of replication and the use of estimation methods where samples are missing.

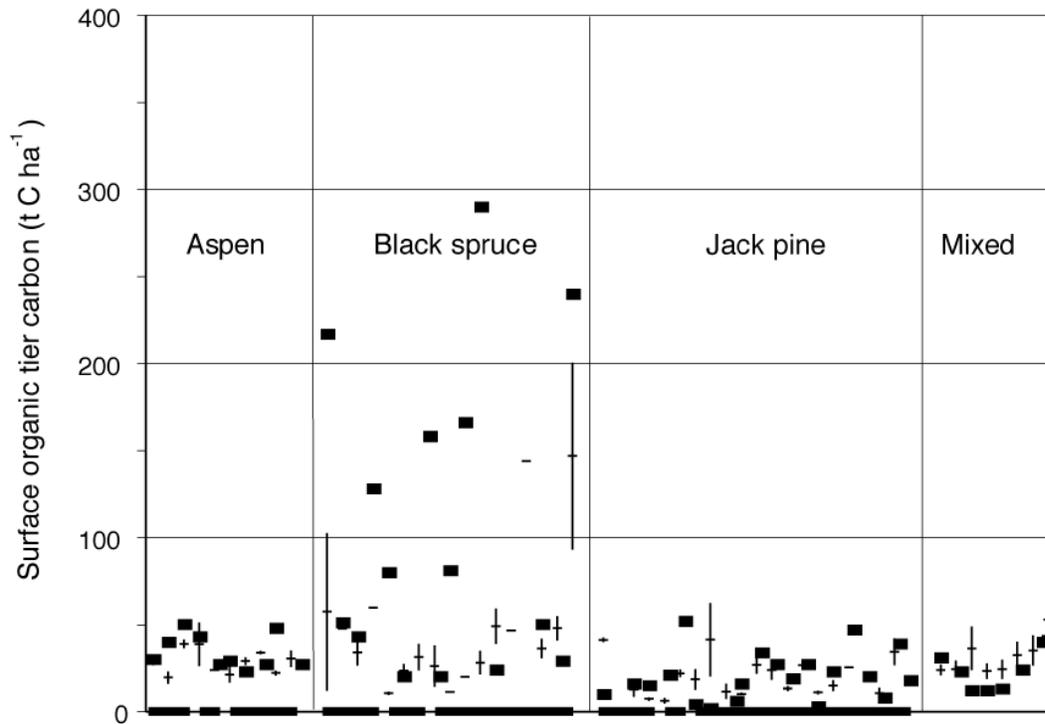
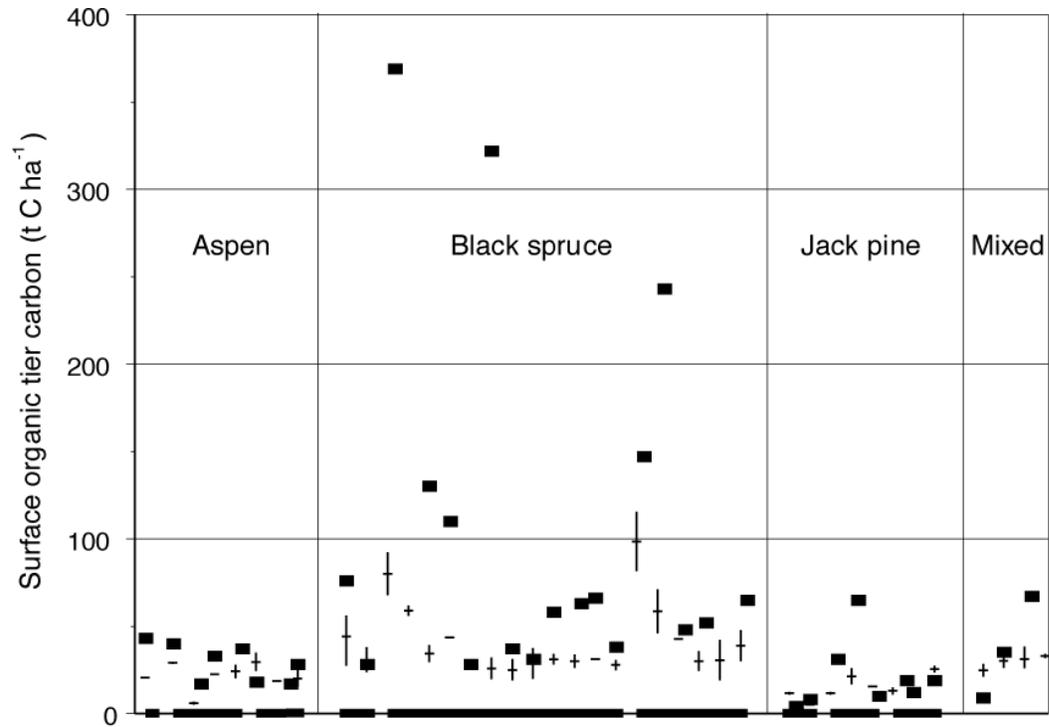


Figure 5. Carbon in the organic surface tier, for Manitoba (top) and Saskatchewan (bottom) sites. Symbols mark the soil pit values; lines mark the range and mean of the plot duff samples. The horizontal bars represent the different maturity classes, and sites within a maturity class are sorted by basal area.

Soil pH comparison

Soil pH was measured in the field for most mineral horizons. The soil horizon samples collected in 1993 were also subjected to laboratory pH measurements. For soil classification purposes, the laboratory measurement of pH should be used. As a result, the 1994 soil pits are problematic, since only field pH is available.

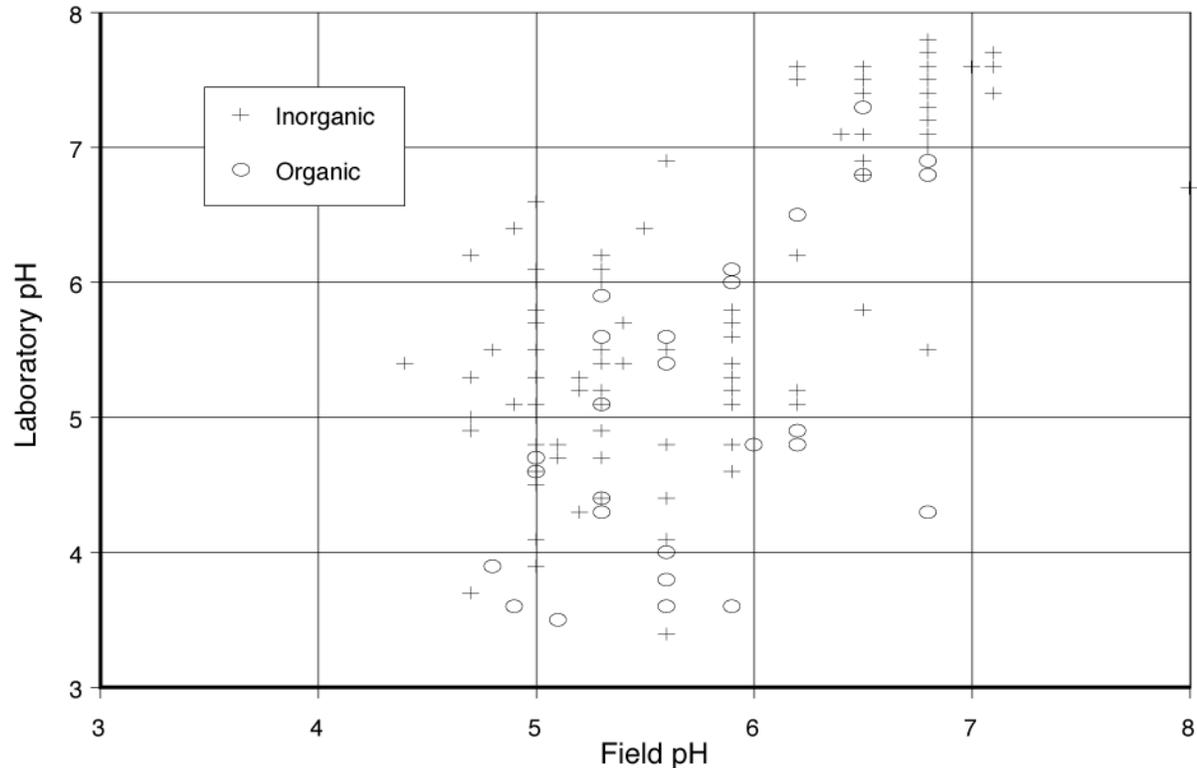


Figure 6. A comparison of laboratory and field measurements of horizon pH. Data are grouped into organic and inorganic horizons based on laboratory procedure used for pH measurement.

Figure 6 compares the laboratory and field Ph values for the 1993 soil samples, categorized by organics and inorganics. The graph shows a fair amount of scatter, with an r^2 value of 0.46. A regression yields a slope of 1.11, an intercept of -0.66, and a standard error of the Y estimate of 0.89. Field measurements use the soil in its existing moisture state, occasionally supplemented by additional water if necessary. Laboratory measurements are in CaCl_2 , at either 1:2 (inorganic) or 1:10 ratio (organic). Several factors affect the field and laboratory comparison. First, measurements in CaCl_2 are typically lower than in water: Kalra (1995) reports values typically about 0.5 units lower for a suite of test soils, with differences of up to 1.6 units. This is consistent with the regression intercept of -0.65, indicating generally lower laboratory values. Secondly, the ratio of soil to water affects the measured pH. Kalra (1995) reports higher measured pH in drier soil, and lower pH in wetter soil (compared to a standard 1:1 ratio). These patterns explain at least some of the scatter in figure 6. When field pH is higher, the use of CaCl_2 in the laboratory and the dryness of in situ soils are possible explanations. Extremely wet conditions in the field can explain some lower field pH values. Most of the soils in question have a low exchangeable acidity (typically less than 10 meq/100 g) and would likely be quite sensitive to moisture changes. Some of the scatter in figure 6 is also undoubtedly due to the crude nature of the field measurement, which at best has a precision of a few tenths of a unit. If use of the field pH is necessary for soil classification, it should be realized that laboratory pH is likely lower for dry or moist soils, but laboratory pH may be higher than field pH if the soil is wet.

Mineral soil carbon and detrital carbon

Figure 5 provided a summary of surface organic tier carbon, with sites grouped by species dominance and age/maturity class. Figures 7 and 8 provide similar graphs for soil mineral horizons (to 20 cm) and detritus (woody debris). The mineral soil values show a fair amount of scatter, although within each age class there is a tendency for soil carbon to increase with increased basal area. It is likely that at least some of the scatter can be attributed to spatial sampling concerns. The Manitoba sites appear to have somewhat higher values than the Saskatchewan sites, especially in the aspen and jack pine sites. This is not unexpected: the Manitoba sites are in a cooler region, and decomposition would be slower. Compared to figure 5, it is clear that the relative importance of organic versus mineral horizons depends on the site: black spruce stands have heavy organic covers, whereas aspen and jack pine stands are more often dominated by carbon in the mineral horizons. This generalization is a weak one, however, and further examination of the data with regard to carbon pools will be worthwhile.

Figure 8 shows the detrital carbon values. The Saskatchewan sites show higher values than Manitoba sites; likely due to their greater overall productivity. Some sites show a wide range across plots. The extent to which this is a sampling problem, or whether it represents true variability within a site, is unknown. Generally, the amount of carbon in woody debris is less than in the soil (either organic or mineral horizons), although exceptions occur.

Conclusions

Overall, the data presented in this report represents a useful survey of conditions in a transect across the boreal forest. Although a good deal of the data must be regarded as preliminary in nature, the coverage of a large number of sites and the combination with the data recorded on overstory and understory vegetation (the second report in this series) provides a useful perspective on an important forest ecosystem. Additional detail would be beneficial in all areas covered by this report, but the variety of data collected at a series of well-documented sites provides a strong initial stepping stone for future work.

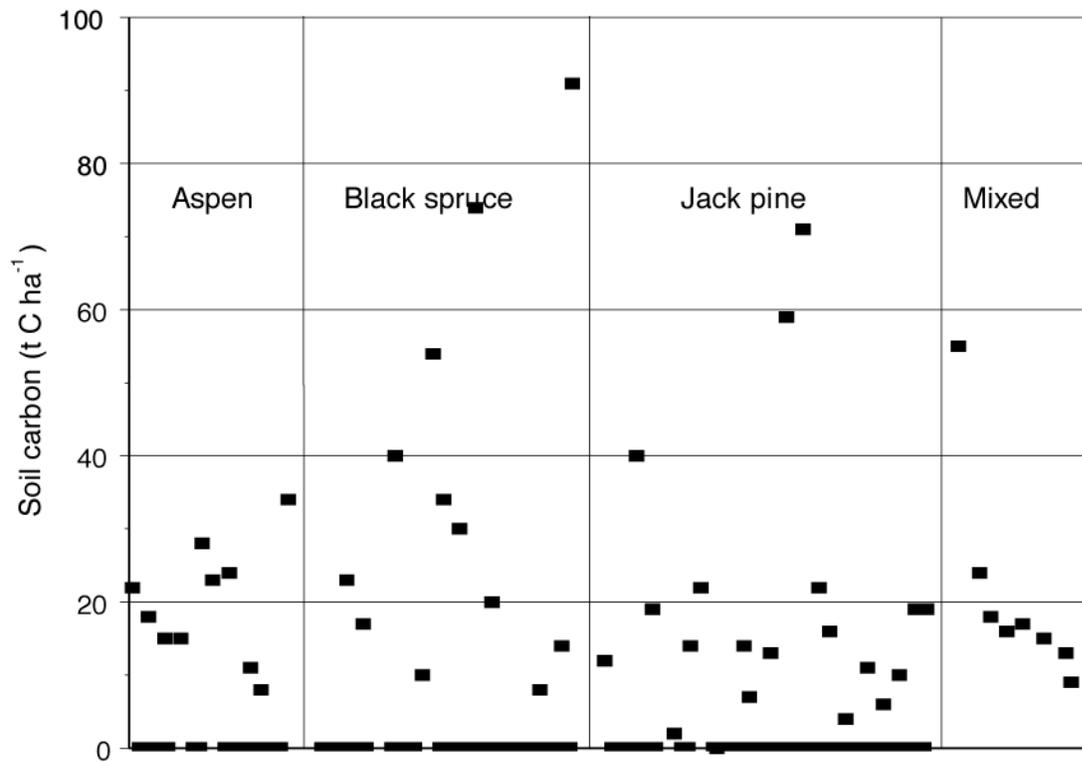
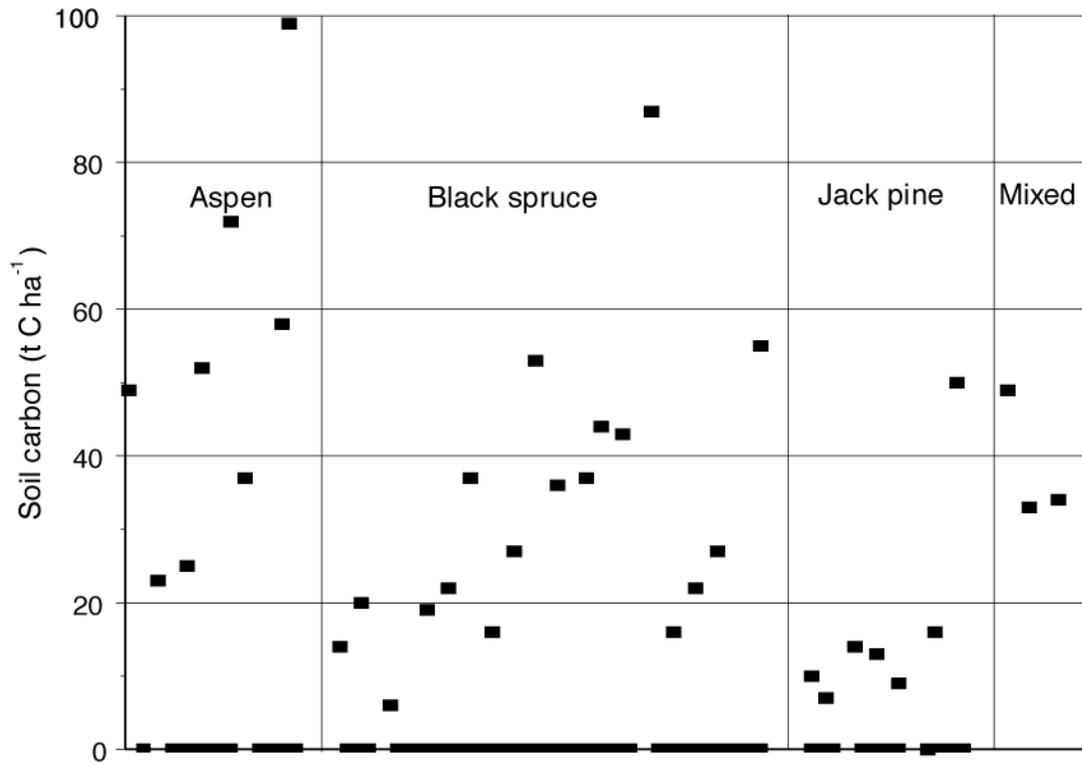


Figure 7. Soil carbon values in the mineral horizons (to 20 cm), for Manitoba (top) and Saskatchewan (bottom) sites. The horizontal bars represent the different maturity classes, and sites within a maturity class are sorted by basal area.

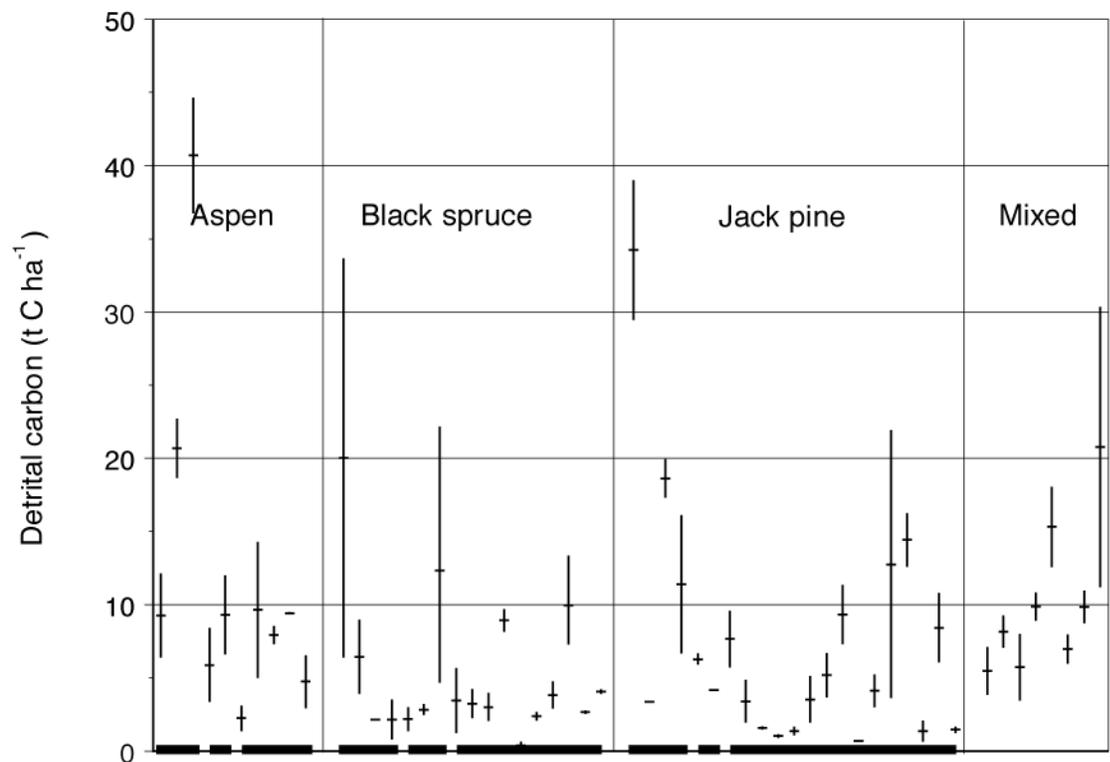
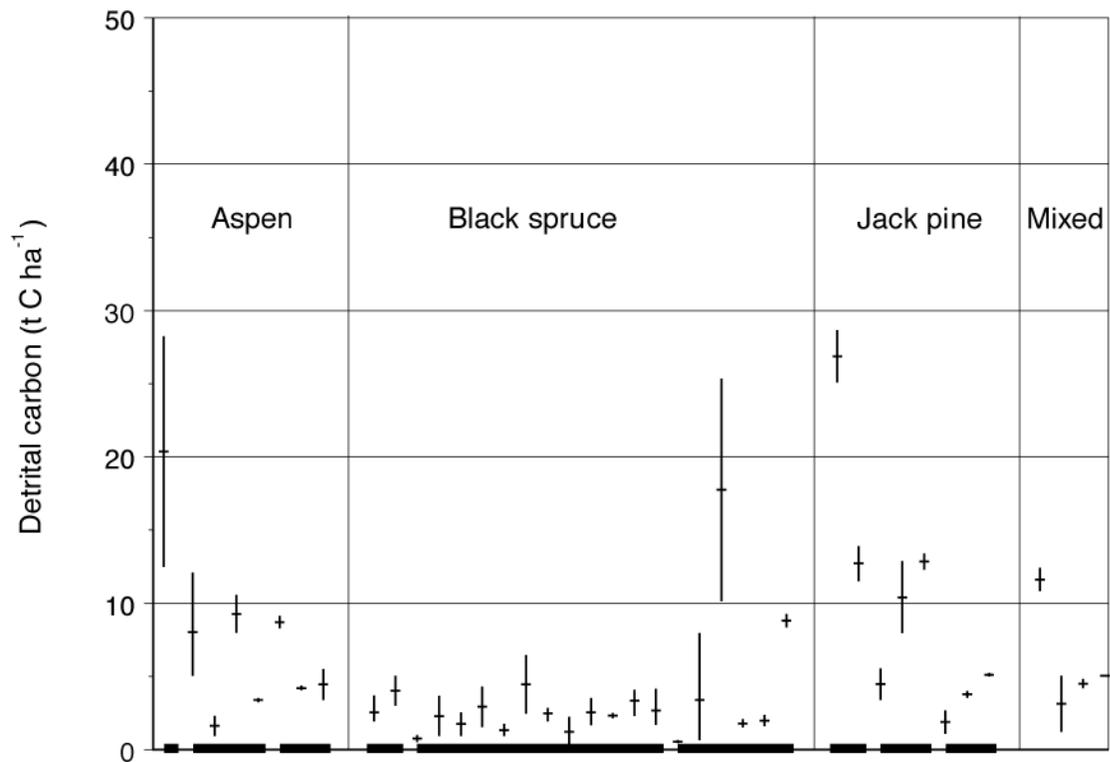


Figure 8. Detrital (woody debris) for Manitoba (top) and Saskatchewan (bottom) sites. The horizontal bars represent the different maturity classes, and sites within a maturity class are sorted by basal area.

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¹ Details regarding the research studies being carried out at these sites can be found in Pomeroy *et al* (1994).

SOIL DATA

SITE CODE:**MAN TE-OA (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1994/07/08 |
| Soil type | Orthic Melanic Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 53 |
| Root-restricting layer | not present |
| Carbonates | 33 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 298 |
| Organic horizons | 28 |
| Mineral horizons, to 93 cm | 270 |
| to 20 cm | 99 |
| to 100 cm | 285 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LF | -7/3 | — ^b | — | — | — | — | None. |
| H | -4/4 | 2.5Y2.5/1(m) | 4.7 | none | — | — | Plentiful medium-to-coarse horizontal roots. |
| Ah | 0/33 | 10YR4/2(m) | 5.0 | none | heavy clay | — | Moderate-to-strong, coarse subangular blocky structure. Plentiful coarse oblique roots. |
| Bmk | 33/35 | 10YR5/3(m) | 6.8 | strong | heavy clay | — | Moderate-to-strong, medium-to-coarse subangular blocky structure. Few medium-to-coarse oblique-to-horizontal roots. Few coarse distinct mottles. |
| Ck | 68/25 | 10YR5/3(m) | 6.8 | strong | heavy clay | — | Moderate-to-strong, medium subangular blocky structure. Few medium vertical roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Located on a small ridge. Distinct horizon separation between H and Ah.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LF | (51.7) | — ^a | — | — | — | (0.13) | 11.7 |
| H | 49.2 | 1.25 | — | — | — | (0.14) | 16.4 |
| Ah | 8.6 | 0.13 | 8 | 16 | 76 | 0.99 | 163.0 |
| Bmk | 1.9 | 0.03 | 0 | 28 | 72 | 1.38 | 53.2 |
| Ck | 2.8 | 0.03 | 0 | 32 | 68 | 1.33 | 54.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN TE-OBS (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|----------------------------------|
| Date | 1994/07/10 |
| Soil type | (Probable) Humic Organic Cryosol |
| Drainage class | very poor |
| Moisture conditions during visit | wet |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 35 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 26 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-------------------|-------------|
| All horizons | 640 |
| Organic horizons | 640 |
| Mineral horizons, | not present |
| to 20 cm | not present |
| to 100 cm | not present |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|------------------------------------|
| O | 0/20 | — ^b | — | — | — | — | None. |
| Oh | 20/25 | N2.5/(m) | 5.3 | none | 7 | — | Plentiful medium horizontal roots. |
| Ohz | 45/— | — | — | none | — | — | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No bulk density samples taken, due to presence of water.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| O | (69.0) | — ^a | — | — | — | (0.04) | 32.0 |
| Oh | 69.9 | 1.25 | — | — | — | (0.30) | 303.6 |
| Ohz | (69.9) | — | — | — | — | (0.30) | 304.1 ^b |

^a Dashes indicate no measurement taken.

^b No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN TE-OJP (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1994/07/09 |
| Soil type | Orthic Dystric Brunisol |
| Drainage class | rapid |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 22 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 58 |
| Organic horizons | 12 |
| Mineral horizons, to 97 cm | 46 |
| to 20 cm | 16 |
| to 100 cm | 47 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -3/3 | — ^b | — | — | — | — | Few very fine horizontal roots. |
| Ah | 0/6 | 10YR4/2(m) | 4.7 | none | sand | — | Weak, medium granular structure. Plentiful medium horizontal roots. |
| Bm | 6/20 | 2.5Y5/6(m) | 4.1 | none | sand | — | Weak, fine granular structure. Few fine oblique roots. |
| C | 26/71 | 5Y6/4(m) | 4.7 | none | sand | — | Weak, fine granular structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Gravel (1-5 cm diameter) found throughout Bm horizon.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 11.7 |
| Ah | 0.9 | 0.03 | 87 | 8 | 5 | 1.24 | 3.9 |
| Bm | 1.1 | 0.01 | 89 | 6 | 5 | 1.39 | 17.7 |
| C | 0.4 | 0.00 | 91 | 5 | 4 | 1.49 | 24.6 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK POM-MW (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/10/16 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | moderately well |
| Moisture conditions during visit | dry |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 7 |
| Root-restricting layer | 7 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 37 |
| Organic horizons | 12 |
| Mineral horizons, to 45 cm | 26 |
| to 20 cm | 16 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -3/3 | — ^b | — | — | — | — | Plentiful coarse horizontal roots. |
| Ah | 0/2 | — | — | none | — | — | Few medium oblique roots. |
| Btgj | 2/7 | 10YR6/2(d) | 5.3 | none | sandy loam | — | Weak-to-moderate, medium angular blocky structure. Few fine oblique roots. Few medium faint mottles. |
| Cgj | 9/18 | 10YR6/4(d) | 5.0 | none | sandy loam | — | Weak, very fine granular structure. Few fine vertical roots. Few medium faint mottles. |
| C | 27/18 | 10YR7/3(d) | 5.3 | none | sand ^c | — | Weak, very fine granular structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Large stones, and cobbles found throughout the profile.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 11.7 |
| Ah | (4.1) | — | — | — | — | (1.25) | 6.0 |
| Btgj | 0.9 | 0.03 | 54 | 36 | 10 | 1.35 | 4.9 |
| Cgj | 0.6 | 0.02 | 66 | 26 | 8 | 1.42 | 8.9 |
| C | 0.4 | 0.01 | — | — | — | (1.42) | 5.9 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK POM-OBS (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1994/10/15 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | -9 |
| Root-restricting layer | not present |
| Carbonates | 29 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 448 |
| Organic horizons | 240 |
| Mineral horizons, to 62 cm | 208 |
| to 20 cm | 91 |
| to 100 cm | 245 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -44/6 | — ^b | — | — | — | — | None. |
| Of | -38/23 | — | 6.2 | none | — | — | Plentiful coarse vertical-to-oblique roots. |
| Om | -15/15 | — | 6.2 | none | — | — | Few fine oblique roots. |
| C1 | 0/11 | 7.5YR4/1(d) | 5.9 | none | sand | — | Weak, fine granular structure. |
| C2 | 11/20 | 10YR2/1(d) | 5.9 | none | silty loam | — | Moderate-to-strong, coarse angular blocky structure. |
| Ckgj | 31/31 | 10YR5/4(d) | 6.2 | strong | loam | — | Strong, coarse subangular blocky structure. Few coarse faint mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 23.4 |
| Of | 82.0 | 1.25 | — | — | — | 0.09 | 98.5 |
| Om | 75.5 | 1.41 | — | — | — | 0.18 | 118.2 |
| C1 | 2.5 | 0.07 | 88 | 7 | 5 | 1.31 | 20.9 |
| C2 | 20.4 | 0.70 | 28 | 60 | 12 | 0.66 | 156.2 |
| Ckgj | 1.1 | 0.02 | 46 | 32 | 22 | 1.54 | 30.5 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK POM-OJP (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/10/14 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 14 |
| Root-restricting layer | 48 |
| Carbonates | 48 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 142 |
| Organic horizons | 18 |
| Mineral horizons, to 98 cm | 124 |
| to 20 cm | 19 |
| to 100 cm | 127 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LF | -4/2 | — ^b | — | — | — | — | None. |
| H | -2/2 | — | — | none | — | — | Few fine horizontal roots. |
| Aej | 0/14 | 10YR6/3(d) | 5.3 | none | sandy loam | — | Weak-to-moderate, coarse subangular blocky structure. Plentiful coarse oblique roots. |
| Bt | 14/24 | 10YR6/4(d) | 5.3 | none | loam | — | Weak-to-moderate, medium subangular blocky structure. Few fine oblique-to-vertical roots. |
| C | 38/10 | 10YR6/5(d) | 5.3 | none | sandy loam | — | Weak-to-moderate, coarse granular structure. Few fine vertical roots. |
| Cgj | 48/50 | 10YR6/3(d) | 6.5 | strong | sandy loam | — | Weak-to-moderate, coarse granular structure. Common medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Mottles in Cgj horizon are ray-shaped (flat, 5-10 cm long).

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LF | (51.7) | — ^a | — | — | — | (0.13) | 7.8 |
| H | 27.1 | 0.44 | — | — | — | (0.33) | 10.5 |
| Aej | 1.1 | 0.03 | 60 | 30 | 10 | 1.14 | 10.2 |
| Bt | 1.9 | 0.02 | 42 | 34 | 24 | 1.37 | 36.2 |
| C | 1.5 | 0.02 | 54 | 30 | 16 | 1.24 | 10.8 |
| Cgj | 1.4 | 0.02 | 66 | 22 | 12 | 1.65 | 67.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK TE-MW (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|------------------------|
| Date | 1994/06/22 |
| Soil type | Orthic Eutric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 10 |
| Root-restricting layer | 30 |
| Carbonates | 40 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 104 |
| Organic horizons | 12 |
| Mineral horizons, to 98 cm | 92 |
| to 20 cm | 18 |
| to 100 cm | 94 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -3/3 | — ^b | — | — | — | — | Few very fine oblique roots. |
| Ah | 0/5 | — | — | none | — | — | Weak-to-moderate, very fine-to-fine subangular blocky structure. Plentiful coarse horizontal roots. |
| Bm1 | 5/5 | 5YR4/3(m) | 5.0 | none | sandy loam | — | Moderate, very fine-to-fine angular blocky structure. Plentiful coarse horizontal roots. |
| Bm2 | 10/20 | 5YR4/2(m) | 5.9 | none | sandy loam | — | Weak-to-moderate, very fine-to-fine angular blocky structure. Few medium oblique roots. |
| Bmgj | 30/10 | 7.5YR4/3(m) | 5.9 | none | sandy loam | — | Moderate, medium subangular blocky structure. Few medium faint mottles. |
| Cgj | 40/58 | 5YR4/2(m) | 5.6 | weak | sandy loam | — | Moderate-to-strong, medium subangular blocky structure. Few medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Some large stones present in Cgj horizon.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 11.7 |
| Ah | (4.1) | — | — | — | — | (1.10) | 13.2 |
| Bm1 | 0.6 | 0.02 | 64 | 26 | 10 | 1.13 | 2.0 |
| Bm2 | 0.4 | 0.01 | 64 | 24 | 12 | 1.24 | 5.8 |
| Bmgj | 0.7 | 0.01 | 60 | 28 | 12 | 1.36 | 5.5 |
| Cgj | 1.5 | 0.02 | 58 | 22 | 20 | 1.30 | 65.6 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK TE-OA (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1994/06/08 |
| Soil type | Gleyed Melanic Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | 79 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 106 |
| Organic horizons | 23 |
| Mineral horizons, to 89 cm | 82 |
| to 20 cm | 24 |
| to 100 cm | 95 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -8/8 | — ^b | — | — | 5 | — | None. |
| Ah1 | 0/4 | 10YR4/4(m) | 5.9 | none | loam | — | Weak, fine granular structure. Plentiful coarse oblique roots. Few fine faint mottles. |
| Ah2 | 4/12 | 7.5YR4/3(m) | 6.2 | none | loam | — | Weak, fine-to-medium subangular blocky structure. Plentiful medium oblique roots. Few fine faint mottles. |
| Bmgj1 | 16/16 | 10YR5/4(m) | 5.9 | none | sandy loam | — | Weak, fine subangular blocky structure. Few medium oblique roots. Few medium distinct mottles. |
| Bmgj2 | 32/47 | 10YR5/4(m) | 5.9 | none | sandy loam | — | Weak, fine-to-medium granular structure. Plentiful coarse oblique roots. Common medium distinct mottles. |
| Ckgj | 79/10 | 10YR4/4(m) | 6.5 | strong | sandy clay loam | — | Weak, medium subangular blocky structure. Few coarse oblique roots. Common medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 38.9 | — ^a | — | — | — | 0.13 | 23.5 |
| Ah1 | 1.9 | 0.06 | 48 | 38 | 14 | 1.13 | 5.0 |
| Ah2 | 1.8 | 0.04 | 44 | 38 | 18 | 1.18 | 14.8 |
| Bmgj1 | 1.4 | 0.03 | 56 | 40 | 4 | 1.45 | 18.8 |
| Bmgj2 | 0.8 | 0.01 | 68 | 26 | 6 | 1.46 | 31.8 |
| Ckgj | 1.2 | 0.02 | 52 | 22 | 26 | 1.71 | 11.9 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK TE-OBS (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|----------------|
| Date | 1994/06/27 |
| Soil type | Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 20 |
| Root-restricting layer | 26 |
| Carbonates | 0 |
| Water table | 48 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 49 |
| Organic horizons | 24 |
| Mineral horizons, to 28 cm | 25 |
| to 20 cm | 20 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|----------------|--|---------------------------|---|
| Om | -7/7 | 5YR2.5/1(m) | 5.0 | — ^b | — | — | Weak-to-moderate, very fine-to-fine subangular blocky structure. Abundant fine horizontal roots. |
| Ah | 0/7 | 5YR3/1(m) | 6.8 | weak | sandy loam | — | Weak-to-moderate, fine subangular blocky structure. Plentiful fine horizontal roots. |
| Ck | 7/11 | 7.5YR4/2(m) | 6.8 | strong | sandy loam | — | Weak-to-moderate, fine-to-medium subangular blocky structure. Few medium horizontal roots. Common medium faint mottles. |
| Ckgj | 18/10 | 7.5YR4/3(m) | 5.9 | weak | sandy clay ^c | — | Weak-to-moderate, fine-to-medium subangular blocky structure. Many medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| Om | 13.1 | 0.29 | — ^a | — | — | 0.46 | 24.5 |
| Ah | 2.2 | 0.06 | 70 | 20 | 10 | 1.56 | 13.9 |
| Ck | 0.5 | 0.01 | 58 | 30 | 12 | 1.48 | 4.7 |
| Ckgj | 0.7 | — | — | — | — | (1.48) | 6.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK TE-OJP (1) Plot 3****Tower Site****General information**

| | |
|----------------------------------|------------------------|
| Date | 1994/07/08 |
| Soil type | Orthic Eutric Brunisol |
| Drainage class | moderately well |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 31 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 45 |
| Organic horizons | 6 |
| Mineral horizons, to 108 cm | 39 |
| to 20 cm | 14 |
| to 100 cm | 37 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -4/4 | — ^b | — | — | 5 | — | None. |
| Ah | 0/8 | 10YR4/3(m) | 5.9 | none | sand | — | Single grained structure. Abundant medium horizontal roots. Few fine faint mottles. |
| Bm | 8/35 | 10YR5/7(m) | 5.9 | none | sand | — | Single grained structure. Plentiful medium oblique roots. Few medium distinct mottles. |
| C | 43/65 | 10YR4/6(m) | 6.2 | none | sand | — | Single grained structure. Few fine oblique roots. Common coarse distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Very sandy, well-drained soil. No rocks.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 53.0 | — ^a | — | — | — | 0.05 | 6.2 |
| Ah | 1.9 | 0.03 | 91 | 4 | 4 | 1.03 | 9.1 |
| Bm | 0.5 | 0.01 | 93 | 3 | 4 | 1.32 | 13.4 |
| C | 0.3 | 0.00 | 94 | 3 | 3 | 1.47 | 16.6 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK TF-YA (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|----------------------------------|
| Date | 1994/07/11 |
| Soil type | Gleyed Eluviated Eutric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 35 |
| Root-restricting layer | 78 |
| Carbonates | 78 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 180 |
| Organic horizons | 30 |
| Mineral horizons, to 89 cm | 150 |
| to 20 cm | 22 |
| to 100 cm | 167 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -6/6 | — ^b | — | — | 5 | — | Plentiful medium horizontal roots. |
| Aegj | 0/15 | — | 6.2 | none | silty loam | — | Weak-to-moderate, very fine-to-fine subangular blocky structure. Plentiful medium horizontal roots. Few fine faint mottles. |
| Bfgj | 15/22 | — | 6.5 | none | sandy clay loam | — | Moderate, fine subangular blocky structure. Few fine oblique roots. Many coarse prominent mottles. |
| Cgj | 37/41 | — | 7.1 | none | sandy loam | — | Moderate-to-strong, medium subangular blocky structure. Few fine oblique roots. Common medium faint mottles. |
| Ckgj | 78/11 | — | 7.7 | strong | clay loam | — | Moderate, fine-to-medium subangular blocky structure. Common medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No observations of soil color were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.17) | 30.2 |
| Aegj | 0.9 | 0.03 | 34 | 58 | 8 | 1.46 | 11.4 |
| Bfgj | 2.0 | 0.03 | 52 | 16 | 32 | 1.77 | 45.2 |
| Cgj | 1.8 | 0.02 | 56 | 24 | 20 | 1.77 | 75.8 |
| Ckgj | 1.5 | 0.03 | 44 | 26 | 30 | 1.81 | 17.3 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK TF-YJP (1) Plot 1****Tower Site****General information**

| | |
|----------------------------------|------------------------|
| Date | 1994/07/09 |
| Soil type | Orthic Eutric Brunisol |
| Drainage class | moderately well |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 49 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 79 |
| Organic horizons | 15 |
| Mineral horizons, to 119 cm | 64 |
| to 20 cm | 19 |
| to 100 cm | 57 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -3/3 | — ^b | — | — | 5 | — | None. |
| Ahgj | 0/6 | 10YR4/2(m) | 5.9 | none | loamy sand | — | Single grained structure. Plentiful medium horizontal roots. Few fine distinct mottles. |
| Bmgj | 6/13 | 10YR5/5(m) | 5.9 | none | sand | — | Single grained structure. Plentiful medium horizontal roots. Common medium faint mottles. |
| Cgj1 | 19/30 | 10YR5/7(m) | 5.6 | none | sand | — | Single grained structure. Few fine oblique roots. Common fine distinct mottles. |
| Cgj2 | 49/70 | 10YR5/4(m) | 5.6 | none | loamy sand | — | Single grained structure. Few fine oblique roots. Common medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.17) | 15.1 |
| Ahgj | 2.2 | 0.04 | 86 | 8 | 6 | 0.94 | 7.2 |
| Bmgj | 1.2 | 0.01 | 90 | 5 | 5 | 1.23 | 11.1 |
| Cgj1 | 0.7 | 0.01 | 90 | 4 | 6 | 1.53 | 18.6 |
| Cgj2 | 0.4 | 0.00 | 85 | 11 | 4 | 1.68 | 27.3 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN AIH-14 (1) Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------------|
| Date | 1993/08/16 |
| Soil type | Eluviated Eutric Brunisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 19 |
| Root-restricting layer | not present |
| Carbonates | 56 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 147 |
| Organic horizons | 37 |
| Mineral horizons, to 81 cm | 110 |
| to 20 cm | 72 |
| to 100 cm | 117 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|--------------------------------|----------------|-----|---------------|----------------------------------|---------------------|--|
| LFH | -10/10 | — ^b | 5.6 | — | — | 0 | Plentiful very fine-to-medium random roots. |
| Ae | 0/11 | 2.5Y4/2(m) | 5.9 | none | clay | 0 | Moderate-to-strong, fine-to-medium granular structure. Plentiful very fine-to-coarse horizontal roots. |
| Bm | 11/45 | 10YR3/4(m) | 6.2 | none | clay | 0 | Strong, medium granular structure. Few very fine-to-fine horizontal roots. |
| Ck | 56/— | 2.5Y6/2(m) | 6.5 | strong | clay | 0 | Weak-to-moderate, fine granular structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Ck horizon varved with thin Ck and Bmk horizons.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------------|--------------------------|----------------------------------|-----|-----|-----|-----------------|----------------------------------|-------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 41.5 | 69.9 | 51.5 | 8.3 | 0.1 | 2.3 | 5.6 | — ^b | 26.19 | 1.09 | — | — | — | (0.14) | 36.7 |
| Ae | 17.6 | 38.6 | 24.7 | 4.8 | 0.1 | 0.7 | 5.3 | — | 4.81 | 0.24 | 40 | 2 | 58 | 1.23 | 65.0 |
| Bm | 8.3 | 37.7 | 24.9 | 7.1 | 0.2 | 0.8 | 6.2 | — | 0.63 | 0.08 | 38 | 2 | 60 | 1.26 | 35.9 |
| Ck | 0.0 | 22.2 | 20.1 | 4.4 | 0.2 | 0.5 | 7.6 | 23.21 | 0.31 | 0.04 | 38 | 6 | 56 | 1.18 | 9.2 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN AIH-30 (1) Plot 1

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/08/20 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | moderately well |
| Moisture conditions during visit | dry |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 41 |
| Root-restricting layer | 10 |
| Carbonates | 55 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 139 |
| Organic horizons | 33 |
| Mineral horizons, to 80 cm | 105 |
| to 20 cm | 52 |
| to 100 cm | 117 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -8/8 | — ^b | 5.6 | — | — | 0 | Plentiful very fine-to-fine random roots. |
| Ae | 0/10 | 10YR4/2(m) | 5.9 | none | clay | 0 | Moderate, fine-to-medium granular structure. Plentiful very fine-to-coarse horizontal roots. |
| Bt | 10/45 | 7.5YR4/2(m) | 5.9 | none | clay | 0 | Strong, coarse subangular blocky structure. Few fine-to-medium horizontal roots. |
| Ck | 55/25 | 10YR3/3(m) | 6.8 | weak | clay | 0 | Weak-to-moderate, fine-to-medium subangular blocky structure. Few very fine-to-fine oblique roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No bulk density taken as sampler was not available. Slope 1% at 40 degrees. Soil too dry for pH tests.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 52.0 | 86.4 | 60.8 | 9.0 | 0.1 | 2.8 | 5.4 | — ^b | 29.79 | 1.50 | — | — | — | (0.14) | 33.4 |
| Ae | 20.2 | 36.1 | 17.0 | 4.1 | 0.1 | 0.7 | 4.8 | — | 4.60 | 0.25 | 44 | 8 | 48 | (0.89) | 40.9 |
| Bt | 11.9 | 39.0 | 20.4 | 6.2 | 0.2 | 0.7 | 5.2 | — | 0.88 | 0.08 | 40 | 4 | 56 | (1.26) | 49.9 |
| Ck | 2.3 | 29.5 | 24.3 | 5.6 | 0.2 | 0.5 | 7.5 | 10.75 | 0.44 | 0.06 | 42 | 2 | 56 | (1.32) | 14.5 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN AIM-1 (1) Plot 1

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------------|
| Date | 1993/08/18 |
| Soil type | Peaty Orthic Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 33 |
| Root-restricting layer | 46 |
| Carbonates | 15 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 98 |
| Organic horizons | 40 |
| Mineral horizons, to 88 cm | 59 |
| to 20 cm | 23 |
| to 100 cm | 64 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| O | -20/8 | — ^b | — | — | 1 | 0 | Few medium horizontal roots. |
| Of | -12/8 | — | 5.0 | none | 2 | 0 | Plentiful fine-to-coarse random roots. |
| Om | -4/4 | — | 5.3 | none | 5 | 0 | Plentiful fine-to-coarse random roots. |
| Ae | 0/15 | 10YR5/3(m) | 6.8 | none | clay loam | 0 | Moderate, fine-to-medium subangular blocky structure. Few fine random roots. |
| Btk | 15/31 | 10YR5/3(m) | 6.2 | strong | clay | 0 | Moderate, fine subangular blocky structure. Few fine random roots. |
| Ck | 46/42 | 10YR4/2(m) | 6.2 | strong | clay | 0 | Weak-to-moderate, fine-to-medium subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Varves occur between 12-27cm. Slope 0%.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|------|-----|-----|------------------------------------|-----------------|----------------|------|-----------------------|-------------------|------|--------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | Inorganic (%CaCO ₃) | | Organic (%) | Sand | | Silt | Clay | | | |
| O | 65.9 | 111.9 | 41.5 | 12.5 | 0.2 | 5.4 | 4.7 | — ^b | 39.06 | 0.84 | — | — | — | (0.04) | 11.1 | |
| Of | 67.5 | 117.0 | 60.7 | 9.8 | 0.2 | 2.8 | 4.6 | — | 40.38 | 1.08 | — | — | — | (0.05) | 16.8 | |
| Om | 35.9 | 75.5 | 62.7 | 7.0 | 0.1 | 0.9 | 5.9 | — | 17.55 | 1.06 | — | — | — | (0.17) | 11.8 | |
| Ae | 3.9 | 20.5 | 15.6 | 3.6 | 0.1 | 0.3 | 7.1 | — | 1.01 | 0.07 | 40 | 30 | 30 | 1.34 | 20.3 | |
| Btk | 0.2 | 17.0 | 16.1 | 4.6 | 0.1 | 0.5 | 7.6 | 15.92 | 0.38 | 0.05 | 36 | 14 | 50 | 1.51 | 17.9 | |
| Ck | 0.1 | 25.3 | 22.6 | 5.9 | 0.1 | 0.7 | 7.6 | 10.92 | 0.37 | 0.05 | 36 | 4 | 60 | 1.31 | 20.3 | |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN AIM-20 (1) Plot unknown****Northern Aux. Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1993/08/21 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | dry |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 65 |
| Root-restricting layer | 70 |
| Carbonates | 70 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 98 |
| Organic horizons | 17 |
| Mineral horizons, to 75 cm | 81 |
| to 20 cm | 25 |
| to 100 cm | 108 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|--|
| LFH | -4/4 | — ^b | — | — | — | — | None. |
| Ae | 0/7 | — | — | none | silty clay ^c | — | Moderate-to-strong, medium-to-coarse subangular blocky structure. Plentiful medium horizontal roots. |
| Bt | 7/25 | 2.5Y4/3(m) | — | none | clay | — | Strong, very coarse subangular blocky structure. Few medium horizontal roots. |
| C | 32/38 | 2.5Y4/4(m) | — | none | clay | — | Moderate, fine-to-medium subangular blocky structure. Few fine random roots. |
| Ck | 70/5 | 2.5Y6/4(d) | — | strong | silt ^c | — | Massive structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Soil too dry for pH tests. Slope 0%.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|------|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 36.7 | 81.1 | 71.8 | 10.9 | 0.1 | 2.1 | 5.8 | 1.33 | 29.67 | 1.20 | — ^b | — | — | (0.14) | 16.6 |
| Ae | 11.8 | 27.1 | 15.5 | 4.5 | 0.1 | 0.7 | 5.9 | — | 2.42 | 0.15 | — | — | — | (1.09) | 18.5 |
| Bt | 1.1 | 26.2 | 23.7 | 5.5 | 0.2 | 0.5 | 7.6 | 14.83 | 0.37 | 0.05 | 38 | 4 | 58 | (1.33) | 12.2 |
| C | 13.1 | 39.2 | 21.9 | 7.2 | 0.2 | 0.7 | 5.4 | — | 0.95 | 0.08 | 42 | 4 | 54 | (1.25) | 45.4 |
| Ck | — | — | — | — | — | — | — | — | (0.80) | — | — | — | — | (1.35) | 5.4 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN BDH-3a (1) Plot 1****Northern Aux. Site****General information**

| | |
|----------------------------------|--------------------|
| Date | 1993/08/13 |
| Soil type | Peaty Rego Gleysol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|--------------|
| Limit of effective rooting | not recorded |
| Root-restricting layer | not recorded |
| Carbonates | not present |
| Water table | 21 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 89 |
| Organic horizons | 76 |
| Mineral horizons, to 14 cm | 14 |
| to 20 cm | 14 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| Of | -17/10 | — ^b | — | none | 4 | 0 | Plentiful very fine-to-medium horizontal roots. |
| Om | -7/5 | — | 6.8 | none | 5 | 0 | Plentiful very fine-to-medium horizontal roots. |
| Oh | -2/2 | — | 6.8 | none | 8 | 0 | Few-to-plentiful very fine-to-medium horizontal roots. |
| Cg | 0/14 | — | 6.8 | none | clay | 0 | Few-to-plentiful very fine-to-fine random roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No observations recorded for color, structure, or mottling.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|------|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 17.5 | 112.5 | 126.9 | 20.2 | 0.3 | 1.4 | 7.3 | — ^b | 34.21 | 1.00 | — | — | — | (0.12) | 40.4 |
| Om | 22.2 | 116.2 | 143.3 | 17.8 | 0.3 | 0.7 | 6.9 | — | 28.48 | 1.28 | — | — | — | (0.17) | 23.9 |
| Oh | 19.9 | 96.2 | 101.5 | 14.5 | 0.2 | 0.6 | 6.8 | — | 14.88 | 0.84 | — | — | — | (0.38) | 11.4 |
| Cg | 3.5 | 32.8 | 28.2 | 6.5 | 0.4 | 0.8 | 7.4 | 7.33 | 0.77 | 0.08 | 38 | 6 | 56 | (1.28) | 13.7 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN BDH-3b (2) Plot 3****Northern Aux. Site****General information**

| | |
|----------------------------------|----------------|
| Date | 1993/08/13 |
| Soil type | Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 0 |
| Root-restricting layer | 31 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 110 |
| Organic horizons | 28 |
| Mineral horizons, to 81 cm | 81 |
| to 20 cm | 20 |
| to 100 cm | 100 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| Of1 | -14/5 | — ^b | — | none | 1 | 0 | None. |
| Of2 | -9/5 | — | 6.2 | none | 2 | 0 | Few fine-to-medium horizontal roots. |
| Of3 | -4/4 | — | 6.2 | none | 3 | 0 | Few fine-to-medium horizontal roots. |
| Cgj | 0/81 | 2.5Y4/2(m) | 6.5 | none | clay | 0 | Strong, very fine subangular blocky structure. Few very fine oblique roots. Many medium-to-coarse distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Mottle color 5Y5/3 (moist). Slope 2% at 135 degrees.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of1 | 53.6 | 78.7 | 39.7 | 8.0 | 0.1 | 4.8 | 5.4 | — ^b | 41.92 | 0.73 | — | — | — | (0.04) | 7.4 |
| Of2 | 55.5 | 63.5 | 43.8 | 7.7 | 0.1 | 1.1 | 4.8 | — | 29.24 | 0.72 | — | — | — | (0.05) | 7.6 |
| Of3 | 55.2 | 81.0 | 46.9 | 9.1 | 0.1 | 2.8 | 5.2 | — | 41.66 | 0.87 | — | — | — | (0.08) | 13.3 |
| Cg | 5.7 | 32.8 | 27.4 | 5.5 | 0.1 | 0.6 | 7.1 | 9.29 | 0.98 | 0.07 | 38 | 4 | 58 | 1.03 | 81.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BIH-1a (1) Plot 1

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------------------|
| Date | 1993/08/15 |
| Soil type | Peaty Eluviated Eutric Brunisol |
| Drainage class | moderately well |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 30 |
| Root-restricting layer | not present |
| Carbonates | 32 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|-----|
| All horizons | 100 |
| Organic horizons | 37 |
| Mineral horizons, to 100 cm | 63 |
| to 20 cm | 27 |
| to 100 cm | 63 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| Of | -17/17 | — ^b | 6.0 | none | 2 | 0 | Plentiful very fine-to-medium random roots. |
| Aej | 0/15 | 2.5Y5/2(m) | 6.5 | none | clay | 0 | Moderate-to-strong, fine subangular blocky structure. Few very fine-to-fine random roots. |
| Bm | 15/17 | 10YR3/3(m) | 6.4 | none | clay | 0 | Strong, fine granular structure. Few very fine random roots. |
| Ck | 32/68 | 10YR4/3(m) | 6.8 | strong | clay | 0 | Moderate-to-strong, fine-to-medium subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Varving Bm/Ck continuous beyond 1 meter very distinct. No Ah horizon. Distinct structure and color change for Bm. Slope 3% at 135 degrees.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 69.9 | 103.3 | 47.8 | 9.1 | 0.2 | 2.8 | 4.8 | — ^b | 41.73 | 0.89 | — | — | — | (0.05) | 36.9 |
| Aej | 7.1 | 32.3 | 22.9 | 6.7 | 0.1 | 0.5 | 6.9 | 3.00 | 1.45 | 0.10 | 40 | 8 | 52 | 1.04 | 22.7 |
| Bm | 5.6 | 39.9 | 27.4 | 9.9 | 0.2 | 0.7 | 7.1 | — | 0.75 | 0.07 | 40 | 2 | 58 | 1.05 | 13.4 |
| Ck | 0.0 | 19.2 | 18.6 | 6.5 | 0.2 | 0.6 | 7.7 | 20.62 | 0.32 | 0.04 | 38 | 2 | 60 | 1.25 | 27.0 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BIH-1b (2) Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|--------------------------------|
| Date | 1993/08/15 |
| Soil type | Peaty Gleysolic Turbic Cryosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 4 |
| Root-restricting layer | 24 |
| Carbonates | not present |
| Water table | 24 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 360 |
| Organic horizons | 322 |
| Mineral horizons, to 48 cm | 39 |
| to 20 cm | 16 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|------------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| Of | -36/20 | — ^b | 4.9 | none | 2 | 0 | Plentiful very fine-to-coarse random roots. |
| Om | -16/10 | — | 5.6 | none | 5 | 0 | Plentiful very fine-to-coarse random roots. |
| Oh | -6/6 | — | 6.8 | none | 8 | 0 | Few fine horizontal roots. |
| Ohy | 0/13 | — | 6.8 | strong | 8 | 0 | None. |
| Cg _{jy} | 0/23 | 10YR4/3(m) | 6.8 | none | clay | 0 | Moderate-to-strong, fine granular structure. Few fine oblique roots. Common fine distinct mottles. |
| Cz | 23/— | 10YR4/3(m) | 6.8 | none | clay | 0 | Massive structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Slope 5% at 330 degrees. pH of water 7.0. Seepage at 24 cm depth. Soil frozen at 24 cm.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|------------------|--|--------------------------------|-------------------------------------|------|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 56.6 | 96.2 | 52.9 | 9.2 | 0.3 | 5.0 | 5.1 | — ^b | 42.34 | 0.84 | — | — | — | 0.08 | 67.7 |
| Om | 26.3 | 160.0 | 200.6 | 23.0 | 0.3 | 0.1 | 6.9 | — | 31.12 | 1.22 | — | — | — | 0.17 | 52.9 |
| Oh | — | — | — | — | — | — | — | — | (30.00) | — | — | — | — | (0.38) | 68.8 |
| Ohy | 22.2 | 141.8 | 179.9 | 23.5 | 0.6 | 0.2 | 7.0 | — | 26.63 | 0.05 | — | — | — | (0.38) | 132.2 |
| Cg _{jy} | 4.7 | 31.7 | 22.4 | 6.8 | 0.3 | 0.6 | 7.2 | 0.50 | 0.61 | 0.04 | 42 | 10 | 48 | (1.30) | 18.2 |
| Cz | 4.5 | 32.1 | 22.2 | 7.2 | 0.3 | 0.6 | 7.3 | — | 0.64 | 0.05 | 40 | 10 | 50 | (1.29) | 20.5 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN BIH-1c (3) Plot 3****Northern Aux. Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1993/08/15 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 5 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 49 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 185 |
| Organic horizons | 130 |
| Mineral horizons, to 60 cm | 56 |
| to 20 cm | 19 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| Of | -41/25 | — ^b | 5.0 | none | 2 | 0 | Plentiful very fine-to-medium random roots. |
| Om | -16/16 | — | 5.3 | none | 5 | 0 | Plentiful very fine-to-medium random roots. |
| Cgj | 0/60 | 10YR5/2(m) | 4.9 | none | clay | 0 | Moderate-to-strong, fine granular structure. Few fine horizontal roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No Oh horizon found. Slope 3% at 300 degrees. Seepage at 49 cm depth.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|------|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 66.0 | 80.7 | 29.2 | 8.4 | 0.1 | 4.7 | 4.1 | — ^b | 43.25 | 0.88 | — | — | — | 0.05 | 54.1 |
| Om | 42.3 | 144.4 | 156.9 | 24.5 | 0.3 | 0.6 | 6.1 | — | 33.80 | 1.10 | — | — | — | 0.14 | 75.7 |
| Cgj | 6.5 | 40.3 | 26.5 | 8.2 | 0.1 | 0.7 | 6.4 | 0.50 | 0.75 | 0.08 | 40 | 4 | 56 | 1.24 | 55.6 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN BIH-9 (1)****Plot 2****Northern Aux. Site****General information**

| | |
|----------------------------------|------------------------|
| Date | 1993/08/15 |
| Soil type | Orthic Eutric Brunisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 30 |
| Root-restricting layer | not present |
| Carbonates | 30 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 138 |
| Organic horizons | 63 |
| Mineral horizons, to 90 cm | 75 |
| to 20 cm | 37 |
| to 100 cm | 78 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -16/16 | — ^b | 6.8 | none | — | 0 | Plentiful very fine-to-medium random roots. |
| Bm | 0/30 | 7.5YR4/2(m) | 6.5 | none | clay | 0 | Strong, fine-to-medium subangular blocky structure. Plentiful very fine-to-medium oblique roots. |
| Ck | 30/60 | 2.5Y6/2(m) | 7.0 | weak | clay | 0 | Massive structure. Very few very fine random roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Bm marked by removal of carbonates, color change, change in structure. Slope 4% at 90 degrees; upper slope position.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 68.0 | 80.9 | 45.5 | 5.9 | 0.1 | 1.7 | 4.3 | — ^b | 39.55 | 1.04 | — | — | — | (0.10) | 63.3 |
| Bm | 11.0 | 41.0 | 24.8 | 6.7 | 0.1 | 0.7 | 5.8 | — | 1.83 | 0.12 | 38 | 4 | 58 | 1.02 | 56.2 |
| Ck | 0.0 | 20.6 | 20.7 | 4.7 | 0.1 | 0.5 | 7.6 | 22.25 | 0.26 | 0.03 | 36 | 12 | 52 | 1.22 | 18.7 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN BIL-2 (1)****Plot 2****Northern Aux. Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1993/08/12 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | very poor |
| Moisture conditions during visit | wet |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 0 |
| Root-restricting layer | 0 |
| Carbonates | not present |
| Water table | 0 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 392 |
| Organic horizons | 369 |
| Mineral horizons, to 80 cm | 23 |
| to 20 cm | 6 |
| to 100 cm | 29 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| Of | -42/17 | — ^b | 5.5 | none | 3 | 0 | Few very fine-to-fine random roots. |
| Oh | -25/25 | — | 6.5 | none | 8 | 0 | Few fine-to-medium horizontal roots. |
| Cg | 0/80 | 2.5Y5/2(m) | 6.5 | none | clay loam | 0 | Strong, fine-to-medium subangular blocky structure. Very few very fine random roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: pH of water is 7.0. Slope 2% at 0 degrees; middle slope position. Water is flowing in a northward direction. No Ah horizon.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|------|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 36.0 | 95.0 | 99.9 | 20.6 | 0.2 | 2.5 | 6.4 | — ^b | 42.59 | 0.86 | — | — | — | (0.08) | 57.6 |
| Oh | 17.0 | 155.8 | 244.4 | 40.4 | 0.3 | 0.3 | 7.3 | — | 32.56 | 1.29 | — | — | — | (0.38) | 311.0 |
| Cg | 0.4 | 15.1 | 12.0 | 4.2 | 0.1 | 0.4 | 7.5 | 15.83 | 0.20 | 0.36 | 46 | 16 | 38 | 1.43 | 23.0 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BIM-1a (1) Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/08/18 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 15 |
| Root-restricting layer | not present |
| Carbonates | 68 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|-----|
| All horizons | 127 |
| Organic horizons | 58 |
| Mineral horizons, to 100 cm | 68 |
| to 20 cm | 36 |
| to 100 cm | 68 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -15/15 | — ^b | 5.0 | none | — | 0 | Plentiful very fine-to-coarse horizontal roots. |
| Ae | 0/15 | 10YR4/3(m) | 6.5 | none | clay | 0 | Moderate, fine-to-medium subangular blocky structure. Few very fine-to-medium horizontal roots. |
| Bt | 15/53 | 10YR3/4(m) | 6.5 | none | clay | 0 | Strong, fine-to-medium granular structure. Very few very fine oblique roots. |
| Ck | 68/32 | 10YR4/3(m) | 6.8 | weak | clay | 0 | Moderate, fine subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 63.0 | 95.7 | 46.1 | 7.2 | 0.1 | 2.6 | 4.6 | — ^b | 42.54 | 0.80 | — | — | — | (0.09) | 58.2 |
| Ae | 10.2 | 34.7 | 20.6 | 5.7 | 0.1 | 0.4 | 5.8 | — | 1.80 | 0.10 | 38 | 12 | 50 | 1.23 | 33.1 |
| Bt | 0.6 | 27.6 | 22.3 | 6.5 | 0.1 | 0.6 | 7.5 | 7.25 | 0.40 | 0.05 | 38 | 4 | 58 | 1.33 | 28.0 |
| Ck | 0.0 | 25.6 | 21.9 | 6.4 | 0.2 | 0.7 | 7.6 | 15.12 | 0.19 | 0.04 | 38 | 4 | 58 | 1.20 | 7.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BIM-1b (2) Plot 3a

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/08/18 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | moderately well |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 10 |
| Root-restricting layer | 10 |
| Carbonates | 80 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|-----|
| All horizons | 165 |
| Organic horizons | 66 |
| Mineral horizons, to 100 cm | 99 |
| to 20 cm | 44 |
| to 100 cm | 99 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -17/17 | — ^b | — | none | — | 0 | Plentiful very fine-to-coarse random roots. |
| Ae | 0/10 | 10YR5/2(m) | 5.0 | none | clay loam | 0 | Moderate, fine-to-medium granular structure. Plentiful fine random roots. |
| Bt1 | 10/16 | 10YR3/2(m) | — | none | clay | 0 | Strong, medium platy structure. Very few fine random roots. |
| Bt2 | 26/54 | 7.5YR3/2(m) | — | none | clay | 0 | Moderate, medium granular structure. |
| Ck | 80/20 | 10YR4/4(m) | — | weak | clay | 0 | Moderate, medium subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 52.2 | 62.9 | 18.0 | 4.4 | 0.3 | 3.7 | 3.8 | — ^b | 42.58 | 0.88 | — | — | — | (0.09) | 66.0 |
| Ae | 13.0 | 26.4 | 13.2 | 3.2 | 0.0 | 0.3 | 5.5 | — | 2.60 | 0.12 | 42 | 18 | 40 | 0.95 | 24.7 |
| Bt1 | 10.9 | 30.5 | 16.6 | 4.7 | 0.2 | 0.5 | 5.7 | — | 1.56 | 0.09 | 40 | 8 | 52 | 1.27 | 31.6 |
| Bt2 | 6.5 | 38.3 | 24.9 | 8.6 | 0.2 | 0.7 | 7.0 | — | 0.56 | 0.06 | 38 | 4 | 58 | 1.18 | 35.4 |
| Ck | 0.4 | 24.8 | 21.9 | 6.6 | 0.2 | 0.6 | 7.6 | 14.29 | 0.32 | 0.04 | 38 | 2 | 60 | 1.17 | 7.4 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN BIM-12a (1) Plot 1****Northern Aux. Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1993/08/15 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 0 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 45 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 158 |
| Organic horizons | 110 |
| Mineral horizons, to 45 cm | 48 |
| to 20 cm | 22 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| O | -28/8 | — ^b | — | none | — | 0 | None. |
| Of1 | -20/12 | — | 5.0 | none | 3 | 0 | Few medium horizontal roots. |
| Of2 | -8/8 | — | 5.6 | none | 3 | 0 | Few fine horizontal roots. |
| Cg | 0/45 | 2.5Y5/3(m) | 8.0 | none | clay | 0 | Moderate, fine granular structure. Few fine random roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Layer of burned material in Of2. Slope angle not measured; aspect is NW.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|------|-----|-----|-----------------|-------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| O | 56.8 | 72.0 | 32.8 | 8.5 | 0.1 | 4.6 | 4.6 | — ^b | 40.91 | 0.69 | — | — | — | (0.09) | 30.8 |
| Of1 | 83.9 | 103.8 | 67.1 | 10.2 | 0.2 | 0.9 | 4.7 | — | 42.06 | 0.89 | — | — | — | 0.10 | 50.5 |
| Of2 | 73.2 | 77.4 | 25.2 | 5.2 | 0.1 | 2.3 | 3.8 | — | 44.32 | 0.83 | — | — | — | (0.08) | 28.2 |
| Cg | 7.2 | 42.0 | 29.4 | 8.6 | 0.1 | 0.7 | 6.7 | — | 1.03 | 0.08 | 38 | 6 | 56 | 1.04 | 48.4 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BMH-6 (1) Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|----------------|
| Date | 1993/08/17 |
| Soil type | Orthic Gleysol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 38 |
| Root-restricting layer | 36 |
| Carbonates | 23 |
| Water table | 67 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 102 |
| Organic horizons | 52 |
| Mineral horizons, to 67 cm | 50 |
| to 20 cm | 27 |
| to 100 cm | 62 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| O | -13/5 | — ^b | — | none | — | 0 | None. |
| Of | -8/5 | — | 5.6 | none | 3 | 0 | Few medium horizontal roots. |
| Om | -3/3 | — | 6.2 | none | 5 | 0 | Few medium horizontal roots. |
| Bmgj | 0/23 | 2.5Y3/3(m) | 6.5 | none | clay | 0 | Strong, fine-to-medium granular structure. Few fine horizontal roots. |
| Ckg1 | 23/13 | 2.5Y4/4(m) | 6.2 | strong | clay | 0 | Weak-to-moderate, fine granular structure. Few very fine random roots. |
| Ckg2 | 36/31 | 2.5Y4/3(m) | 7.1 | strong | clay | 0 | Moderate, fine granular structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Effervescence gives off a strong tar odor. Of and Om dominated by burnt limbs. 3% slope.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| O | 40.2 | 76.4 | 43.4 | 7.2 | 0.1 | 6.8 | 6.0 | — ^b | 38.31 | 0.66 | — | — | — | (0.10) | 19.2 |
| Of | 61.3 | 71.4 | 30.0 | 4.5 | 0.1 | 3.3 | 4.0 | — | 47.08 | 0.95 | — | — | — | (0.08) | 18.7 |
| Om | 60.9 | 85.4 | 64.1 | 7.1 | 0.1 | 0.9 | 4.9 | — | 27.83 | 0.83 | — | — | — | (0.17) | 14.0 |
| Bmgj | 6.9 | 40.0 | 30.5 | 6.4 | 0.1 | 0.6 | 6.8 | — | 1.13 | 0.08 | 40 | 10 | 50 | 1.20 | 31.1 |
| Ckg1 | 1.2 | 25.6 | 22.7 | 5.2 | 0.1 | 0.6 | 7.6 | 13.33 | 0.43 | 0.05 | 38 | 6 | 56 | 1.32 | 7.4 |
| Ckg2 | 0.0 | 20.9 | 20.1 | 4.6 | 0.1 | 0.6 | 7.7 | 19.50 | 0.27 | 0.04 | 38 | 8 | 54 | (1.34) | 11.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BMH-7 (1) Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/08/19 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | poor |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 0 |
| Root-restricting layer | 10 |
| Carbonates | 35 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 161 |
| Organic horizons | 65 |
| Mineral horizons, to 85 cm | 97 |
| to 20 cm | 55 |
| to 100 cm | 102 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| Of1 | -22/7 | — ^b | — | none | 1 | — | Few fine horizontal roots. |
| Of2 | -15/15 | — | 5.6 | none | 3 | — | Abundant medium horizontal roots. |
| Aeg | 0/10 | 2.5Y5/3(m) | 5.9 | none | clay | — | Moderate-to-strong, medium granular-to-subangular blocky structure. Few very fine random roots. |
| Bt | 10/25 | 10YR4/3(m) | 5.0 | none | clay | — | Moderate-to-strong, coarse angular blocky structure. |
| Ck | 35/50 | 10YR4/2(m) | 6.2 | strong | clay | — | Weak-to-moderate, fine-to-medium subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Slope 3%.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of1 | 52.5 | 64.5 | 24.9 | 5.9 | 0.1 | 7.0 | 4.7 | — ^b | 40.81 | 0.67 | — | — | — | (0.04) | 10.1 |
| Of2 | 76.4 | 76.8 | 17.1 | 4.5 | 0.1 | 3.2 | 3.6 | — | 45.92 | 0.82 | — | — | — | (0.08) | 54.8 |
| Aeg | 23.1 | 39.8 | 18.9 | 5.0 | 0.1 | 0.7 | 5.1 | — | 6.13 | 0.28 | 46 | 8 | 46 | 0.66 | 40.4 |
| Bt | 12.6 | 34.5 | 17.1 | 6.8 | 0.1 | 0.7 | 5.5 | — | 1.18 | 0.10 | 38 | 4 | 58 | 1.25 | 37.0 |
| Ck | 1.8 | 27.0 | 21.9 | 7.9 | 0.2 | 0.7 | 7.5 | 12.08 | 0.32 | 0.05 | 40 | 0 | 60 | 1.18 | 19.1 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BML-21 (1) Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|--------------------|
| Date | 1993/08/12 |
| Soil type | Peaty Rego Gleysol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 0 |
| Root-restricting layer | 0 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 409 |
| Organic horizons | 147 |
| Mineral horizons, to 60 cm | 262 |
| to 20 cm | 87 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| Of | -25/10 | — ^b | — | none | 1 | 0 | Few medium horizontal roots. |
| Om | -15/8 | — | 6.8 | none | 6 | 0 | Few very fine random roots. |
| Oh | -7/7 | — | 6.5 | none | 7 | 0 | Few fine random roots. |
| Cg | 0/60 | 2.5Y5/3(m) | 6.8 | none | clay | 0 | Massive structure. Common medium prominent mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|------|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 35.2 | 99.7 | 78.1 | 19.1 | 0.1 | 2.1 | 6.0 | — ^b | 39.05 | 1.22 | — | — | — | (0.04) | 13.9 |
| Om | 18.5 | 157.1 | 50.1 | 38.8 | 0.1 | 0.5 | 7.1 | — | 34.73 | 1.58 | — | — | — | 0.17 | 47.2 |
| Oh | 22.4 | 147.6 | 49.9 | 37.3 | 0.1 | 0.2 | 6.8 | — | 32.27 | 1.35 | — | — | — | 0.38 | 85.8 |
| Cg | 0.6 | 18.4 | 14.4 | 3.8 | 0.0 | 0.2 | 7.3 | — | 2.95 | 0.05 | 40 | 8 | 52 | 1.48 | 262.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN BMM-8a (1) Plot 2****Northern Aux. Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1993/08/19 |
| Soil type | Peaty Orthic Gleysol |
| Drainage class | poor |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 8 |
| Root-restricting layer | 17 |
| Carbonates | 17 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 95 |
| Organic horizons | 48 |
| Mineral horizons, to 60 cm | 47 |
| to 20 cm | 22 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| Of1 | -17/7 | — ^b | — | none | 1 | 0 | None. |
| Of2 | -10/10 | — | 5.3 | none | 3 | 0 | None. |
| Bgj | 0/17 | 10YR4/3(m) | — | none | clay | 0 | Moderate, medium subangular blocky structure. Few fine oblique roots. |
| Cgk | 17/43 | 2.5Y4/3(m) | 6.2 | strong | clay | 0 | Massive structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Slope 7% at 60 degrees.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of1 | 72.2 | 79.6 | 29.1 | 4.1 | 0.1 | 2.5 | 4.1 | — ^b | 47.42 | 0.94 | — | — | — | (0.04) | 11.8 |
| Of2 | 60.7 | 83.4 | 31.3 | 5.5 | 0.1 | 4.3 | 4.3 | — | 45.86 | 0.99 | — | — | — | (0.08) | 36.5 |
| Bgj | 8.8 | 38.4 | 24.6 | 6.1 | 0.1 | 0.6 | 6.1 | — | 1.12 | 0.08 | 38 | 6 | 56 | 1.03 | 19.6 |
| Cgk | 0.0 | 21.9 | 20.4 | 4.0 | 0.1 | 0.5 | 7.5 | 22.50 | 0.51 | 0.05 | 38 | 10 | 52 | 1.26 | 27.6 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN BMM-8b (2) Plot 4

Northern Aux. Site

General information

| | |
|----------------------------------|----------------------|
| Date | 1993/08/19 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 36 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 45 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 288 |
| Organic horizons | 243 |
| Mineral horizons, to 55 cm | 45 |
| to 20 cm | 16 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|--------------------------------|----------------|-----|---------------|----------------------------------|---------------------|--|
| Of | -45/24 | — ^b | 5.3 | none | 3 | 0 | Plentiful very fine-to-coarse random roots. |
| Oh | -21/21 | — | 6.2 | none | 7 | 0 | Few very fine oblique roots. |
| Cgj | 0/55 | 10YR4/3(m) | 6.5 | none | heavy clay ^c | 0 | Weak-to-moderate, fine granular structure. Very few very fine oblique roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Slope 4% at 60 degrees. pH of water 6.5.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------------|--------------------------|----------------------------------|------|-----|-----|-----------------|----------------------------------|-------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 59.3 | 93.4 | 58.0 | 10.2 | 0.2 | 2.2 | 5.1 | — ^b | 43.23 | 0.79 | — | — | — | 0.07 | 72.6 |
| Oh | 34.7 | 160.2 | 195.7 | 27.7 | 0.2 | 0.2 | 6.5 | — | 32.46 | 1.23 | — | — | — | 0.25 | 170.4 |
| Cgj | 5.8 | 33.8 | 21.7 | 9.3 | 0.2 | 0.8 | 6.9 | — | 0.66 | 0.06 | — | — | — | 1.25 | 45.1 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN JDH-3 (1)

Plot 1

Northern Aux. Site

General information

| | |
|----------------------------------|----------------------------|
| Date | 1993/08/11 |
| Soil type | Eluviated Dystric Brunisol |
| Drainage class | rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 10 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 25 |
| Organic horizons | 8 |
| Mineral horizons, to 125 cm | 17 |
| to 20 cm | 7 |
| to 100 cm | 15 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -3/3 | — ^b | — | none | — | 0 | None. |
| Ae | 0/5 | 10YR6/2(m) | 5.0 | none | sand | 0 | Single grained structure. Plentiful fine-to-medium horizontal roots. |
| Bm | 5/20 | 10YR5/6(m) | 4.8 | none | sand | 0 | Single grained structure. Few very fine random roots. |
| C | 25/100 | 10YR5/4(m) | 5.4 | none | sand | 0 | Single grained structure. Very few very fine-to-fine random roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 6.7 | 5.0 | 0.8 | 0.1 | 0.0 | 0.1 | 4.1 | — ^b | 2.37 | 0.07 | — | — | — | (1.09) | 7.8 |
| Ae | 2.8 | 2.6 | 0.4 | 0.1 | 0.0 | 0.1 | 4.8 | — | 0.44 | 0.02 | 88 | 8 | 4 | (1.40) | 3.1 |
| Bm | 2.6 | 1.8 | 0.1 | 0.0 | 0.0 | 0.0 | 5.5 | — | 0.21 | 0.01 | 94 | 3 | 3 | 1.43 | 5.9 |
| C | 0.4 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 5.7 | — | 0.06 | 0.01 | 94 | 3 | 3 | 1.53 | 8.4 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN JDM-1 (1) Plot 2****Northern Aux. Site****General information**

| | |
|----------------------------------|----------------------------|
| Date | 1993/08/11 |
| Soil type | Eluviated Dystric Brunisol |
| Drainage class | very rapid |
| Moisture conditions during visit | dry |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 20 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 19 |
| Organic horizons | 4 |
| Mineral horizons, to 34 cm | 15 |
| to 20 cm | 10 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---|
| L | -1/1 | — ^b | — | none | — | 0 | None. |
| Ae | 0/9 | 2.5Y4/3(d) | — | none | sand ^c | 50 | Single grained structure. Few medium horizontal roots. Coarse fraction is composed of gravel. |
| Bm | 9/25 | 10YR4/4(d) | — | none | sand | 20 | Single grained structure. Plentiful medium horizontal roots. Coarse fraction is composed of gravel and cobbles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Slope 5% at 315 degrees. Slope position: upper-mid to top. Pit depth severely restricted by gravel and cobble. No pH measurements recorded.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|------------------------------------|-----------------|----------------|------|-----------------------|-------------------|------|--------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | Inorganic (%CaCO ₃) | | Organic (%) | Sand | | Silt | Clay | | | |
| L | — ^b | — | — | — | — | — | — | — | (30.00) | — | — | — | — | — | (0.13) | 3.9 |
| Ae | 3.5 | 3.5 | 0.3 | 0.1 | 0.0 | 0.1 | 4.7 | — | 0.50 | 0.02 | — | — | — | — | (1.31) | 5.9 |
| Bm | 2.1 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | — | 0.26 | 0.01 | 87 | 9 | 4 | (1.34) | 8.8 | |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN JIH-2 (1)****Plot 2****Northern Aux. Site****General information**

| | |
|----------------------------------|-----------------------------------|
| Date | 1993/08/14 |
| Soil type | Gleyed Eluviated Dystric Brunisol |
| Drainage class | moderately well |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 17 |
| Root-restricting layer | 18 |
| Carbonates | not present |
| Water table | 90 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 93 |
| Organic horizons | 65 |
| Mineral horizons, to 100 cm | 29 |
| to 20 cm | 13 |
| to 100 cm | 29 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LF | -14/14 | — ^b | — | none | — | 0 | Few very fine-to-fine random roots. |
| Ah | 0/2 | 5YR2.5/1(m) | 5.2 | none | loamy sand ^c | 0 | Single grained structure. Few very fine random roots. |
| Ae | 2/16 | 10YR6/2(m) | 5.0 | none | sand | 0 | Single grained structure. Few fine-to-medium horizontal roots. |
| Bm1 | 18/11 | 5YR4/6(m) | 5.1 | none | sand | 0 | Single grained structure. Common coarse prominent mottles. |
| Bm2 | 29/30 | 10YR5/4(m) | 5.1 | none | sand | 0 | Single grained structure. Many coarse prominent mottles. |
| Cg | 59/41 | 10YR5/4(m) | 5.1 | none | sand | 0 | Single grained structure. Common medium faint mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Slope 0%. Bm1 horizon has high Bulk density (possibly root restrictive).

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LF | 43.9 | 37.3 | 4.5 | 1.0 | 0.1 | 1.0 | 3.5 | — ^b | 22.12 | 0.44 | — | — | — | (0.21) | 64.5 |
| Ah | — | — | — | — | — | — | — | — | (2.40) | — | — | — | — | (1.10) | 5.3 |
| Ae | 2.6 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | — | 0.33 | 0.01 | 93 | 3 | 4 | 1.28 | 6.8 |
| Bm1 | 3.2 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | — | 0.27 | 0.03 | 94 | 2 | 4 | (1.35) | 4.1 |
| Bm2 | 1.7 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | — | 0.15 | 0.01 | 95 | 1 | 4 | 1.47 | 6.7 |
| Cg | 1.4 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | — | 0.10 | 0.00 | 93 | 2 | 5 | 1.43 | 5.8 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN JIL-1 (1)

Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|----------------------------|
| Date | 1993/08/12 |
| Soil type | Eluviated Dystric Brunisol |
| Drainage class | very rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 3 |
| Root-restricting layer | 3 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 53 |
| Organic horizons | 31 |
| Mineral horizons, to 100 cm | 22 |
| to 20 cm | 14 |
| to 100 cm | 22 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LF | -8/8 | — ^b | — | none | — | 0 | None. |
| Ae | 0/3 | 10YR6/2(d) | 4.4 | none | sand ^c | 0 | Single grained structure. Plentiful very fine-to-medium horizontal roots. |
| Bm/Bfj | 3/21 | 10YR4/4(d) | 5.0 | none | sand | 85 | Single grained structure. Few fine horizontal roots. Coarse fraction is composed of gravel and cobbles. |
| C | 24/76 | 2.5Y6/4(d) | 5.3 | none | sand | 0 | Single grained structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LF | 40.9 | 52.4 | 16.8 | 3.7 | 0.1 | 2.5 | 4.6 | — ^b | 34.74 | 1.38 | — | — | — | (0.11) | 30.9 |
| Ae | — | — | — | — | — | — | — | — | (1.30) | — | — | — | — | (1.21) | 4.7 |
| Bm/Bfj | 4.6 | 4.4 | 0.1 | 0.0 | 0.0 | 0.0 | 5.1 | — | 0.42 | 0.02 | 90 | 5 | 5 | 1.33 | 11.8 |
| C | 0.8 | 0.6 | 0.1 | 0.0 | 0.0 | 0.0 | 5.5 | — | 0.05 | 0.00 | 94 | 3 | 3 | 1.54 | 5.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN JIM-4 (1)

Plot 2

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------------|
| Date | 1993/08/14 |
| Soil type | Eluviated Eutric Brunisol |
| Drainage class | very rapid |
| Moisture conditions during visit | dry |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 25 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 31 |
| Organic horizons | 10 |
| Mineral horizons, to 103 cm | 20 |
| to 20 cm | 9 |
| to 100 cm | 20 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|--|
| LFH | -2/2 | — ^b | — | none | — | 0 | None. |
| Ah | 0/1 | 2.5Y2.5/1(d) | — | none | sand ^c | 0 | Single grained structure. Few fine horizontal roots. |
| Ae | 1/8 | 10YR5/2(d) | — | none | loamy sand | 0 | Single grained structure. Plentiful fine-to-medium horizontal roots. |
| Bm | 9/4 | 2.5Y5/3(d) | — | none | sand ^c | 0 | Single grained structure. Few very fine random roots. |
| Bfj | 13/20 | 10YR4/6(d) | — | none | sand | 0 | Single grained structure. Few very fine random roots. |
| C | 33/70 | 10YR5/4(d) | — | none | sand | 0 | Single grained structure. Few fine faint mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: No pH measurements recorded.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 14.1 | 14.8 | 3.8 | 0.5 | 0.0 | 0.3 | 3.8 | — ^b | 8.51 | 0.21 | — | — | — | (0.62) | 10.5 |
| Ah | — | — | — | — | — | — | — | — | (2.40) | — | — | — | — | (1.20) | 2.9 |
| Ae | 3.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | — | 0.33 | 0.01 | 85 | 10 | 5 | 1.40 | 3.7 |
| Bm | 2.1 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | — | 0.13 | 0.01 | — | — | — | (1.41) | 0.7 |
| Bfj | 3.9 | 2.7 | 0.1 | 0.0 | 0.0 | 0.0 | 5.5 | — | 0.16 | 0.01 | 92 | 3 | 5 | 1.41 | 4.5 |
| C | 1.1 | 1.3 | 0.1 | 0.0 | 0.0 | 0.0 | 5.6 | — | 0.07 | 0.01 | 92 | 5 | 3 | 1.59 | 8.2 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN MW-1a (1) Plot 3

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/08/19 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 43 |
| Root-restricting layer | 14 |
| Carbonates | 44 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|-----|
| All horizons | 161 |
| Organic horizons | 67 |
| Mineral horizons, to 100 cm | 94 |
| to 20 cm | 34 |
| to 100 cm | 94 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -17/17 | — ^b | 5.3 | none | — | 0 | Plentiful very fine-to-coarse random roots. |
| Ae | 0/14 | 10YR5/2(m) | 5.6 | none | clay | 0 | Moderate, fine-to-medium subangular blocky structure. Few fine-to-coarse horizontal roots. |
| Bt | 14/30 | 10YR5/2(m) | 5.9 | none | clay | 0 | Strong, medium-to-coarse subangular blocky structure. Few fine-to-coarse horizontal roots. |
| Ck1 | 44/56 | 7.5YR3/2(m) | 7.1 | weak | heavy clay | 0 | Moderate-to-strong, fine-to-medium subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Evidence of varving of Ck1 and Ck2 below the 100cm depth. Slope 1% at 45 degrees.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 55.2 | 72.6 | 24.8 | 4.9 | 0.1 | 1.9 | 4.4 | — ^b | 31.27 | 0.71 | — | — | — | (0.13) | 67.5 |
| Ae | 17.2 | 25.1 | 7.5 | 2.9 | 0.1 | 0.5 | 4.4 | — | 1.75 | 0.11 | 40 | 18 | 42 | 1.15 | 28.1 |
| Bt | 10.3 | 39.4 | 20.2 | 8.0 | 0.2 | 0.7 | 5.4 | — | 0.82 | 0.07 | 38 | 4 | 58 | 1.21 | 29.7 |
| Ck1 | 0.0 | 27.6 | 23.6 | 7.3 | 0.3 | 0.8 | 7.4 | 10.50 | 0.49 | 0.06 | 36 | 2 | 62 | 1.31 | 35.9 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

MAN MW-2a (1) Plot 3

Northern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/08/20 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | not identified |
| Moisture conditions during visit | dry |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 32 |
| Root-restricting layer | not present |
| Carbonates | 33 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 103 |
| Organic horizons | 35 |
| Mineral horizons, to 63 cm | 68 |
| to 20 cm | 33 |
| to 100 cm | 92 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -9/9 | — ^b | — | none | — | 0 | None. |
| Ae | 0/9 | 2.5Y4/2(d) | 6.2 | none | clay | 0 | Moderate, medium granular-to-subangular blocky structure. Abundant medium horizontal roots. |
| Bt | 9/24 | 10YR4/3(d) | 5.3 | none | clay | 0 | Strong, coarse subangular blocky structure. Few fine horizontal roots. |
| Ck | 33/30 | 2.5Y6/3(d) | — | strong | clay | 0 | Weak-to-moderate, medium subangular blocky structure. Few fine horizontal roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Ck varved. Ck too dry for pH testing. Slope 1%.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|------|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 36.1 | 110.1 | 105.9 | 15.8 | 0.1 | 3.7 | 6.1 | — ^b | 41.82 | 2.27 | — | — | — | (0.09) | 34.8 |
| Ae | 12.0 | 27.0 | 13.6 | 3.4 | 0.1 | 0.8 | 5.1 | — | 2.58 | 0.18 | 40 | 14 | 46 | 0.89 | 20.7 |
| Bt | 11.3 | 32.9 | 18.5 | 5.7 | 0.1 | 0.9 | 5.1 | — | 0.82 | 0.08 | 38 | 2 | 60 | 1.39 | 27.4 |
| Ck | 1.4 | 26.7 | 22.2 | 5.2 | 0.1 | 0.5 | 7.4 | 12.21 | 0.58 | 0.06 | 36 | 12 | 52 | 1.13 | 19.7 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK ADH-2 (1) Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1993/07/19 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 26 |
| Root-restricting layer | not present |
| Carbonates | 65 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|-----|
| All horizons | 117 |
| Organic horizons | 50 |
| Mineral horizons, to 100 cm | 68 |
| to 20 cm | 15 |
| to 100 cm | 68 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -10/10 | — ^b | — | none | — | 0 | None. |
| Ae | 0/18 | 10YR4/2(m) | 6.2 | none | sandy loam | 0 | Weak-to-moderate, very fine-to-fine subangular blocky structure. Plentiful medium oblique roots. |
| Bt | 18/47 | 2.5Y3/2(m) | 5.3 | none | sandy clay | 0 | Moderate-to-strong, fine-to-medium subangular blocky structure. Few fine-to-medium oblique roots. |
| Ck | 65/35 | 2.5Y4/2(m) | 6.5 | weak | clay loam | 1 | Strong, fine-to-medium subangular blocky structure. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|------------------------------------|-----------------|----------------|------|-----------------------|-------------------|------|--------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | Inorganic (%CaCO ₃) | | Organic (%) | Sand | | Silt | Clay | | | |
| LFH | 16.4 | 75.7 | 86.7 | 7.2 | 0.0 | 2.6 | 6.6 | — ^b | 18.62 | 0.95 | — | — | — | (0.27) | 49.6 | |
| Ae | 2.1 | 5.7 | 3.3 | 0.6 | 0.0 | 0.3 | 6.2 | — | 0.49 | 0.04 | 60 | 28 | 12 | 1.56 | 13.7 | |
| Bt | 6.4 | 27.1 | 18.6 | 5.2 | 0.1 | 0.6 | 6.0 | — | 0.55 | 0.05 | 46 | 16 | 38 | 1.36 | 35.0 | |
| Ck | 0.6 | 20.7 | 18.8 | 4.5 | 0.1 | 0.5 | 7.5 | 7.75 | 0.45 | 0.04 | 40 | 22 | 38 | 1.21 | 19.1 | |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK ADM-3 (1) Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|------------------------------|
| Date | 1994/07/07 |
| Soil type | Gleyed Podzolic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 29 |
| Root-restricting layer | 70 |
| Carbonates | 70 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|-----|
| All horizons | 158 |
| Organic horizons | 40 |
| Mineral horizons, to 100 cm | 118 |
| to 20 cm | 18 |
| to 100 cm | 118 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---|
| LFH | -8/8 | — ^b | — | none | 5 | — | None. |
| Ahegj | 0/9 | — | — | none | sandy loam | — | Weak, fine granular structure. Plentiful fine horizontal roots. Few fine faint mottles. |
| Bfjgj | 9/20 | — | — | none | sandy loam | — | Weak-to-moderate, fine granular structure. Plentiful medium oblique roots. Common medium distinct mottles. |
| Btgj | 29/19 | — | — | none | sandy clay loam | — | Moderate-to-strong, medium subangular blocky structure. Few fine oblique roots. Common medium distinct mottles. |
| Bgj | 48/32 | — | — | none | sandy clay loam | — | Strong, medium subangular blocky structure. Few fine oblique roots. Few fine faint mottles. |
| Ckgj | 80/20 | — | — | strong | sandy clay loam | — | Moderate-to-strong, medium-to-coarse subangular blocky structure. Common fine distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Cobbles comprising 20%, up to 29 cm depth. No record of coarse fractions for individual horizons. No observations of soil color or pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.17) | 40.2 |
| Ahegj | 0.9 | 0.02 | 60 | 30 | 10 | 1.36 | 6.4 |
| Bfjgj | 1.2 | 0.02 | 62 | 24 | 14 | 1.53 | 21.3 |
| Btgj | 1.8 | 0.02 | 52 | 16 | 32 | 1.70 | 33.7 |
| Bgj | 1.6 | 0.02 | 54 | 20 | 26 | 1.34 | 39.8 |
| Ckgj | 0.9 | 0.01 | 50 | 22 | 28 | 1.59 | 16.6 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK AIH-3 (1)****Plot 2****Southern Aux. Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1993/07/18 |
| Soil type | Gleyed Melanic Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 20 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 68 |
| Organic horizons | 27 |
| Mineral horizons, to 76 cm | 41 |
| to 20 cm | 28 |
| to 100 cm | 50 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -7/7 | — ^b | — | none | — | 0 | None. |
| Ah | 0/12 | 2.5Y2.5/1(m) | 4.7 | none | loamy sand | 0 | Single grained structure. Plentiful fine-to-medium horizontal roots. |
| Bfjg | 12/42 | 10YR5/3(m) | 4.7 | none | sand | 0 | Single grained structure. Few fine horizontal roots. Many medium distinct mottles. |
| Cg | 54/22 | 2.5Y5/3(m) | 5.3 | none | sandy clay loam ^c | 0 | Moderate, medium subangular blocky structure. Few fine oblique roots. Few medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Slightly undulating topography. Earthworm activity noted. Hit gravel at 76 cm.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | — ^b | — | — | — | — | — | — | (30.00) | — | — | — | — | — | (0.13) | 27.3 |
| Ah | 8.5 | 11.2 | 6.2 | 0.8 | 0.1 | 0.1 | 4.9 | — | 1.72 | 0.09 | 84 | 10 | 6 | 1.29 | 26.6 |
| Bfjg | 0.1 | 2.7 | 1.2 | 0.4 | 0.0 | 0.1 | 6.2 | — | 0.09 | 0.01 | 86 | 8 | 6 | 1.45 | 5.7 |
| Cg | 1.8 | 10.7 | 4.3 | 4.9 | 0.0 | 0.3 | 6.2 | — | 0.27 | 0.02 | — | — | — | (1.44) | 8.5 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK AIM-13 (1) Plot 1

Southern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/07/26 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 38 |
| Root-restricting layer | not present |
| Carbonates | 53 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 89 |
| Organic horizons | 43 |
| Mineral horizons, to 78 cm | 46 |
| to 20 cm | 15 |
| to 100 cm | 52 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -8/8 | — ^b | — | none | — | 0 | Plentiful very fine-to-fine random roots. |
| Ae | 0/13 | 10YR5/2(m) | 5.9 | none | sandy loam | 2 | Weak-to-moderate, fine subangular blocky structure. Few fine-to-medium oblique roots. Coarse fraction is composed of gravel. |
| Bt | 13/40 | 10YR3/3(m) | 5.0 | none | sandy clay loam | 10 | Strong, medium subangular blocky structure. Few fine-to-medium horizontal roots. Coarse fraction is composed of cobbles. |
| Ck | 53/— | 10YR7/1(m) | 6.8 | strong | sandy loam | 2 | Moderate, medium subangular blocky structure. Few medium oblique roots. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|------------------------------------|-----------------|----------------|------|-----------------------|-------------------|------|--------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | Inorganic (%CaCO ₃) | | Organic (%) | Sand | | Silt | Clay | | | |
| LFH | 18.2 | 42.0 | 30.5 | 7.2 | 0.1 | 1.8 | 5.8 | — ^b | 12.97 | 0.72 | — | — | — | (0.42) | 43.3 | |
| Ae | 2.5 | 7.7 | 3.5 | 1.9 | 0.0 | 0.2 | 5.7 | — | 0.59 | 0.05 | 68 | 16 | 16 | 1.33 | 10.2 | |
| Bt | 3.6 | 16.2 | 7.8 | 6.6 | 0.1 | 0.4 | 6.1 | — | 0.45 | 0.04 | 68 | 10 | 22 | 1.60 | 28.7 | |
| Ck | 0.0 | 9.9 | 10.7 | 4.7 | 0.0 | 0.2 | 7.7 | 21.50 | 0.20 | 0.02 | 64 | 16 | 20 | 1.40 | 7.1 ^c | |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK AMH-16 (1) Plot 2****Southern Aux. Site****General information**

| | |
|----------------------------------|-----------------------------------|
| Date | 1993/07/20 |
| Soil type | Gleyed Eluviated Dystric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 25 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 58 |
| Organic horizons | 27 |
| Mineral horizons, to 65 cm | 31 |
| to 20 cm | 11 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -7/7 | — ^b | — | none | — | 0 | None. |
| Ae | 0/10 | 10YR5/2(m) | 5.0 | none | sandy loam | 0 | Single grained structure. Plentiful medium horizontal roots. |
| Bmg | 10/30 | 2.5Y5/3(m) | 5.3 | none | sandy loam | 0 | Single grained structure. Few fine horizontal roots. Few fine faint mottles. |
| C | 40/— | 2.5Y4/4(m) | — | none | silty loam ^c | 7 | Moderate-to-strong, fine angular blocky structure. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: 1-2% slope. Seepage at 40 cm.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 57.8 | 102.3 | 66.3 | 9.2 | 0.1 | 2.3 | 5.0 | — ^b | 42.34 | 1.97 | — | — | — | (0.09) | 27.2 |
| Ae | 3.3 | 4.6 | 1.2 | 0.3 | 0.0 | 0.1 | 4.8 | — | 0.50 | 0.03 | 60 | 32 | 8 | (1.70) | 8.6 |
| Bmg | 1.1 | 2.8 | 0.9 | 0.3 | 0.0 | 0.0 | 4.9 | — | 0.13 | 0.01 | 78 | 14 | 8 | 1.76 | 6.9 |
| C | 3.1 | 12.6 | 6.8 | 4.2 | 0.2 | 0.2 | 6.2 | — | 0.35 | 0.04 | — | — | — | (1.75) | 15.4 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK AMM-12 (1) Plot 1

Southern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/07/27 |
| Soil type | Gleyed Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 55 |
| Root-restricting layer | not present |
| Carbonates | 85 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 87 |
| Organic horizons | 48 |
| Mineral horizons, to 100 cm | 38 |
| to 20 cm | 8 |
| to 100 cm | 38 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -12/12 | — ^b | — | none | — | 0 | Abundant very fine-to-medium random roots. |
| Aeg | 0/26 | 2.5Y5/2(m) | 6.8 | none | sandy loam | 0 | Weak-to-moderate, fine subangular blocky structure. Plentiful fine-to-coarse horizontal roots. Common fine distinct mottles. |
| Btg | 26/59 | 10YR4/3(m) | 5.0 | none | sandy clay loam | 4 | Strong, medium subangular blocky structure. Few medium horizontal roots. Common medium distinct mottles. Coarse fraction is composed of gravel. |
| Ckg | 85/— | 2.5Y5/2(m) | 7.1 | strong | sandy loam | 2 | Strong, medium subangular blocky structure. Common medium distinct mottles. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 32.3 | 84.4 | 62.7 | 8.8 | 0.1 | 3.5 | 5.7 | — ^b | 29.86 | 1.47 | — | — | — | (0.14) | 48.4 |
| Aeg | 2.1 | 5.5 | 2.8 | 0.6 | 0.0 | 0.1 | 5.5 | — | 0.24 | 0.02 | 72 | 16 | 12 | 1.65 | 10.5 |
| Btg | 4.4 | 17.6 | 10.2 | 5.3 | 0.1 | 0.4 | 5.8 | — | 0.28 | 0.03 | 62 | 12 | 26 | 1.62 | 26.9 |
| Ckg | 0.0 | 9.0 | 10.4 | 3.2 | 0.0 | 0.2 | 7.6 | 11.42 | 0.05 | 0.01 | 70 | 12 | 18 | 1.42 | 1.0 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 15 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK B?L (1) Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1993/07/24 |
| Soil type | (Probable) Fibrisol |
| Drainage class | very poor |
| Moisture conditions during visit | wet |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 0 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-------------------|-------------|
| All horizons | 80 |
| Organic horizons | 80 |
| Mineral horizons, | not present |
| to 20 cm | not present |
| to 100 cm | not present |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|----------------------------------|
| LF | 0/18 | — ^b | 5.3 | none | 1 | 0 | Few fine-to-medium random roots. |
| Of | 18/— | — | — | none | 2 | 0 | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Water pH 6.8.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|------|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LF | 41.7 | 103.6 | 77.3 | 13.3 | 0.2 | 3.6 | 5.6 | — ^b | 43.52 | 0.79 | — | — | — | (0.04) | 27.8 |
| Of | — | — | — | — | — | — | — | — | (40.00) | — | — | — | — | (0.05) | 52.0 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK BDH-4 (1)****Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|-------------------------------|
| Date | 1994/06/24 |
| Soil type | (Probable) Mesisol or Regosol |
| Drainage class | very poor |
| Moisture conditions during visit | wet |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 35 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-------------------|-------------|
| All horizons | 217 |
| Organic horizons | 217 |
| Mineral horizons, | not present |
| to 20 cm | not present |
| to 100 cm | not present |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|------------------------------------|
| O | 0/12 | — ^b | — | none | — | — | Few very fine vertical roots. |
| Of | 12/12 | — | — | none | — | — | Plentiful coarse horizontal roots. |
| Om | 24/— | — | — | none | — | — | Few fine oblique roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Soil is frozen at 37 cm. Roots observed in the frozen layer. Roots in Of were a variety of sizes - size code refers to largest. No observations of pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| O | (69.0) | — ^a | — | — | — | (0.04) | 19.2 |
| Of | 71.7 | 1.74 | — | — | — | (0.09) | 46.4 |
| Om | 74.4 | 2.01 | — | — | — | 0.14 | 151.0 ^b |

^a Dashes indicate no measurement taken.

^b No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK BDL-20 (1) Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1994/05/26 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | -15 |
| Root-restricting layer | -3 |
| Carbonates | not present |
| Water table | -3 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 144 |
| Organic horizons | 128 |
| Mineral horizons, to 15 cm | 17 |
| to 20 cm | 17 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| O | -38/13 | — ^b | — | none | 1 | — | None. |
| Of | -25/10 | — | — | none | 3 | — | Abundant medium horizontal roots. Density sample is of both O and Of horizons. |
| Oh | -15/15 | — | 5.3 | none | 7 | — | None. |
| Cg1 | 0/7 | 2.5Y4/2(m) | 5.9 | none | sandy loam | — | Single grained structure. Few medium prominent mottles. |
| Cg2 | 7/8 | 2.5Y4/4(m) | 5.9 | none | loamy sand | — | Single grained structure. Few fine distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| O | (69.0) | — ^a | — | — | — | (0.04) | 18.5 |
| Of | 82.5 | — | — | — | — | 0.04 | 19.1 |
| Oh | (51.7) | — | — | — | — | 0.20 | 90.0 |
| Cg1 | 1.7 | 0.02 | 76 | 14 | 10 | 1.58 | 10.9 |
| Cg2 | 0.7 | 0.01 | 80 | 16 | 4 | 1.76 | 5.7 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK BIH (1) Plot 7****Southern Aux. Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1994/06/12 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | 0 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|---------------------------|-------------|
| All horizons | 169 |
| Organic horizons | 158 |
| Mineral horizons, to 9 cm | 10 |
| to 20 cm | 10 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| Of | -17/6 | — ^b | — | none | — | — | Abundant coarse horizontal roots. |
| Om | -11/7 | N2.5/(m) | 6.2 | none | — | — | Few medium oblique roots. |
| Oh | -4/4 | — | 6.5 | none | — | — | Few medium oblique roots. |
| Cgj1 | 0/5 | 10YR4/2(m) | 6.8 | strong | sandy loam | — | Moderate, fine angular blocky structure. Few fine faint mottles. |
| Cgj2 | 5/4 | 10YR4/6(m) | 6.8 | strong | silty loam ^c | — | Moderate, fine-to-medium angular blocky structure. Few medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Soil is frozen at 9 cm.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| Of | (69.0) | — ^a | — | — | — | (0.08) | 19.2 |
| Om | (60.3) | — | — | — | — | 0.47 | 115.2 |
| Oh | (51.7) | — | — | — | — | 0.20 | 24.0 |
| Cgj1 | 1.5 | 0.03 | 70 | 24 | 6 | 1.45 | 6.3 |
| Cgj2 | 1.2 | 0.01 | — | — | — | 1.44 | 4.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK BMH (2) Plot 2

Southern Aux. Site

General information

| | |
|----------------------------------|---------------------|
| Date | 1993/07/23 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 34 |
| Root-restricting layer | not present |
| Carbonates | 61 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 82 |
| Organic horizons | 50 |
| Mineral horizons, to 86 cm | 32 |
| to 20 cm | 8 |
| to 100 cm | 37 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -13/13 | — ^b | — | none | — | 0 | None. |
| Ae | 0/34 | 10YR5/2(m) | 5.9 | none | sandy loam | 2 | Weak-to-moderate, medium-to-coarse subangular blocky structure. Few very fine-to-medium horizontal roots. Coarse fraction is composed of gravel. |
| Bt | 34/27 | 10YR4/3(m) | 5.0 | none | sandy loam | 5 | Strong, fine subangular blocky structure. Few fine horizontal roots. Coarse fraction is composed of gravel. |
| Ck | 61/— | 2.5Y5/2(m) | 6.8 | strong | sandy loam | 5 | Strong, very fine-to-fine subangular blocky structure. Few fine-to-coarse horizontal roots. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 50.5 | 78.5 | 35.9 | 6.6 | 0.1 | 3.9 | 4.8 | — ^b | 42.58 | 1.14 | — | — | — | (0.09) | 50.5 |
| Ae | 2.6 | 3.0 | 0.6 | 0.2 | 0.0 | 0.1 | 4.6 | — | 0.26 | 0.02 | 78 | 14 | 8 | 1.54 | 13.4 |
| Bt | 2.5 | 14.3 | 7.2 | 5.9 | 0.1 | 0.4 | 6.6 | — | 0.22 | 0.02 | 74 | 8 | 18 | 1.66 | 9.7 |
| Ck | 0.0 | 6.6 | 10.3 | 3.7 | 0.1 | 0.2 | 7.7 | 14.08 | 0.21 | 0.01 | 72 | 12 | 16 | 1.61 | 8.7 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK BMH-9 (1) Plot 1

Southern Aux. Site

General information

| | |
|----------------------------------|---------------|
| Date | 1993/07/20 |
| Soil type | Typic Mesisol |
| Drainage class | very poor |
| Moisture conditions during visit | wet |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 37 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 68 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 847 |
| Organic horizons | 847 |
| Mineral horizons, to 20 cm | not present |
| to 100 cm | not present |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|--------------------------------|----------------|-----|---------------|----------------------------------|---------------------|-----------------------------------|
| Of | 0/17 | — ^b | 4.8 | none | 3 | 0 | Few fine-to-coarse oblique roots. |
| Oh | 17/9 | — | 5.9 | none | 9 | 0 | Plentiful medium oblique roots. |
| Om | 26/94 | — | 5.9 | none | 5 | 0 | Few coarse oblique roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: pH of water 6.8. Area is a blanket bog.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------------|--------------------------|----------------------------------|------|-----|-----|-----------------|---------------------------------|-------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| Of | 67.9 | 79.6 | 31.2 | 7.3 | 0.3 | 1.9 | 3.9 | — ^b | 44.48 | 0.93 | — | — | — | (0.08) | 60.1 |
| Oh | 34.3 | 132.3 | 217.0 | 17.9 | 0.2 | 0.1 | 6.1 | — | 40.20 | 1.32 | — | — | — | (0.48) | 172.0 |
| Om | 47.3 | 179.2 | 199.5 | 19.4 | 0.2 | 0.0 | 6.0 | — | 39.03 | 0.86 | — | — | — | (0.17) | 614.5 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK BMM-1b (2) Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|--------------------------|
| Date | 1993/07/21 |
| Soil type | (Possible) Peaty Regosol |
| Drainage class | poor |
| Moisture conditions during visit | moist |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|--------------|
| Limit of effective rooting | not recorded |
| Root-restricting layer | not present |
| Carbonates | not recorded |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 204 |
| Organic horizons | 166 |
| Mineral horizons, to 25 cm | 38 |
| to 20 cm | 30 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---------------------|
| O | -42/8 | — ^b | — | none | — | — | None. |
| Of1 | -34/11 | — | 5.9 | none | 2 | — | None. |
| Of2 | -23/23 | — | 6.8 | none | 4 | — | None. |
| Mineral | 0/— | — | 7.1 | strong | — | — | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No observations recorded of color, structure, mottling, or roots.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|------|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| O | — ^b | — | — | — | — | — | — | (40.00) | — | — | — | — | — | (0.04) | 12.8 |
| Of1 | 65.5 | 67.6 | 19.3 | 5.3 | 0.1 | 3.4 | 3.6 | — | 45.59 | 0.94 | — | — | — | (0.05) | 26.1 |
| Of2 | 31.4 | 136.5 | 206.8 | 32.7 | 0.3 | 0.5 | 6.8 | — | 42.59 | 1.32 | — | — | — | 0.13 | 127.3 |
| Mineral | — | — | — | — | — | — | — | — | (1.00) | — | — | — | — | (1.50) | 37.5 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK Jail House (1) Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|----------------------------------|
| Date | 1994/06/01 |
| Soil type | Gleyed Eluviated Eutric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | 102 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 64 |
| Organic horizons | 13 |
| Mineral horizons, to 102 cm | 52 |
| to 20 cm | 17 |
| to 100 cm | 51 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---|
| LFH | -5/5 | — ^b | — | none | — | — | None. |
| Aegj | 0/7 | 10YR5/2(m) | — | none | loam | — | Weak-to-moderate, fine subangular blocky structure. Few medium oblique roots. Few fine distinct mottles. |
| Bmgj | 7/49 | 10YR4/4(m) | — | none | loam | — | Weak, fine-to-medium subangular blocky structure. Plentiful coarse oblique roots. Many coarse distinct mottles. |
| Bm | 56/46 | 10YR4/6(m) | — | none | loamy sand | — | Weak, fine-to-medium granular structure. Few medium oblique roots. |
| Ckgj | 102/— | 10YR5/3(m) | — | weak | silty clay loam | — | Weak, fine subangular blocky structure. Few coarse random roots. Common fine faint mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No observations of soil pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 71.9 | — ^a | — | — | — | 0.06 | 12.5 |
| Aegj | 1.9 | 0.05 | 40 | 50 | 10 | 1.08 | 8.3 |
| Bmgj | 0.8 | 0.02 | 46 | 44 | 10 | 1.38 | 31.4 |
| Bm | 0.3 | 0.01 | 86 | 6 | 8 | 1.52 | 12.2 |
| Ckgj | 2.1 | 0.03 | 4 | 64 | 32 | 1.37 | 0.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JDM-8 (1)

Plot 1

Southern Aux. Site

General information

| | |
|----------------------------------|-------------------------|
| Date | 1993/07/18 |
| Soil type | Orthic Dystric Brunisol |
| Drainage class | rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 27 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 28 |
| Organic horizons | 10 |
| Mineral horizons, to 100 cm | 18 |
| to 20 cm | 12 |
| to 100 cm | 18 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -4/4 | — ^b | — | none | — | 0 | None. |
| Ah | 0/5 | 10YR3/3(m) | 5.0 | none | loamy sand | 0 | Single grained structure. Plentiful fine oblique roots. |
| Bm/Bfj | 5/15 | 10YR5/8(m) | 5.3 | none | loamy sand | 2 | Single grained structure. Plentiful fine horizontal roots. Coarse fraction is composed of gravel. |
| C | 20/80 | 10YR5/6(m) | 5.3 | none | sand | 1 | Single grained structure. Few very fine oblique roots. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 12.9 | 14.1 | 9.5 | 1.2 | 0.0 | 0.5 | 5.1 | — ^b | 2.28 | 0.19 | — | — | — | (1.10) | 10.1 |
| Ah | 3.9 | 3.8 | 2.0 | 0.3 | 0.0 | 0.1 | 5.0 | — | 0.72 | 0.04 | 86 | 8 | 6 | (1.40) | 5.0 |
| Bm/Bfj | 3.5 | 3.7 | 0.5 | 0.1 | 0.0 | 0.0 | 4.7 | — | 0.32 | 0.02 | 85 | 9 | 6 | 1.42 | 6.8 |
| C | 0.0 | 0.9 | 0.3 | 0.0 | 0.0 | 0.0 | 5.1 | — | 0.05 | 0.01 | 95 | 2 | 3 | 1.45 | 6.0 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JIH-4 (1) Plot 2

Southern Aux. Site

General information

| | |
|----------------------------------|----------------|
| Date | 1993/07/17 |
| Soil type | Gleyed Regosol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 37 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 31 |
| Organic horizons | 21 |
| Mineral horizons, to 97 cm | 11 |
| to 20 cm | 2 |
| to 100 cm | 11 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LF | -5/5 | — ^b | — | none | — | 0 | None. |
| Ah | 0/5 | 10YR2/1(m) | 5.0 | none | sand ^c | 30 | Single grained structure. Plentiful medium horizontal roots. Coarse fraction is composed of cobbles. |
| Cg1 | 5/49 | 10YR4/6(m) | 5.6 | none | sand | 10 | Single grained structure. Few fine horizontal roots. Common medium distinct mottles. Coarse fraction is composed of cobbles. |
| Cg2 | 54/25 | 2.5Y4/4(m) | 5.9 | none | sand | 5 | Single grained structure. Common medium-to-coarse distinct mottles. Coarse fraction is composed of cobbles. |
| Btj | 79/13 | 2.5Y4/3(m) | 5.6 | none | sandy loam ^c | 2 | Single grained structure. Few fine faint mottles. Coarse fraction is composed of gravel. |
| C | 92/5 | 2.5Y5/4(d) | 5.0 | none | sand | 0 | Single grained structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken. ^c Texture determined in the field.

General comments: Uncertainty regarding Btj horizon: not continuous throughout the profile (pinched out). Charcoal abundant in Ah horizon. Cobbles of 15 cm average diameter encountered at about 15 cm.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-------------------------------------|-----------------|----------------|------|-----------------------|-------------------|------|--------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | Inorganic (% CaCO ₃) | | Organic (%) | Sand | | Silt | Clay | | | |
| LF | 53.6 | 45.5 | 19.5 | 4.5 | 0.1 | 1.6 | 4.2 | — ^b | 28.22 | 0.64 | — | — | — | (0.15) | 20.6 | |
| Ah | 10.1 | 8.5 | 3.9 | 0.4 | 0.0 | 0.1 | 4.5 | — | 0.02 | 0.06 | — | — | — | (1.44) | 0.1 | |
| Cg1 | 2.7 | 3.2 | 1.0 | 0.2 | 0.0 | 0.1 | 5.5 | — | 0.08 | 0.01 | 92 | 3 | 5 | 1.44 | 5.6 | |
| Cg2 | 1.0 | 2.3 | 0.6 | 0.2 | 0.0 | 0.1 | 5.3 | — | 0.06 | 0.01 | 86 | 8 | 6 | (1.44) | 2.1 | |
| Btj | 1.8 | 5.6 | 3.0 | 1.1 | 0.0 | 0.2 | 5.9 | — | 0.15 | 0.01 | — | — | — | (1.40) | 2.7 | |
| C | 0.3 | 0.7 | 0.3 | 0.2 | 0.0 | 0.0 | 5.8 | — | 0.01 | 0.01 | 96 | 1 | 3 | 1.37 | 0.1 | |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK JIH-7 (1) Plot 2****Southern Aux. Site****General information**

| | |
|----------------------------------|-----------------------------------|
| Date | 1993/09/01 |
| Soil type | Gleyed Eluviated Dystric Brunisol |
| Drainage class | rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 34 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 88 |
| Organic horizons | 52 |
| Mineral horizons, to 100 cm | 36 |
| to 20 cm | 14 |
| to 100 cm | 36 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -12/12 | — ^b | 4.9 | none | — | 0 | None. |
| Ae | 0/10 | 10YR4/2(m) | 5.2 | none | loamy sand | 1 | Weak, very fine-to-fine granular structure. Abundant very fine-to-coarse horizontal roots. Coarse fraction is composed of gravel. |
| Bfj | 10/14 | 7.5YR4/4(m) | 5.2 | none | loamy sand | 0 | Weak, fine granular structure. Few very fine-to-coarse horizontal roots. Few medium faint mottles. |
| Cg | 24/76 | 10YR4/3(m) | 5.2 | none | sandy loam | 10 | Weak, fine-to-medium subangular blocky structure. Very few fine-to-medium oblique roots. Few medium distinct mottles. Coarse fraction is composed of cobbles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Slope 2% at 300 degrees.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 64.5 | 61.1 | 13.2 | 3.2 | 0.1 | 1.6 | 3.6 | — ^b | 25.33 | 0.59 | — | — | — | (0.17) | 51.9 |
| Ae | 3.3 | 3.3 | 0.5 | 0.1 | 0.0 | 0.1 | 4.3 | — | 0.45 | 0.03 | 82 | 12 | 6 | 1.44 | 6.5 |
| Bfj | 6.4 | 7.1 | 2.2 | 0.3 | 0.0 | 0.1 | 5.2 | — | 0.57 | 0.04 | 80 | 14 | 6 | 1.34 | 10.6 |
| Cg | 2.5 | 5.1 | 2.2 | 0.7 | 0.0 | 0.1 | 5.3 | — | 0.16 | 0.02 | 76 | 12 | 12 | 1.50 | 18.6 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JMH-A1 (1) Plot 4

Southern Aux. Site

General information

| | |
|----------------------------------|----------------------------------|
| Date | 1993/09/02 |
| Soil type | Gleyed Eluviated Eutric Brunisol |
| Drainage class | moderately well |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 34 |
| Root-restricting layer | not present |
| Carbonates | 87 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 85 |
| Organic horizons | 47 |
| Mineral horizons, to 100 cm | 38 |
| to 20 cm | 11 |
| to 100 cm | 38 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -12/12 | — ^b | — | none | — | 0 | Abundant very fine-to-coarse random roots. |
| Ae1 | 0/7 | 10YR5/2(m) | 5.6 | none | sandy loam | 15 | Weak, very fine-to-fine granular structure. Few very fine-to-coarse oblique roots. Coarse fraction is composed of gravel. |
| Bm | 7/17 | 10YR4/3(m) | 5.4 | none | loamy sand | 10 | Weak, very fine-to-fine granular structure. Few very fine-to-medium oblique roots. Coarse fraction is composed of gravel and cobbles. |
| Ae2 | 24/10 | 10YR5/4(m) | 5.9 | none | sandy loam | 5 | Weak, very fine-to-fine granular structure. Few very fine-to-coarse horizontal roots. Coarse fraction is composed of gravel. |
| Bmgj | 34/53 | 10YR4/3(m) | 5.9 | none | sandy loam | 5 | Weak-to-moderate, fine-to-medium subangular blocky structure. Very few very fine-to-fine oblique roots. Few medium faint mottles. Coarse fraction is composed of gravel. |
| Ckg | 87/— | 2.5Y5/2(m) | 6.8 | strong | sandy loam | 0 | Weak-to-moderate, fine subangular blocky structure. Common medium prominent mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken. General comments: Slope 5% at 190 degrees.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-------------------------------------|-----------------|----------------|------|-----------------------|-------------------|------|--------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | Inorganic (% CaCO ₃) | | Organic (%) | Sand | | Silt | Clay | | | |
| LFH | 71.7 | 68.2 | 19.2 | 5.7 | 0.2 | 2.1 | 3.9 | 2.50 | 33.25 | 0.81 | — ^b | — | — | (0.12) | 46.8 | |
| Ae1 | 6.4 | 5.4 | 0.1 | 0.1 | 0.0 | 0.0 | 3.4 | — | 0.88 | 0.04 | 70 | 24 | 6 | 1.34 | 8.2 | |
| Bm | 1.9 | 2.4 | 1.0 | 0.3 | 0.0 | 0.1 | 5.4 | — | 0.12 | 0.01 | 78 | 16 | 6 | 1.56 | 3.3 | |
| Ae2 | 1.2 | 2.7 | 1.2 | 0.3 | 0.0 | 0.1 | 5.6 | — | 0.09 | 0.01 | 76 | 16 | 8 | 1.44 | 1.2 | |
| Bmgj | 1.9 | 6.7 | 4.6 | 1.2 | 0.1 | 0.2 | 5.8 | — | 0.10 | 0.01 | 80 | 10 | 10 | 1.67 | 9.1 | |
| Ckg | 0.0 | 3.0 | 5.9 | 0.8 | 0.0 | 0.1 | 7.8 | — | 0.80 | 0.01 | 68 | 16 | 16 | 1.55 | 16.2 ^c | |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken. ^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 13 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JMH-A2 (2) Plot 2

Southern Aux. Site

General information

| | |
|----------------------------------|-------------------------|
| Date | 1993/09/01 |
| Soil type | Brunisolic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 15 |
| Root-restricting layer | not present |
| Carbonates | 67 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-------------------------------------|------------|
| All horizons | 112 |
| Organic horizons | 20 |
| Mineral horizons, to 97 cm to 20 cm | 92 |
| to 100 cm | 6 |
| <u>to 100 cm</u> | <u>101</u> |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|--------------------------------|----------------|-----|---------------|----------------------------------|---------------------|---|
| LF | -5/4 | — ^b | — | none | — | 0 | None. |
| H | -1/1 | — | — | none | — | 0 | None. |
| Ae | 0/5 | 2.5Y4/2(m) | — | none | sandy loam | 0 | Single grained structure. Plentiful medium horizontal roots. |
| Bm1 | 5/21 | 2.5Y5/3(d) | — | none | loamy sand | 1 | Single grained structure. Plentiful fine horizontal roots. Coarse fraction is composed of gravel. |
| Bm2 | 26/17 | 2.5Y4/4(d) | — | none | sandy loam ^c | 0 | Single grained structure. Few fine horizontal roots. |
| Bt | 43/24 | 10YR3/4(d) | — | weak | sandy loam | 2 | Moderate-to-strong, fine-to-medium subangular blocky structure. Few fine horizontal roots. Coarse fraction is composed of gravel. |
| Ck1 | 67/5 | 5Y4/3(d) | — | strong | clay loam ^c | 5 | Moderate-to-strong, fine-to-medium granular structure. Coarse fraction is composed of gravel. |
| Ck2 | 72/25 | 2.5Y4/3(d) | 6.8 | strong | sandy loam | 10 | Weak-to-moderate, fine-to-medium granular structure. Coarse fraction is composed of cobbles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken. ^c Texture determined in the field.

General comments: Soil too dry to do pH with paper. Appears to be carbonate banding in Ck2. Ck1 not thick enough to be a Cca. Site is moist to dry. Bulk density sample bags were labelled Bm and Ck; values assigned to Bm1 and Ck1.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------------|--------------------------|----------------------------------|-----|-----|-----|-----------------|----------------------------------|-------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LF | 40.8 | 58.5 | 24.3 | 6.2 | 0.0 | 2.9 | 4.2 | — ^b | 41.72 | 0.52 | — | — | — | (0.09) | 15.5 |
| H | 42.3 | 34.5 | 12.7 | 2.1 | 0.0 | 0.7 | 4.2 | — | 21.45 | 0.70 | — | — | — | (0.22) | 4.7 |
| Ae | 3.0 | 3.2 | 0.9 | 0.2 | 0.0 | 0.0 | 4.3 | — | 0.44 | 0.03 | 74 | 20 | 6 | 1.42 | 3.1 |
| Bm1 | 1.8 | 2.3 | 0.8 | 0.1 | 0.1 | 0.0 | 4.8 | — | 0.12 | 0.01 | 80 | 14 | 6 | 1.78 | 4.4 |
| Bm2 | 1.5 | 3.5 | 1.8 | 0.4 | 0.0 | 0.1 | 5.5 | — | 0.08 | 0.01 | — | — | — | (1.75) | 2.4 |
| Bt | 1.7 | 10.3 | 7.9 | 1.7 | 0.1 | 0.2 | 6.4 | — | 0.19 | 0.01 | 72 | 14 | 14 | 1.73 | 8.1 |
| Ck1 | 0.0 | 8.5 | 12.1 | 1.3 | 0.0 | 0.1 | 7.4 | 14.25 | 0.43 | 0.03 | — | — | — | 1.74 | 3.8 |
| Ck2 | 0.0 | 4.9 | 9.3 | 1.1 | 0.0 | 0.1 | 7.7 | — | 1.62 | 0.01 | 74 | 16 | 10 | (1.74) | 70.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK JMH-5 (1)****Plot 2****Southern Aux. Site****General information**

| | |
|----------------------------------|-----------------------------------|
| Date | 1993/08/31 |
| Soil type | Gleyed Eluviated Dystric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | dry |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|--------------|
| Limit of effective rooting | 39 |
| Root-restricting layer | 70 |
| Carbonates | not recorded |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 75 |
| Organic horizons | 39 |
| Mineral horizons, to 70 cm | 37 |
| to 20 cm | 19 |
| to 100 cm | 45 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -10/10 | — ^b | — | none | — | 0 | None. |
| Ae | 0/12 | 2.5Y5/2(d) | 4.7 | none | sandy loam | 0 | Massive structure. Abundant very fine-to-medium horizontal roots. |
| Bmg | 12/37 | 2.5Y4/3(d) | 5.3 | none | sandy loam | 20 | Massive structure. Plentiful very fine-to-medium horizontal roots. Common fine-to-medium distinct mottles. Coarse fraction is composed of cobbles. |
| Btjg | 49/21 | — | 5.6 | none | — | 20 | Massive structure. Few fine random roots. Common medium distinct mottles. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Slope 2% at 290 degrees. Btjgj horizon highly compacted. Soil too dry to measure pH; pH determined using tap water (pH 6.8-7.4). Boulder till beneath Btjgj horizon. No carbonate measurements recorded.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|------|--|---|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 58.9 | 69.5 | 27.7 | 5.9 | 0.1 | 4.3 | 4.2 | — ^b | 34.60 | 0.90 | — | — | — | (0.11) | 38.7 |
| Ae | 4.3 | 4.9 | 0.7 | 0.3 | 0.0 | 0.1 | 3.7 | — | 0.89 | 0.04 | 70 | 24 | 6 | (1.43) | 15.2 |
| Bmg | 2.3 | 4.5 | 2.3 | 0.6 | 0.0 | 0.1 | 5.4 | — | 0.28 | 0.01 | 76 | 16 | 8 | 1.51 | 15.6 |
| Btjg | 3.1 | 6.9 | 3.2 | 1.1 | 0.0 | 0.2 | 4.8 | — | 0.18 | 0.02 | — | — | — | (1.52) | 5.8 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JMH-10 (1) Plot 1

Southern Aux. Site

General information

| | |
|----------------------------------|----------------------------|
| Date | 1993/07/17 |
| Soil type | Eluviated Dystric Brunisol |
| Drainage class | rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 25 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 33 |
| Organic horizons | 23 |
| Mineral horizons, to 90 cm | 10 |
| to 20 cm | 4 |
| to 100 cm | 10 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LF | -6/6 | — ^b | — | none | — | 0 | None. |
| Ae | 0/6 | 10YR5/2(m) | 5.3 | none | — | 0 | Single grained structure. Plentiful fine horizontal roots. |
| Bm/Bfj | 6/26 | 10YR5/8(m) | 5.0 | none | sand | 1 | Single grained structure. Few very fine-to-fine horizontal roots. Coarse fraction is composed of gravel. |
| C | 32/58 | 10YR5/4(m) | 5.0 | none | sand | 2 | Single grained structure. Few medium oblique roots. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|-------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (% CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LF | 46.4 | 59.7 | 20.4 | 5.8 | 0.2 | 6.1 | 4.3 | — ^b | 38.08 | 0.90 | — | — | — | (0.10) | 23.0 |
| Ae | 3.5 | 3.1 | 0.7 | 0.1 | 0.0 | 0.0 | 4.4 | — | 0.34 | 0.02 | — | — | — | (1.35) | 2.8 |
| Bm/Bfj | 1.5 | 2.0 | 0.8 | 0.2 | 0.0 | 0.0 | 5.2 | — | 0.07 | 0.01 | 92 | 4 | 4 | 1.39 | 2.5 |
| C | 0.7 | 1.1 | 0.3 | 0.1 | 0.0 | 0.0 | 5.7 | — | 0.05 | 0.00 | 96 | 1 | 3 | 1.53 | 4.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK JMM-5 (1) Plot 1****Southern Aux. Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1994/05/27 |
| Soil type | Orthic Dystric Brunisol |
| Drainage class | very rapid |
| Moisture conditions during visit | dry |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|--------------|
| Limit of effective rooting | not recorded |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 33 |
| Organic horizons | 3 |
| Mineral horizons, to 79 cm | 31 |
| to 20 cm | 16 |
| to 100 cm | 36 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---|
| LFH | -2/2 | — ^b | — | none | — | — | None. |
| Ah | 0/3 | 10YR3/1(m) | — | none | loamy sand ^c | — | Single grained structure. Few fine horizontal roots. |
| Bm1 | 3/30 | 10YR5/6(m) | — | none | sand | — | Single grained structure. Few medium horizontal roots. |
| Bm2 | 33/21 | 10YR6/6(m) | — | none | sand | — | Single grained structure. Common fine distinct mottles. |
| C | 54/— | 10YR5/6(m) | — | none | sand | — | Single grained structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Ah horizon too thin for bulk density sample. No observations of soil pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| LFH | 54.4 | — ^a | — | — | — | 0.04 | 2.5 |
| Ah | 4.4 | 0.07 | — | — | — | (1.25) | 9.6 |
| Bm1 | 0.4 | 0.01 | 89 | 6 | 5 | 1.51 | 10.5 |
| Bm2 | 0.3 | 0.00 | 92 | 4 | 4 | 1.23 | 4.5 |
| C | 0.3 | 0.00 | 93 | 3 | 4 | 1.41 | 6.1 ^b |

^a Dashes indicate no measurement taken.

^b No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JMM-6 (1) Plot 2

Southern Aux. Site

General information

| | |
|----------------------------------|----------------------------|
| Date | 1993/09/02 |
| Soil type | Eluviated Dystric Brunisol |
| Drainage class | very rapid |
| Moisture conditions during visit | dry |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|--------------|
| Limit of effective rooting | 55 |
| Root-restricting layer | not present |
| Carbonates | not recorded |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 55 |
| Organic horizons | 34 |
| Mineral horizons, to 100 cm | 21 |
| to 20 cm | 13 |
| to 100 cm | 21 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---|
| LFH | -8/8 | — ^b | — | none | — | 0 | None. |
| Ahe | 0/4 | 10YR3/2(d) | — | none | loamy sand ^c | 0 | Single grained structure. Abundant very fine-to-medium horizontal roots. |
| Bm1 | 4/7 | 7.5YR3/3(d) | — | none | sand | 0 | Single grained structure. Plentiful very fine-to-coarse horizontal roots. |
| Bm2 | 11/35 | 10YR5/8(d) | — | none | sand | 0 | Single grained structure. Few very fine horizontal roots. |
| Bm3 | 46/10 | 10YR4/4(d) | — | none | sand | 0 | Single grained structure. Few fine random roots. |
| Bm4 | 56/7 | 10YR4/6(d) | — | weak | sand | 0 | Single grained structure. |
| C | 63/37 | 10YR5/4(d) | — | strong | sand | 0 | Single grained structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken. ^c Texture determined in the field.

General comments: Soil too dry to use pH paper. No HCl available to do effervescence. Iron mottling occurs throughout profile; however, no details regarding mottling were recorded.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|--|--------------------------------|-------------------------------------|-----|-----|-----|-----|-----------------|------------------------------------|----------------|--------------------------|-------------------|------|--------|--|---|
| | | | Ca | Mg | Na | K | | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 24.1 | 36.2 | 13.1 | 3.0 | 0.0 | 2.3 | 4.4 | — ^b | 26.28 | 0.60 | — | — | — | (0.16) | 34.0 | |
| Ahe | 4.1 | 4.8 | 6.1 | 0.3 | 0.0 | 0.1 | 4.4 | — | 1.24 | 0.05 | — | — | — | (1.20) | 6.0 | |
| Bm1 | 3.7 | 4.7 | 1.4 | 0.2 | 0.0 | 0.1 | 5.0 | — | 0.71 | 0.04 | 91 | 4 | 5 | 1.25 | 6.2 | |
| Bm2 | 0.0 | 1.3 | 0.2 | 0.2 | 0.0 | 0.0 | 5.0 | — | 0.09 | 0.00 | 94 | 2 | 4 | 1.51 | 4.9 | |
| Bm3 | 0.0 | 0.9 | 0.3 | 0.2 | 0.0 | 0.0 | 5.6 | — | 0.06 | 0.00 | 96 | 1 | 3 | (1.50) | 0.8 | |
| Bm4 | 0.2 | 0.9 | 0.2 | 0.1 | 0.0 | 0.0 | 4.9 | — | 0.06 | 0.00 | 93 | 4 | 3 | (1.50) | 0.7 | |
| C | 0.0 | 0.7 | 0.3 | 0.1 | 0.0 | 0.0 | 5.4 | — | 0.04 | 0.01 | 92 | 5 | 3 | (1.50) | 2.1 | |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JMM-8a (1) Plot 1

Southern Aux. Site

General information

| | |
|----------------------------------|----------------|
| Date | 1993/07/15 |
| Soil type | Orthic Regosol |
| Drainage class | rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 15 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 26 |
| Organic horizons | 16 |
| Mineral horizons, to 62 cm | 10 |
| to 20 cm | 7 |
| to 100 cm | 12 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| L | -3/3 | — ^b | — | none | — | 0 | None. |
| Ah | 0/6 | 10YR3/3(m) | 4.7 | none | loamy sand | 0 | Single grained structure. Plentiful fine-to-medium horizontal roots. |
| C | 6/31 | 10YR5/6(m) | 5.0 | none | sand | 0 | Single grained structure. |
| Cgj | 37/— | 2.5Y5/4(m) | 4.4 | none | sand | — | Single grained structure. Common medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| L | 23.1 | 35.9 | 22.9 | 4.2 | 0.0 | 0.9 | 5.0 | — ^b | 14.34 | 0.51 | — | — | — | (0.37) | 16.0 |
| Ah | 3.4 | 3.3 | 1.2 | 0.3 | 0.0 | 0.1 | 5.3 | — | 0.67 | 0.03 | 88 | 5 | 7 | (1.35) | 5.4 |
| C | 0.1 | 1.1 | 0.1 | 0.1 | 0.0 | 0.0 | 5.1 | — | 0.07 | 0.00 | 95 | 2 | 3 | (1.43) | 3.0 |
| Cgj | 0.0 | 0.9 | 0.3 | 0.2 | 0.0 | 0.0 | 5.4 | — | 0.04 | 0.00 | 93 | 4 | 3 | 1.43 | 1.4 ^c |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

^c No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK JMM-8b (2) Plot 2

Southern Aux. Site

General information

| | |
|----------------------------------|----------------|
| Date | 1993/07/16 |
| Soil type | Orthic Regosol |
| Drainage class | rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 25 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 22 |
| Organic horizons | 8 |
| Mineral horizons, to 105 cm | 14 |
| to 20 cm | 10 |
| to 100 cm | 14 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LF | -2/2 | — ^b | — | none | — | 0 | None. |
| Ah | 0/8 | 7.5YR2.5/2(m) | 4.8 | none | sand | 0 | Single grained structure. Plentiful very fine-to-fine horizontal roots. |
| Cgj1 | 8/55 | 10YR5/8(m) | 5.0 | none | sand | 2 | Single grained structure. Few very fine oblique roots. Common medium distinct mottles. Coarse fraction is composed of gravel. |
| Cgj2 | 63/42 | 10YR5/6(m) | 5.0 | none | sand | 10 | Single grained structure. Few very fine oblique roots. Few medium distinct mottles. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Cgj1 mottling starts at 38 cm.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LF | 21.3 | 29.6 | 16.9 | 3.5 | 0.0 | 2.7 | 4.6 | — ^b | 29.32 | 0.74 | — | — | — | (0.14) | 8.1 |
| Ah | 3.9 | 4.8 | 1.6 | 0.4 | 0.0 | 0.3 | 5.0 | — | 0.88 | 0.04 | 89 | 6 | 5 | (1.32) | 9.2 |
| Cgj1 | 0.0 | 1.0 | 0.2 | 0.2 | 0.0 | 0.0 | 5.3 | — | 0.03 | 0.01 | 95 | 2 | 3 | 1.47 | 2.7 |
| Cgj2 | 0.0 | 1.3 | 1.1 | 0.4 | 0.0 | 0.0 | 6.0 | — | 0.04 | 0.00 | 95 | 2 | 3 | 1.40 | 2.4 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil-CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:

SASK MW-1a (1) Plot 1

Southern Aux. Site

General information

| | |
|----------------------------------|-------------------------|
| Date | 1993/07/21 |
| Soil type | Brunisolic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 52 |
| Root-restricting layer | not present |
| Carbonates | 69 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|-----|
| All horizons | 138 |
| Organic horizons | 41 |
| Mineral horizons, to 100 cm | 97 |
| to 20 cm | 9 |
| to 100 cm | 97 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -10/10 | — ^b | — | none | — | 0 | Plentiful very fine-to-fine oblique roots. |
| Ae | 0/9 | 10YR4/2(m) | 5.6 | none | sandy loam | 5 | Weak-to-moderate, medium subangular blocky structure. Plentiful fine-to-coarse horizontal roots. Coarse fraction is composed of gravel. |
| Bm | 9/12 | 10YR4/3(m) | 5.3 | none | sandy loam | 10 | Weak-to-moderate, medium subangular blocky structure. Few fine-to-medium oblique roots. Coarse fraction is composed of stones. |
| Bt | 21/48 | 10YR3/3(m) | 5.3 | none | sandy loam | 15 | Moderate, fine platy structure. Few medium oblique roots. Coarse fraction is composed of cobbles. |
| Ck | 69/31 | 10YR3/3(m) | 6.5 | strong | sandy loam | 15 | Moderate-to-strong, very fine-to-fine subangular blocky structure. Few medium-to-coarse vertical roots. Coarse fraction is composed of gravel. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Exchangeable acidity (meq/100 g) | Buffered CEC (meq/100 g) | Exchangeable cations (meq/100 g) | | | | pH ^a | Carbon | | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------------------|-----------------------------|-------------------------------------|-----|-----|-----|-----------------|------------------------------------|----------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Ca | Mg | Na | K | | Inorganic (%CaCO ₃) | Organic (%) | | Sand | Silt | Clay | | |
| LFH | 52.8 | 76.2 | 48.2 | 3.8 | 0.0 | 1.5 | 4.6 | — ^b | 29.05 | 1.50 | — | — | — | (0.14) | 40.8 |
| Ae | 2.1 | 3.8 | 0.7 | 0.3 | 0.0 | 0.1 | 4.1 | — | 0.43 | 0.04 | 74 | 20 | 6 | 1.33 | 5.2 |
| Bm | 2.4 | 3.5 | 1.0 | 0.3 | 0.0 | 0.1 | 4.7 | — | 0.27 | 0.02 | 78 | 14 | 8 | 1.43 | 4.6 |
| Bt | 3.4 | 12.6 | 7.0 | 2.3 | 0.0 | 0.3 | 5.2 | — | 0.49 | 0.04 | 72 | 10 | 18 | 1.55 | 36.4 |
| Ck | 0.0 | 10.7 | 9.7 | 2.1 | 0.0 | 0.2 | 7.4 | — | 1.24 | 0.03 | 70 | 12 | 18 | 1.34 | 51.3 |

^a pH measured in 0.01M CaCl₂ solution (1:2 soil–CaCl₂ ratio for mineral soils, and 1:10 ratio for organic material).

^b Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK MW-1b (2) Plot 6****Southern Aux. Site****General information**

| | |
|----------------------------------|----------------------------------|
| Date | 1994/06/09 |
| Soil type | Gleyed Eluviated Eutric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 108 |
| Organic horizons | 40 |
| Mineral horizons, to 83 cm | 68 |
| to 20 cm | 13 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -17/17 | — ^b | — | none | — | — | None. |
| Ae | 0/7 | 10YR6/2(m) | 5.0 | none | loamy sand | — | Single grained structure. Abundant medium oblique roots. |
| Aeg | 7/6 | 10YR6/3(m) | 5.6 | none | sandy loam | — | Single grained structure. Abundant medium oblique roots. Few fine faint mottles. |
| Bmg | 13/60 | 10YR5/6(m) | 5.9 | none | sandy loam | — | Weak, medium granular structure. Few medium oblique roots. Many coarse prominent mottles. |
| Cg | 73/10 | 10YR6/4(m) | 6.5 | none | clay | — | Moderate, very fine-to-fine subangular blocky structure. Few medium oblique roots. Common medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 80.3 | — ^a | — | — | — | 0.05 | 39.6 |
| Ae | 0.7 | 0.02 | 80 | 18 | 2 | 1.25 | 3.6 |
| Aeg | 0.8 | 0.02 | 66 | 26 | 8 | 1.47 | 4.1 |
| Bmg | 0.7 | 0.02 | 70 | 24 | 6 | 1.77 | 43.1 |
| Cg | 1.9 | 0.03 | 20 | 36 | 44 | 1.56 | 17.2 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN G-BI-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/08/12 |
| Soil type | Gleyed Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 43 |
| Root-restricting layer | 43 |
| Carbonates | 3 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 140 |
| Organic horizons | 31 |
| Mineral horizons, to 57 cm | 109 |
| to 20 cm | 53 |
| to 100 cm | 144 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -8/8 | — ^b | — | none | — | — | None. |
| Ae | 0/3 | 10YR4/3(m) | 5.0 | none | silty clay ^c | — | Weak-to-moderate, fine platy structure. Plentiful fine vertical roots. |
| Btg1 | 3/10 | 10YR4/6(m) | 6.2 | weak | clay | — | Strong, very fine subangular blocky structure. Plentiful fine vertical roots. Common fine prominent mottles. |
| Btg2 | 13/15 | 10YR5/4(m) | 5.3 | none | silty clay | — | Strong, very fine subangular blocky structure. Few medium oblique roots. Common fine distinct mottles. |
| BCkgj | 28/15 | 10YR6/4(m) | 6.8 | strong | silty clay loam | — | Moderate-to-strong, very fine-to-fine subangular blocky structure. Few medium oblique roots. Common medium prominent mottles. |
| Ckgj | 43/14 | 10YR5/6(m) | 6.8 | strong | silty clay | — | Strong, very fine-to-fine subangular blocky structure. Common medium prominent mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken. ^c Texture determined in the field.

General comments: Ae horizon too thin for bulk density sample.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 61.1 | — ^a | — | — | — | 0.11 | 31.2 |
| Ae | 4.4 | 0.08 | — | — | — | (1.08) | 8.2 |
| Btg1 | 3.4 | 0.06 | 10 | 36 | 54 | 1.13 | 22.3 |
| Btg2 | 5.7 | 0.09 | 8 | 46 | 46 | 0.96 | 47.6 |
| BCkgj | 1.4 | 0.02 | 4 | 58 | 38 | 1.60 | 19.5 |
| Ckgj | 1.2 | 0.02 | 4 | 52 | 44 | 1.16 | 11.3 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN G-BI-2 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|--------------------------------|
| Date | 1994/08/13 |
| Soil type | Gleyed Brunisolic Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 33 |
| Root-restricting layer | not present |
| Carbonates | 20 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 120 |
| Organic horizons | 28 |
| Mineral horizons, to 79 cm | 93 |
| to 20 cm | 37 |
| to 100 cm | 111 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -3/3 | — ^b | — | none | — | — | None. |
| Ae | 0/3 | 10YR6/2(d) | 4.7 | none | silty clay loam | — | Weak, fine platy structure. Plentiful fine oblique roots. |
| Btg | 3/17 | 10YR4/6(d) | 5.0 | none | silty clay | — | Moderate, fine subangular blocky structure. Plentiful fine oblique roots. Many medium prominent mottles. |
| Bmkg | 20/13 | 10YR4/3(d) | 6.5 | strong | silty clay loam | — | Moderate-to-strong, fine-to-medium subangular blocky structure. Few fine oblique roots. Common fine prominent mottles. |
| BCkg | 33/21 | 10YR5/3(d) | 6.8 | strong | silty clay loam | — | Moderate-to-strong, fine-to-medium columnar structure. Common medium distinct mottles. |
| Ckg | 54/25 | 10YR5/4(d) | 6.8 | strong | silty clay loam | — | Strong, medium columnar structure. Common medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Ae horizon: only bulk density sample taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 68.9 | — ^a | — | — | — | 0.23 | 27.6 |
| Ae | (2.2) | — | 10 | 62 | 28 | 0.85 | 3.3 |
| Btg | 3.9 | 0.05 | 10 | 48 | 42 | 0.87 | 33.5 |
| Bmkg | 2.5 | 0.05 | 6 | 44 | 50 | 0.88 | 16.6 |
| BCkg | 1.3 | 0.02 | 16 | 50 | 34 | 1.13 | 17.9 |
| Ckg | 1.2 | 0.02 | 10 | 54 | 36 | 1.24 | 21.6 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN N-JM-1 (1) Plot 3****Transect Site****General information**

| | |
|----------------------------------|----------------|
| Date | 1994/06/27 |
| Soil type | Non-soil |
| Drainage class | not identified |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|--------------|
| Limit of effective rooting | not recorded |
| Root-restricting layer | 6 |
| Carbonates | not recorded |
| Water table | not present |
| Bedrock | 6 |

Soil carbon (t C ha⁻¹)

| | |
|---------------------------|----|
| All horizons | 19 |
| Organic horizons | 19 |
| Mineral horizons, to 0 cm | 0 |
| to 20 cm | 0 |
| to 100 cm | 0 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---------------------|
| LFH | -6/6 | — ^b | — | none | — | — | None. |
| R | 0/— | — | — | none | — | — | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Exposed bedrock in area, with patches of lichen. Very little soil and organic matter found.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | 68.8 | — ^a | — | — | — | 0.08 | 19.2 |
| R | (0.0) | — | — | — | — | (2.65) | 0.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN P-AM-1 (1) Plot 3****Transect Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/06/25 |
| Soil type | Gleyed Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 145 |
| Organic horizons | 17 |
| Mineral horizons, to 46 cm | 128 |
| to 20 cm | 58 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -6/6 | — ^b | — | none | — | — | None. |
| Ah | 0/3 | 7.5YR2.5/1(m) | 5.3 | none | clay loam ^c | — | Weak, fine platy structure. Plentiful fine oblique roots. |
| Btg | 3/24 | 7.5YR5/3(m) | 5.6 | none | heavy clay | — | Moderate-to-strong, medium prismatic structure. Plentiful medium horizontal roots. Common medium distinct mottles. |
| C | 27/19 | 7.5YR3/2(m) | 5.6 | none | heavy clay | — | Moderate-to-strong, fine prismatic structure. Few fine horizontal roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Ah horizon too small to get a good sample.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 81.9 | — ^a | — | — | — | 0.06 | 17.1 |
| Ah | (4.1) | — | — | — | — | (1.10) | 7.9 |
| Btg | 4.7 | 0.09 | 0 | 8 | 92 | 1.07 | 70.0 |
| C | 4.9 | 0.06 | 0 | 8 | 92 | 0.92 | 49.7 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN P-JM-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|----------------------------------|
| Date | 1994/06/25 |
| Soil type | Gleyed Eluviated Eutric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 61 |
| Root-restricting layer | not present |
| Carbonates | 40 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 153 |
| Organic horizons | 19 |
| Mineral horizons, to 62 cm | 135 |
| to 20 cm | 50 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -5/5 | — ^b | — | none | — | — | None. |
| Aejgj | 0/19 | 7.5YR4/4(m) | 5.0 | none | heavy clay | — | Moderate, fine-to-medium subangular blocky structure. Plentiful medium oblique roots. Few fine faint mottles. |
| Bmgj | 19/21 | 7.5YR3/4(m) | 5.4 | none | heavy clay | — | Strong, medium-to-coarse subangular blocky structure. Few medium horizontal roots. Common fine faint mottles. |
| Ck | 40/22 | 7.5YR3/4(m) | 6.8 | strong | heavy clay | — | Moderate-to-strong, fine-to-medium subangular blocky structure. Few medium horizontal roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 71.3 | — ^a | — | — | — | 0.09 | 18.6 |
| Aejgj | 6.2 | 0.12 | 4 | 6 | 90 | 0.70 | 47.8 |
| Bmgj | 5.4 | 0.06 | 2 | 6 | 92 | 0.71 | 46.7 |
| Ck | 3.6 | 0.05 | 0 | 10 | 90 | 0.87 | 40.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN S-AD-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/06/28 |
| Soil type | Gleyed Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | 31 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 187 |
| Organic horizons | 43 |
| Mineral horizons, to 59 cm | 145 |
| to 20 cm | 49 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -7/7 | — ^b | — | none | — | — | None. |
| Aegj | 0/14 | 2.5YR6/2(m) | 5.3 | none | heavy clay | — | Moderate-to-strong, medium platy structure. Few medium oblique roots. Few fine distinct mottles. |
| Btgj | 14/17 | 10YR4/2(m) | 5.3 | none | heavy clay | — | Moderate-to-strong, medium-to-coarse subangular blocky structure. Few medium oblique roots. Few fine faint mottles. |
| Ck | 31/28 | 10YR4/3(m) | 6.8 | strong | heavy clay | — | Weak-to-moderate, fine subangular blocky structure. Few fine oblique roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 42.1 | — ^a | — | — | — | 0.25 | 42.7 |
| Aegj | 4.2 | 0.07 | 6 | 26 | 68 | 0.91 | 31.0 |
| Btgj | 5.4 | 0.08 | 0 | 12 | 88 | 0.98 | 52.2 |
| Ck | 3.6 | 0.04 | 2 | 4 | 94 | 1.05 | 61.4 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN SO-M-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|----------------------------------|
| Date | 1994/06/26 |
| Soil type | Gleyed Eluviated Eutric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | 29 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 113 |
| Organic horizons | 9 |
| Mineral horizons, to 52 cm | 104 |
| to 20 cm | 49 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -3/3 | — ^b | — | none | — | — | None. |
| Aej | 0/20 | 10YR5/4(m) | 5.6 | none | heavy clay | — | Weak-to-moderate, fine subangular blocky structure. Plentiful fine vertical roots. |
| Bmgj | 20/12 | 10YR3/4(m) | 5.9 | none | heavy clay | — | Weak-to-moderate, medium subangular blocky structure. Plentiful medium oblique roots. Common fine distinct mottles. |
| Ckg | 32/20 | 10YR5/3(m) | 6.8 | strong | heavy clay | — | Weak, fine-to-medium subangular blocky structure. Few medium oblique roots. Many medium prominent mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Soil frozen at 49 cm.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| LFH | 43.2 | — ^a | — | — | — | 0.12 | 9.0 |
| Aej | 5.7 | 0.09 | 2 | 16 | 82 | 0.74 | 48.9 |
| Bmgj | 4.1 | 0.06 | 0 | 16 | 84 | 0.75 | 21.4 |
| Ckg | 2.5 | 0.04 | 0 | 28 | 72 | 1.16 | 33.6 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN T-AM-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/06/23 |
| Soil type | Gleyed Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | 51 |
| Carbonates | 31 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 111 |
| Organic horizons | 18 |
| Mineral horizons, to 54 cm | 94 |
| to 20 cm | 37 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -7/7 | — ^b | — | none | — | — | None. |
| Ae | 0/6 | 10YR4/3(m) | 5.0 | none | heavy clay | — | Moderate-to-strong, fine subangular blocky structure. Plentiful fine horizontal roots. |
| Btgj | 6/14 | 10YR5/3(m) | 5.3 | none | heavy clay | — | Moderate-to-strong, fine subangular blocky structure. Few fine horizontal roots. Few fine faint mottles. |
| BCgj | 20/11 | 10YR4/4(m) | 4.7 | none | heavy clay | — | Moderate-to-strong, fine subangular blocky structure. Few medium horizontal roots. Few fine faint mottles. |
| Ckg | 31/23 | 10YR4/4(m) | 6.5 | strong | heavy clay | — | Moderate-to-strong, fine subangular blocky structure. Few coarse horizontal roots. Common coarse prominent mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Soil frozen at 54 cm. Large pockets of light gray silty clay found in Ckgj horizon.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | 87.2 | — ^a | — | — | — | 0.05 | 17.7 |
| Ae | (2.2) | — | 12 | 24 | 64 | 0.62 | 4.8 |
| Btgj | 4.2 | 0.07 | 2 | 14 | 84 | 0.93 | 31.7 |
| BCgj | 4.3 | 0.07 | 4 | 12 | 84 | 0.96 | 26.3 |
| Ckg | 2.5 | 0.04 | 0 | 12 | 88 | 0.92 | 30.7 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**MAN T-BI-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/08/09 |
| Soil type | Gleyed Gray Luvisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 20 |
| Root-restricting layer | not present |
| Carbonates | 45 |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 176 |
| Organic horizons | 38 |
| Mineral horizons, to 60 cm | 137 |
| to 20 cm | 43 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -20/20 | — ^b | — | none | — | — | None. |
| Ae | 0/7 | 10YR6/2(d) | 6.2 | none | silty clay ^c | — | Weak-to-moderate, very fine-to-fine subangular blocky structure. Plentiful fine oblique roots. |
| Btgj | 7/13 | 10YR4/3(m) | 6.2 | none | heavy clay | — | Strong, medium subangular blocky structure. Few fine oblique roots. Common medium distinct mottles. |
| BC | 20/25 | 10YR3/4(m) | 6.5 | none | heavy clay | — | Weak, very fine subangular blocky structure. |
| Ck | 45/15 | 10YR4/4(m) | 7.1 | strong | heavy clay | — | Weak, very fine subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Ae horizon too thin for sampling.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 82.0 | — ^a | — | — | — | 0.04 | 38.1 |
| Ae | (2.2) | — | — | — | — | (0.90) | 8.2 |
| Btgj | 5.6 | 0.08 | 4 | 14 | 82 | 0.83 | 35.1 |
| BC | 4.7 | 0.06 | 0 | 10 | 90 | 0.90 | 61.3 |
| Ck | 3.5 | 0.04 | 0 | 10 | 90 | 1.08 | 32.9 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK B-AM-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|------------------------|
| Date | 1994/06/02 |
| Soil type | Orthic Eutric Brunisol |
| Drainage class | very rapid |
| Moisture conditions during visit | moist |
| Landform class | fluvial |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 85 |
| Organic horizons | 29 |
| Mineral horizons, to 101 cm | 56 |
| to 20 cm | 23 |
| to 100 cm | 56 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|--|
| LFH | -7/7 | — ^b | — | none | 5 | — | Plentiful fine horizontal roots. |
| Ah | 0/10 | 10YR3/2(m) | — | none | loamy sand | — | Single grained structure. Plentiful fine horizontal roots. Few fine faint mottles. |
| Bm | 10/11 | 10YR4/3(m) | — | none | loamy sand | — | Single grained structure. Abundant medium oblique roots. |
| C | 21/80 | 10YR4/6(m) | — | none | sand | — | Single grained structure. Few coarse oblique roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No observations of soil pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| LFH | 35.6 | — ^a | — | — | — | 0.20 | 28.9 |
| Ah | 1.6 | 0.06 | 84 | 6 | 10 | 1.39 | 12.9 |
| Bm | 1.4 | 0.03 | 86 | 4 | 10 | 1.26 | 11.3 |
| C | 0.5 | 0.01 | 91 | 3 | 6 | 1.39 | 32.3 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-AM-1 (1) Plot 3****Transect Site****General information**

| | |
|----------------------------------|---------------------|
| Date | 1994/08/27 |
| Soil type | Orthic Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 2 |
| Root-restricting layer | 8 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 160 |
| Organic horizons | 27 |
| Mineral horizons, to 93 cm | 133 |
| to 20 cm | 34 |
| to 100 cm | 137 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -7/7 | — ^b | — | none | — | — | Abundant fine-to-coarse horizontal roots. |
| Ae | 0/8 | 10YR7/3(d) | 5.3 | none | silty loam | — | Coarse platy structure. Few coarse oblique roots. |
| Bt | 8/48 | 10YR4/1(d) | 5.3 | none | heavy clay | — | Medium angular blocky structure. Few very fine oblique-to-vertical roots. |
| C | 56/37 | 10YR7/2(d) | 5.3 | none | silty loam | — | Very fine-to-fine granular structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Bt has vertical cracks, creating somewhat columnal peds. No observations of soil structure grade were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 27.3 |
| Ae | 1.7 | 0.05 | 22 | 60 | 18 | 1.25 | 9.9 |
| Bt | 2.9 | 0.06 | 0 | 19 | 81 | 1.21 | 97.7 |
| C | 0.9 | 0.01 | 8 | 65 | 27 | (1.30) | 25.1 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-BD-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|----------------------------------|
| Date | 1994/06/14 |
| Soil type | Gleyed Eluviated Eutric Brunisol |
| Drainage class | poor |
| Moisture conditions during visit | moist |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 10 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 74 |
| Organic horizons | 43 |
| Mineral horizons, to 35 cm | 31 |
| to 20 cm | 23 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|--|
| LFH | -11/11 | — ^b | — | none | — | — | Plentiful medium horizontal roots. |
| Aegj | 0/3 | — | — | none | sandy loam | — | Weak, fine-to-medium subangular blocky structure. Plentiful medium horizontal roots. Few fine faint mottles. |
| Bmg | 3/7 | — | — | none | sandy loam | — | Weak, medium subangular blocky structure. Few fine horizontal roots. Common coarse distinct mottles. |
| Cgj | 10/25 | — | — | none | sandy loam | — | Weak, medium subangular blocky structure. Few fine faint mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Soil is frozen at 35 cm. No observations of soil color were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 42.9 |
| Aegj | 3.3 | 0.06 | 76 | 16 | 8 | 1.28 | 7.4 |
| Bmg | 1.6 | 0.03 | 74 | 18 | 8 | 1.46 | 9.5 |
| Cgj | 0.7 | 0.01 | 76 | 16 | 8 | 1.43 | 14.5 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-BI-1 (1)****Plot 1****Transect Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1994/08/25 |
| Soil type | Orthic Dystric Brunisol |
| Drainage class | well |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 210 |
| Organic horizons | 20 |
| Mineral horizons, to 95 cm | 191 |
| to 20 cm | 40 |
| to 100 cm | 201 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---------------------------------------|
| LFH | -5/5 | — ^b | — | none | — | — | None. |
| Bm | 0/7 | 10YR5/3(m) | 5.0 | none | clay loam | — | Very fine-to-fine granular structure. |
| C | 7/88 | 2.5Y4/2(m) | 5.0 | none | heavy clay | — | Very fine-to-fine granular structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No root measurements or soil structure grade recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 19.5 |
| Bm | 4.7 | 0.10 | 34 | 28 | 38 | 0.70 | 13.4 |
| C | 3.0 | 0.06 | 1 | 6 | 93 | 1.16 | 177.6 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-BM-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1994/06/12 |
| Soil type | Peaty Gleyed Regosol |
| Drainage class | poor |
| Moisture conditions during visit | wet |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 0 |
| Root-restricting layer | 4 |
| Carbonates | not present |
| Water table | 22 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 374 |
| Organic horizons | 290 |
| Mineral horizons, to 24 cm | 84 |
| to 20 cm | 74 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| O | -58/4 | — ^b | — | none | — | — | None. |
| Of | -54/20 | — | — | none | — | — | None. |
| Om | -34/4 | — | 6.2 | none | — | — | Weak-to-moderate, very fine subangular blocky structure. Plentiful medium horizontal roots. |
| Oh | -30/30 | — | 6.8 | none | — | — | Weak-to-moderate, very fine subangular blocky structure. Few coarse horizontal roots. |
| Ahg | 0/4 | 2.5YR3/2(m) | 6.2 | none | clay | — | Weak-to-moderate, very fine subangular blocky structure. Few coarse horizontal roots. Few fine faint mottles. |
| Cg | 4/20 | 2.5YR5/3(m) | 7.4 | none | clay loam | — | Weak-to-moderate, very fine subangular blocky structure. Common fine distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Om and Oh horizons are frozen. Bedrock outcropping occurs 20 m to the south.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| O | (69.0) | — ^a | — | — | — | (0.04) | 6.4 |
| Of | (69.0) | — | — | — | — | (0.08) | 64.0 |
| Om | 58.7 | 1.00 | — | — | — | 0.12 | 16.3 |
| Oh | 37.7 | 0.56 | 22 | 28 | 50 | 0.31 | 203.4 |
| Ahg | 20.9 | 0.31 | 22 | 30 | 48 | 0.68 | 33.0 |
| Cg | 2.8 | 0.04 | 36 | 26 | 38 | 1.56 | 50.7 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-BM-2 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|----------------|
| Date | 1994/06/13 |
| Soil type | Orthic Regosol |
| Drainage class | rapid |
| Moisture conditions during visit | dry |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 11 |
| Root-restricting layer | 11 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | 11 |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 115 |
| Organic horizons | 81 |
| Mineral horizons, to 11 cm | 34 |
| to 20 cm | 34 |
| to 100 cm | 34 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|--------------------------------|----------------|-----|---------------|----------------------------------|---------------------|------------------------------------|
| O | -16/3 | — ^b | — | none | — | — | None. |
| Of | -13/7 | — | — | none | 3 | — | Abundant fine horizontal roots. |
| Oh | -6/6 | — | — | none | 7 | — | Abundant medium horizontal roots. |
| Ah | 0/11 | — | 5.0 | none | sandy loam | — | Plentiful medium horizontal roots. |
| R | 11/— | — | — | none | — | — | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Upland site. Bedrock exposed over 30% of surface. Very juvenile soil development in depressions. No observations of soil color, structure, texture, or mottling were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| O | (69.0) | — ^a | — | — | — | (0.04) | 4.8 |
| Of | (69.0) | — | — | — | — | (0.08) | 22.3 |
| Oh | (51.7) | — | — | — | — | (0.30) | 53.9 |
| Ah | 8.7 | 0.15 | 62 | 24 | 14 | 0.62 | 34.4 |
| R | (0.0) | — | — | — | — | (2.65) | 0.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-BM-3 (1) Plot 2****Transect Site****General information**

| | |
|----------------------------------|----------------|
| Date | 1994/08/29 |
| Soil type | Gleyed Regosol |
| Drainage class | imperfect |
| Moisture conditions during visit | dry |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 6 |
| Root-restricting layer | 6 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 263 |
| Organic horizons | 20 |
| Mineral horizons, to 95 cm | 243 |
| to 20 cm | 54 |
| to 100 cm | 256 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -5/5 | — ^b | — | none | — | — | Plentiful medium horizontal roots. |
| Ah | 0/6 | 10YR4/2(d) | 5.3 | none | heavy clay | — | Coarse platy structure. Plentiful fine-to-coarse oblique-to-horizontal roots. |
| Cgj | 6/89 | 10YR5/2(d) | 5.3 | none | heavy clay | — | Coarse angular blocky structure. Few fine vertical roots. Few fine distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Cgj horizon has vertical cracks, forming block-shaped peds. Cgj horizon has small black specks throughout. No observations of soil structure grade were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 19.5 |
| Ah | 6.2 | 0.13 | 12 | 23 | 65 | 0.89 | 19.2 |
| Cgj | 3.1 | 0.07 | 7 | 21 | 72 | 1.40 | 224.1 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-JD-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|-----------------|
| Date | 1994/06/15 |
| Soil type | Orthic Gleysol |
| Drainage class | moderately well |
| Moisture conditions during visit | moist |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 14 |
| Root-restricting layer | 14 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | 40 |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 103 |
| Organic horizons | 16 |
| Mineral horizons, to 40 cm | 87 |
| to 20 cm | 40 |
| to 100 cm | 87 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -4/4 | — ^b | — | none | — | — | None. |
| Aeg | 0/14 | 2.5YR5/3(m) | 4.7 | none | sandy loam | — | Moderate, fine-to-medium subangular blocky structure. Few fine random roots. |
| Bg | 14/11 | 2.5YR5/2(m) | 5.0 | none | silty clay | — | Moderate-to-strong, fine-to-medium subangular blocky structure. Few coarse random roots. |
| C | 25/15 | 2.5YR4/2(m) | — | none | clay | — | Strong, fine subangular blocky structure. Many coarse random roots. |
| R | 40/— | — | — | none | — | — | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Bedrock is generally just below (within 20 cm of) the surface. Water is present just above the bedrock. No observations of mottling were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 15.6 |
| Aeg | 2.0 | 0.03 | 54 | 34 | 12 | 1.55 | 25.2 |
| Bg | 2.2 | 0.02 | 14 | 44 | 42 | 1.90 | 26.7 |
| C | 2.8 | 0.03 | 10 | 36 | 54 | 1.44 | 35.1 |
| R | (0.0) | — | — | — | — | (2.65) | 0.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-JM-1 (1) Plot 2****Transect Site****General information**

| | |
|----------------------------------|-----------------------------------|
| Date | 1994/06/11 |
| Soil type | Gleyed Eluviated Dystric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 63 |
| Root-restricting layer | 63 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 71 |
| Organic horizons | 27 |
| Mineral horizons, to 63 cm | 44 |
| to 20 cm | 22 |
| to 100 cm | 59 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -7/7 | — ^b | — | none | — | — | None. |
| Ahegj | 0/28 | 2.5YR5/3(m) | 4.7 | none | loam | — | Moderate, fine subangular blocky structure. Plentiful medium oblique roots. Common coarse distinct mottles. |
| Bmgj | 28/35 | 2.5YR5/2(m) | 4.7 | none | sandy loam | — | Single grained structure. Few medium oblique roots. Few fine faint mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Gravel and cobbles (<10 cm) occur in Ahegj horizon, to a depth of 18 cm. Bm horizon has a higher water content than Ahegj, poor drainage, and gravel.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 27.3 |
| Ahegj | 1.3 | 0.02 | 46 | 38 | 16 | 1.44 | 30.4 |
| Bmgj | 0.4 | 0.01 | 62 | 26 | 12 | 1.69 | 13.7 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-JM-2 (1) Plot 2****Transect Site****General information**

| | |
|----------------------------------|----------------------|
| Date | 1994/06/12 |
| Soil type | Orthic Humic Regosol |
| Drainage class | rapid |
| Moisture conditions during visit | dry |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 18 |
| Root-restricting layer | 18 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | 18 |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 90 |
| Organic horizons | 19 |
| Mineral horizons, to 18 cm | 71 |
| to 20 cm | 71 |
| to 100 cm | 71 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|--------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -6/6 | — ^b | — | none | — | — | None. |
| Ah | 0/18 | 5YR4/4(m) | 4.7 | none | loam | — | Weak, very fine granular structure. Abundant medium horizontal roots. |
| R | 18/— | — | — | none | — | — | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Upland site. Bedrock is exposed over 40% of the surface. Juvenile soils found in crevices and benches in rock. Soil description provided represents 30% of the surface.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 45.6 | — ^a | — | — | — | 0.12 | 19.0 |
| Ah | 12.0 | 0.17 | 32 | 44 | 24 | 0.57 | 71.4 |
| R | (0.0) | — | — | — | — | (2.65) | 0.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-JM-4 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|----------------|
| Date | 1994/08/28 |
| Soil type | Non-soil |
| Drainage class | very rapid |
| Moisture conditions during visit | not identified |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 0 |
| Root-restricting layer | 0 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | 0 |

Soil carbon (t C ha⁻¹)

| | |
|---------------------------|---|
| All horizons | 2 |
| Organic horizons | 2 |
| Mineral horizons, to 0 cm | 0 |
| to 20 cm | 0 |
| to 100 cm | 0 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---------------------|
| O | -1/1 | — ^b | — | none | — | — | None. |
| R | 0/— | — | — | none | — | — | None. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Top layer of mosses and lichens varies from 1 to 4.5 cm in depth.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| O | (69.0) | — ^a | — | — | — | (0.04) | 1.6 |
| R | (0.0) | — | — | — | — | (2.65) | 0.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-JM-5 (1) Plot 2****Transect Site****General information**

| | |
|----------------------------------|-------------------|
| Date | 1994/08/29 |
| Soil type | Dark Gray Luvisol |
| Drainage class | well |
| Moisture conditions during visit | dry |
| Landform class | lacustrine |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 11 |
| Root-restricting layer | 16 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 238 |
| Organic horizons | 27 |
| Mineral horizons, to 93 cm | 211 |
| to 20 cm | 59 |
| to 100 cm | 224 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -7/7 | — ^b | — | none | — | — | Few very fine horizontal roots. |
| Ahe | 0/16 | 10YR5/2(d) | 4.7 | none | heavy clay | — | Fine subangular blocky structure. Abundant fine-to-coarse horizontal-to-oblique roots. |
| Bt | 16/28 | 10YR5/1(d) | 5.0 | none | heavy clay | — | Coarse angular blocky structure. Few medium vertical roots. |
| C | 44/49 | 2.5Y4/2(d) | 4.7 | none | heavy clay | — | Coarse angular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Bt and C horizons might be the same: distinction was based on moisture. C horizon has vertical cracks, creating block-shaped peds.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 27.3 |
| Ahe | 6.2 | 0.11 | 8 | 28 | 64 | 0.87 | 50.1 |
| Bt | 2.9 | 0.06 | 1 | 11 | 88 | 1.39 | 65.5 |
| C | 2.7 | 0.05 | 0 | 6 | 94 | 1.24 | 95.2 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK F-M-1 (1)****Plot 1****Transect Site****General information**

| | |
|----------------------------------|----------------------------|
| Date | 1994/08/26 |
| Soil type | Eluviated Dystric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | dry |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 2 |
| Root-restricting layer | 7 |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-----|
| All horizons | 217 |
| Organic horizons | 31 |
| Mineral horizons, to 92 cm | 186 |
| to 20 cm | 55 |
| to 100 cm | 199 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|--|
| LFH | -8/8 | — ^b | — | none | — | — | Abundant coarse horizontal roots. |
| Ae | 0/7 | 10YR6/2(d) | 5.0 | none | heavy clay | — | Coarse platy structure. Few medium oblique roots. |
| Bm | 7/18 | 10YR5/2(m) | 5.0 | none | heavy clay | — | Coarse subangular blocky structure. Few fine vertical roots. |
| C | 25/67 | 10YR4/2(m) | 4.4 | none | heavy clay | — | Medium subangular blocky structure. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Bm horizon has gravel (5 cm) in small quantities (a few rocks). Bm horizon has vertical cracks, forming block-type peds.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 31.2 |
| Ae | 3.8 | 0.10 | 10 | 15 | 75 | 1.15 | 17.7 |
| Bm | 3.3 | 0.08 | 6 | 10 | 84 | 1.49 | 51.3 |
| C | 2.7 | 0.05 | 0 | 5 | 95 | 1.11 | 116.5 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK M-BD-1 (1) Plot 1****Transect Site****General information**

| | |
|----------------------------------|-------------------------------|
| Date | 1994/05/31 |
| Soil type | (Probable) Mesisol or Regosol |
| Drainage class | very poor |
| Moisture conditions during visit | wet |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | 14 |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-------------------|-------------|
| All horizons | 51 |
| Organic horizons | 51 |
| Mineral horizons, | not present |
| to 20 cm | not present |
| to 100 cm | not present |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|--------------------------------|----------------|----|---------------|----------------------------------|---------------------|--|
| O | 0/13 | — ^b | — | none | — | — | None. |
| Of | 13/4 | — | — | none | — | — | Plentiful medium oblique roots. |
| Om | 17/7 | — | — | none | — | — | Density sample is of O, Of, and Om horizons. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Soil is frozen at depth of 8-15 cm. Soil material is organic at least to frozen zone.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| O | (69.0) | — ^a | — | — | — | (0.04) | 20.8 |
| Of | (69.0) | — | — | — | — | (0.08) | 12.8 |
| Om | 84.3 | — | — | — | — | 0.05 | 17.1 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK NI-J-1 (1)****Plot 1****Transect Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1994/06/26 |
| Soil type | Orthic Dystric Brunisol |
| Drainage class | very rapid |
| Moisture conditions during visit | dry |
| Landform class | not identified |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 24 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 59 |
| Organic horizons | 4 |
| Mineral horizons, to 99 cm | 55 |
| to 20 cm | 22 |
| to 100 cm | 56 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|-----|---------------|--|---------------------------|---|
| LFH | -1/1 | — ^b | — | none | — | — | None. |
| Ah | 0/2 | 7.5YR2.5/1(d) | 5.0 | none | sand | — | Weak-to-moderate, very fine-to-fine granular structure. Few fine oblique roots. |
| Bm | 2/10 | 10YR4/3(d) | 4.4 | none | sand | — | Weak, fine granular structure. Plentiful medium oblique-to-horizontal roots. |
| C | 12/87 | 10YR5/6(d) | 4.7 | none | sand | — | Weak, fine granular structure. Few fine oblique-to-vertical roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Undulating to hilly topography.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------------|--------------------------|-------------------|------|------|--|---|
| | | | Sand | Silt | Clay | | |
| LFH | (51.7) | — ^a | — | — | — | (0.13) | 3.9 |
| Ah | 7.9 | 0.14 | 88 | 6 | 6 | 1.10 | 10.1 |
| Bm | 1.3 | 0.02 | 91 | 4 | 5 | 1.19 | 9.0 |
| C | 0.5 | 0.01 | 91 | 5 | 4 | 1.43 | 36.1 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK PA-BM-1 (1) Plot 2****Transect Site****General information**

| | |
|----------------------------------|-------------------------|
| Date | 1994/05/31 |
| Soil type | Gleyed Dystric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | 49 |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|----|
| All horizons | 62 |
| Organic horizons | 29 |
| Mineral horizons, to 74 cm | 33 |
| to 20 cm | 14 |
| to 100 cm | 44 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---|
| LFH | -15/15 | — ^b | — | none | 1 | — | None. |
| Ahgj | 0/6 | 10YR5/2(m) | — | none | sandy loam | — | Single grained structure. Few medium oblique roots. Few fine faint mottles. |
| Bmgj | 6/33 | 10YR5/6(m) | — | none | sandy loam | — | Weak, medium subangular blocky structure. Plentiful medium oblique roots. Common medium distinct mottles. |
| Cgj1 | 39/10 | 10YR5/4(m) | — | none | sand | — | Single grained structure. Few medium oblique roots. Common medium distinct mottles. |
| Cgj2 | 49/— | 10YR5/6(m) | — | none | sand | — | Single grained structure. Few medium distinct mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: No observations of soil pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|-------------------------|-----------------------|-------------------|------|------|---------------------------------------|--|
| | | | Sand | Silt | Clay | | |
| LFH | 82.2 | — ^a | — | — | — | 0.04 | 28.6 |
| Ahgj | 1.9 | 0.04 | 62 | 36 | 2 | 1.46 | 9.7 |
| Bmgj | (1.6) | — | 78 | 14 | 8 | 0.34 | 10.1 |
| Cgj1 | 0.4 | 0.01 | 90 | 6 | 4 | 1.52 | 3.5 |
| Cgj2 | 0.4 | 0.00 | 88 | 8 | 4 | 1.73 | 10.0 ^b |

^a Dashes indicate no measurement taken.

^b No horizon thickness was recorded. Soil carbon calculations use a thickness of 25 cm.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK PA-M-1 (1) Plot 2****Transect Site****General information**

| | |
|----------------------------------|-----------------------------------|
| Date | 1994/05/30 |
| Soil type | Gleyed Eluviated Dystric Brunisol |
| Drainage class | imperfect |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|----------------------------|-------------|
| All horizons | 73 |
| Organic horizons | 24 |
| Mineral horizons, to 59 cm | 49 |
| to 20 cm | 15 |
| to 100 cm | no estimate |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|--|
| LFH | -5/5 | — ^b | — | none | — | — | Plentiful fine vertical roots. |
| Ae | 0/6 | 10YR6/2(m) | — | none | loam | — | Single grained structure. Plentiful coarse horizontal roots. |
| Bm | 6/22 | 10YR5/3(m) | — | none | sandy loam | — | Single grained structure. Few medium oblique roots. |
| Cgj | 28/11 | 10YR5/2(m) | — | none | loamy sand | — | Single grained structure. Few medium oblique roots. Common medium distinct mottles. |
| Cg | 39/20 | 10YR5/3(m) | — | none | sandy loam | — | Single grained structure. Few medium oblique roots. Common medium prominent mottles. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

General comments: Water seeping into pit from Cgj horizon. Rocks >5 cm occur in Cg horizon. No observations of soil structure class or soil pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 54.6 | — ^a | — | — | — | 0.15 | 23.8 |
| Ae | 1.3 | 0.04 | 44 | 36 | 20 | 1.33 | 6.0 |
| Bm | 0.8 | 0.01 | 70 | 26 | 4 | 1.33 | 13.6 |
| Cgj | 0.6 | 0.01 | 74 | 24 | 2 | 1.37 | 5.2 |
| Cg | 1.3 | 0.02 | 62 | 22 | 16 | 1.59 | 24.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

SITE CODE:**SASK PA-M-2 (1) Plot 2****Transect Site****General information**

| | |
|----------------------------------|----------------------------|
| Date | 1994/05029 |
| Soil type | Eluviated Dystric Brunisol |
| Drainage class | well |
| Moisture conditions during visit | moist |
| Landform class | morainal |

Depths in soil profile (cm)

| | |
|----------------------------|-------------|
| Limit of effective rooting | not present |
| Root-restricting layer | not present |
| Carbonates | not present |
| Water table | not present |
| Bedrock | not present |

Soil carbon (t C ha⁻¹)

| | |
|-----------------------------|----|
| All horizons | 75 |
| Organic horizons | 23 |
| Mineral horizons, to 100 cm | 52 |
| to 20 cm | 24 |
| to 100 cm | 52 |

Note: consult duff section for alternate organic horizon estimates.

Field observations

| Soil horizon | Upper depth/ thickness (cm) | Munsell color | pH | Effervescence | von Post or texture ^a | Coarse fraction (%) | Horizon description |
|--------------|-----------------------------------|------------------|----|---------------|--|---------------------------|---|
| LFH | -7/7 | — ^b | — | none | — | — | None. |
| Ah | 0/3 | 10YR2/1(m) | — | none | sand ^c | — | Single grained structure. Plentiful coarse random roots. |
| Ae | 3/12 | 10YR5/2(m) | — | none | loamy sand | — | Single grained structure. Plentiful coarse random roots. |
| Bm | 15/20 | 7.5YR4/6(m) | — | none | sand | — | Single grained structure. Plentiful coarse oblique roots. |
| C1 | 35/18 | 10YR5/6(m) | — | none | sand | — | Single grained structure. Few medium oblique roots. |
| Cgj | 53/47 | 10YR5/4(m) | — | none | loamy sand | — | Single grained structure. Few medium oblique roots. Few medium faint mottles. |
| C2 | 100/— | 10YR5/2(m) | — | none | sand ^c | — | Weak, fine subangular blocky structure. Few medium oblique roots. |

^a von Post scale of decomposition (organics) is estimated in the field. Texture (mineral horizons) is based on laboratory particle size analysis, unless otherwise noted.

^b Dashes indicate no measurement taken.

^c Texture determined in the field.

General comments: Located on the step, on a slope of 20%. no observations of soil pH were recorded.

Laboratory measurements

| Soil horizon | Loss on ignition (%) | Total nitrogen (%) | Particle size (%) | | | Bulk density (g cm ⁻³) | Soil carbon (t C ha ⁻¹) |
|--------------|----------------------|--------------------|-------------------|------|------|------------------------------------|-------------------------------------|
| | | | Sand | Silt | Clay | | |
| LFH | 71.3 | — ^a | — | — | — | 0.08 | 23.2 |
| Ah | (4.1) | — | — | — | — | (1.35) | 9.7 |
| Ae | 1.1 | 0.04 | 86 | 8 | 6 | 1.41 | 10.8 |
| Bm | 0.8 | 0.02 | 88 | 6 | 6 | 1.34 | 12.4 |
| C1 | 0.4 | 0.01 | 96 | 4 | 0 | 1.44 | 6.0 |
| Cgj | 0.4 | 0.01 | 84 | 14 | 2 | 1.21 | 13.2 |
| C2 | (1.4) | — | — | — | — | (1.35) | 0.0 |

^a Dashes indicate no measurement taken.

Note: all percentages are by weight. Bracketed values are estimates rather than measured values—see text for details.

DETRITUS AND DUFF DATA

Woody debris

| Parameter | Diameter class (cm) | | | | | | Total |
|---|---------------------|-----------|---------|---------|---------|------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | $\geq 7^a$ | |
| Plot 1 (sampled 1994-07-08) | | | | | | | |
| Intersections | 163 | 74 | 64 | 3 | 5 | 10 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.4 | 1.6 | 5.4 | 1.0 | 2.8 | 15.4 | 27.7 |
| Detrital mass (t ha ⁻¹) | 0.7 | 0.7 | 2.4 | 0.4 | 1.2 | 5.6 | 11.0 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.4 | 1.2 | 0.2 | 0.6 | 2.8 | 5.5 |
| Plot 2 (sampled 1994-07-08) | | | | | | | |
| Intersections | 84 | 40 | 44 | 13 | 2 | 4 | na |
| Volume (m ³ ha ⁻¹) | 0.7 | 0.9 | 3.7 | 4.1 | 1.1 | 7.0 | 17.6 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.4 | 1.6 | 1.7 | 0.5 | 2.2 | 6.8 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.8 | 0.9 | 0.2 | 1.1 | 3.4 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items ≥ 7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 10.0 | punky | Potr | 10.0 | punky | Potr | 8.5 | punky |
| Potr | 10.0 | rotten | Potr | 8.5 | punky | Potr | 10.0 | rotten |
| Piba | 9.0 | sloughing | Unid | 14.5 | punky | Piba | 9.0 | sloughing |
| Unid | 14.5 | punky | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Potr | 8.0 | punky | Potr | 8.0 | punky | Pigl | 13.8 | rotten |
| Pigl | 13.8 | rotten | — | — | — | — | — | — |

^a Piba = *Pinus banksiana*, Pigl = *Picea glauca*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-07-08 | 15 (0) | 10.7 | 2.4 | 0 |
| Plot 2 | 1994-07-08 | 15 (0) | 7.9 | 1.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 7 | 7 | 0.068 | 85.3 | 23 |
| Line 2 | 9 | 9 | 0.073 | 72.9 | 28 |
| Line 3 | 7 | 7 | 0.088 | 65.2 | 23 |
| Plot 2 | | | | | |
| Line 1 | 7 | 7 | 0.053 | 77.2 | 17 |
| Line 2 | 8 | 8 | 0.041 | 79.8 | 15 |
| Line 3 | 6 | 6 | 0.059 | 73.0 | 15 |

SITE CODE: MAN TE-OBS (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-07-10) | | | | | | | |
| Intersections | 202 | 14 | 8 | 8 | 2 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.8 | 0.3 | 0.7 | 2.6 | 1.1 | 1.1 | 6.7 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.2 | 0.4 | 1.3 | 0.5 | 0.4 | 3.2 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.2 | 0.7 | 0.3 | 0.2 | 1.6 |
| Plot 3 (sampled 1994-07-10) | | | | | | | |
| Intersections | 209 | 27 | 28 | 11 | 3 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.8 | 0.5 | 2.4 | 3.6 | 1.7 | 0.0 | 9.1 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.3 | 1.3 | 1.8 | 0.8 | 0.0 | 4.7 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.7 | 0.9 | 0.4 | 0.0 | 2.3 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 9.0 | punky | — ^b | — | — | — | — | — |
| Plot 3 | | | | | | | | |
| No items Æ7 cm encountered. | | | | | | | | |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-07-10 | 15 (6) | 30.7 | 7.5 | 0 |
| Plot 3 | 1994-07-10 | 15 (0) | 17.0 | 5.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 22 | 17 | 0.021 | 90.7 | 24 |
| Line 2 | 35 | 17 | 0.028 | 94.8 | 53 |
| Line 3 | 38 | 17 | 0.023 | 97.5 | 49 |
| Plot 3 | | | | | |
| Line 1 | 18 | 17 | 0.014 | 93.5 | 14 |
| Line 2 | 13 | 13 | 0.031 | 90.3 | 21 |
| Line 3 | 15 | 15 | 0.026 | 93.1 | 21 |

SITE CODE: MAN TE-OJP (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-07-09) | | | | | | | |
| Intersections | 299 | 44 | 22 | 8 | 3 | 7 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.8 | 0.9 | 1.9 | 2.6 | 1.7 | 8.8 | 17.7 |
| Detrital mass (t ha ⁻¹) | 0.8 | 0.5 | 1.0 | 1.2 | 0.8 | 2.9 | 7.1 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.2 | 0.5 | 0.6 | 0.4 | 1.5 | 3.6 |
| Plot 2 (sampled 1994-07-09) | | | | | | | |
| Intersections | 171 | 27 | 15 | 3 | 2 | 9 | na |
| Volume (m ³ ha ⁻¹) | 1.0 | 0.6 | 1.3 | 1.0 | 1.2 | 15.8 | 20.8 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.3 | 0.6 | 0.4 | 0.5 | 5.7 | 8.0 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.3 | 0.2 | 0.3 | 2.8 | 4.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 8.0 | punky | Piba | 9.0 | sloughing | Piba | 10.5 | rotten |
| Piba | 12.0 | rotten | Piba | 11.5 | rotten | Piba | 7.5 | rotten |
| Piba | 7.5 | rotten | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 14.0 | punky | Piba | 12.5 | sloughing | Piba | 15.0 | punky |
| Piba | 10.0 | rotten | Piba | 9.0 | rotten | Piba | 8.0 | punky |
| Piba | 7.5 | sloughing | Piba | 12.0 | sloughing | Piba | 11.5 | punky |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-07-09 | 14 (0) | 8.1 | 2.1 | 0 |
| Plot 2 | 1994-07-09 | 15 (0) | 6.8 | 1.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 5 | 5 | 0.186 | 25.9 | 14 |
| Line 2 | 9 | 9 | 0.077 | 37.5 | 15 |
| Line 3 | 7 | 7 | 0.033 | 58.5 | 8 |
| Plot 2 | | | | | |
| Line 1 | 5 | 5 | 0.085 | 42.8 | 11 |
| Line 2 | 7 | 7 | 0.076 | 29.4 | 9 |
| Line 3 | 8 | 8 | 0.045 | 67.9 | 13 |

SITE CODE: SASK POM-MW (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994–10–16) | | | | | | | |
| Intersections | 58 | 21 | 23 | 2 | 8 | 26 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.5 | 2.0 | 0.6 | 4.5 | 41.6 | 49.7 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.2 | 0.9 | 0.3 | 1.9 | 14.3 | 17.8 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.4 | 0.1 | 1.0 | 7.1 | 8.9 |
| Plot 2 (sampled 1994–10–16) | | | | | | | |
| Intersections | 64 | 35 | 42 | 14 | 17 | 22 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.8 | 3.6 | 4.4 | 9.6 | 37.7 | 56.7 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.4 | 1.6 | 1.9 | 4.0 | 13.6 | 21.7 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.8 | 0.9 | 2.0 | 6.8 | 10.9 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 8.3 | sloughing | Potr | 7.7 | sloughing | Potr | 10.6 | punky |
| Potr | 13.0 | rotten | Potr | 16.1 | rotten | Potr | 12.7 | rotten |
| Potr | 12.7 | rotten | Potr | 8.8 | rotten | Potr | 17.5 | rotten |
| Potr | 11.1 | punky | Potr | 13.9 | punky | Potr | 8.2 | punky |
| Potr | 9.4 | rotten | Potr | 7.2 | punky | Potr | 8.7 | punky |
| Potr | 10.3 | punky | Potr | 10.3 | rotten | Potr | 8.0 | sloughing |
| Potr | 13.0 | rotten | Potr | 7.2 | punky | Potr | 12.0 | punky |
| Potr | 9.1 | punky | Potr | 10.1 | sloughing | Potr | 10.3 | sloughing |
| Potr | 8.1 | sloughing | Potr | 8.1 | sloughing | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Potr | 8.2 | punky | Potr | 11.9 | rotten | Potr | 15.0 | rotten |
| Potr | 8.5 | sloughing | Potr | 9.9 | sloughing | Potr | 9.7 | sloughing |
| Potr | 15.0 | punky | Potr | 11.2 | sloughing | Potr | 9.7 | sloughing |
| Potr | 7.9 | sloughing | Potr | 15.6 | sloughing | Potr | 10.6 | rotten |
| Potr | 11.5 | rotten | Potr | 9.8 | sloughing | Potr | 8.1 | rotten |
| Potr | 11.2 | punky | Potr | 12.3 | sloughing | Potr | 10.7 | punky |
| Potr | 7.6 | rotten | Potr | 11.4 | punky | Potr | 16.4 | sloughing |
| Potr | 7.1 | sloughing | — | — | — | — | — | — |

^a Potr = *Populus tremuloides*. ^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994–10–16 | 15 (0) | 9.5 | 2.9 | — ^b |
| Plot 2 | 1994–10–16 | 15 (0) | 7.1 | 1.5 | — |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 8 | 8 | 0.071 | 59.9 | 20 |
| Line 2 | 5 | 5 | 0.066 | 84.7 | 16 |
| Line 3 | 6 | 6 | 0.070 | 85.4 | 21 |
| Plot 2 | | | | | |
| Line 1 | 8 | 8 | 0.136 | 53.9 | 34 |
| Line 2 | 5 | 5 | 0.101 | 70.7 | 21 |
| Line 3 | 5 | 5 | 0.133 | 73.7 | 28 |

SITE CODE: SASK POM-OBS (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5–<1 | 1–<3 | 3–<5 | 5–<7 | | |
| Plot 1 (sampled 1994–10–15) | | | | | | | |
| Intersections | 157 | 18 | 19 | 6 | 3 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.4 | 1.6 | 2.0 | 1.7 | 12.2 | 18.5 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.2 | 0.9 | 1.0 | 0.8 | 5.3 | 8.4 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.5 | 0.5 | 0.4 | 2.6 | 4.2 |
| Plot 2 (sampled 1994–10–15) | | | | | | | |
| Intersections | 182 | 52 | 37 | 17 | 2 | 5 | na |
| Volume (m ³ ha ⁻¹) | 0.7 | 1.0 | 3.2 | 5.6 | 1.1 | 4.9 | 16.6 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.6 | 1.8 | 2.8 | 0.5 | 1.8 | 7.8 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 0.9 | 1.4 | 0.3 | 0.9 | 3.9 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 27.5 | sound | Pima | 7.2 | sound | Unid | 9.0 | rotten |
| Plot 2 | | | | | | | | |
| Pima | 9.1 | sloughing | Bepa | 9.1 | rotten | Bepa | 8.3 | rotten |
| Potr | 7.7 | punky | Unid | 8.0 | rotten | — ^b | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994–10–15 | 15 (0) | 32.1 | 18.2 | — ^b |
| Plot 2 | 1994–10–15 | 15 (0) | 26.3 | 22.8 | — |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 41 | 17 | 0.048 | 88.4 | 102 |
| Line 2 | 18 | 17 | 0.070 | 87.1 | 63 |
| Line 3 | 18 | 17 | 0.124 | 88.4 | 115 |
| Plot 2 | | | | | |
| Line 1 | 51 | 17 | 0.114 | 87.9 | 297 |
| Line 2 | 40 | 17 | 0.089 | 84.9 | 176 |
| Line 3 | 40 | 17 | 0.064 | 86.0 | 129 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-10-14) | | | | | | | |
| Intersections | 69 | 25 | 21 | 1 | 0 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.5 | 1.8 | 0.3 | 0.0 | 2.7 | 5.8 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.3 | 0.9 | 0.1 | 0.0 | 1.0 | 2.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.5 | 0.1 | 0.0 | 0.5 | 1.3 |
| Plot 2 (sampled 1994-10-14) | | | | | | | |
| Intersections | 60 | 19 | 10 | 1 | 0 | 4 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.4 | 0.8 | 0.3 | 0.0 | 6.1 | 8.0 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.2 | 0.4 | 0.1 | 0.0 | 2.3 | 3.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.2 | 0.1 | 0.0 | 1.1 | 1.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 10.9 | punky | Piba | 9.0 | sloughing | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Piba | 9.0 | sloughing | Potr | 14.7 | sloughing | Piba | 8.6 | sloughing |
| Unid | 8.4 | rotten | — | — | — | — | — | — |

^a Piba = *Pinus banksiana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-10-14 | 15 (0) | 7.7 | 2.4 | — ^b |
| Plot 2 | 1994-10-14 | 15 (0) | 11.0 | 3.2 | — |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 8 | 8 | 0.164 | 32.1 | 24 |
| Line 2 | 9 | 9 | 0.136 | 35.5 | 25 |
| Line 3 | 11 | 11 | 0.098 | 34.9 | 22 |

SITE CODE: SASK POM-YJP (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | | Total |
|---|---------------------|-----------|---------|---------|---------|------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | $\geq 7^a$ | |
| Plot 1 (sampled 1994-10-17) | | | | | | | |
| Intersections | 57 | 26 | 24 | 5 | 8 | 7 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.5 | 2.0 | 1.6 | 4.6 | 6.6 | 15.7 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.3 | 1.0 | 0.7 | 2.0 | 2.5 | 6.7 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.5 | 0.4 | 1.0 | 1.2 | 3.4 |

^a Details on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items ≥ 7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 10.0 | punky | Unid | 7.4 | punky | Unid | 7.2 | punky |
| Unid | 7.2 | punky | Unid | 10.2 | punky | Unid | 8.2 | punky |
| Unid | 7.1 | punky | — ^b | — | — | — | — | — |

^a Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-10-17 | 0 (0) | 7.7 | 2.4 | — ^b |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 12 | 12 | 0.116 | 58.3 | 45 |
| Line 2 | 12 | 12 | 0.092 | 56.8 | 37 |
| Line 3 | 16 | 16 | 0.113 | 61.7 | 65 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-06-22) | | | | | | | |
| Intersections | 100 | 56 | 48 | 20 | 3 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.8 | 1.2 | 4.1 | 6.4 | 1.7 | 1.8 | 16.0 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.6 | 1.8 | 2.7 | 0.7 | 0.7 | 6.9 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 0.9 | 1.3 | 0.4 | 0.3 | 3.4 |
| Plot 2 (sampled 1994-06-22) | | | | | | | |
| Intersections | 113 | 58 | 62 | 29 | 16 | 10 | na |
| Volume (m ³ ha ⁻¹) | 1.0 | 1.3 | 5.3 | 9.2 | 9.1 | 15.0 | 40.8 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.6 | 2.3 | 3.9 | 3.8 | 4.9 | 16.0 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.3 | 1.2 | 1.9 | 1.9 | 2.5 | 8.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 8.0 | sloughing | Potr | 8.0 | sloughing | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Potr | 9.0 | rotten | Poba | 9.5 | punky | Unid | 8.0 | punky |
| Unid | 9.4 | rotten | Poba | 10.0 | sloughing | Unid | 11.0 | rotten |
| Potr | 9.5 | punky | Unid | 17.5 | rotten | Unid | 9.5 | rotten |
| Poba | 8.0 | rotten | — | — | — | — | — | — |

^a Poba = *Populus balsamifera*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-22 | 15 (0) | 7.7 | 2.4 | 0 |
| Plot 2 | 1994-06-22 | 15 (0) | 11.1 | 2.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 5 | 5 | 0.143 | 61.2 | 25 |
| Line 2 | 8 | 8 | 0.114 | 60.5 | 30 |
| Line 3 | 8 | 8 | 0.093 | 57.6 | 25 |

SITE CODE: SASK TE-OA (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-06-08) | | | | | | | |
| Intersections | 82 | 91 | 36 | 6 | 11 | 33 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.7 | 2.0 | 3.1 | 1.9 | 6.2 | 66.9 | 80.8 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.9 | 1.3 | 0.8 | 2.6 | 22.5 | 28.6 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.5 | 0.7 | 0.4 | 1.3 | 11.3 | 14.3 |
| Plot 2 (sampled 1994-06-08) | | | | | | | |
| Intersections | 68 | 35 | 14 | 4 | 12 | 13 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.8 | 1.2 | 1.3 | 6.8 | 14.6 | 25.2 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.4 | 0.5 | 0.5 | 2.9 | 5.5 | 10.0 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.3 | 0.3 | 1.4 | 2.7 | 5.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 8.0 | rotten | Potr | 8.0 | rotten | Potr | 9.0 | rotten |
| Potr | 14.0 | rotten | Potr | 11.0 | rotten | Potr | 9.0 | punky |
| Potr | 10.0 | rotten | Potr | 10.0 | sloughing | Potr | 18.0 | rotten |
| Poba | 17.0 | sound | Potr | 9.0 | sloughing | Potr | 11.0 | rotten |
| Poba | 8.0 | punky | Poba | 17.0 | sound | Potr | 16.0 | sloughing |
| Poba | 12.0 | sloughing | Potr | 10.0 | rotten | Potr | 9.0 | rotten |
| Potr | 11.0 | sloughing | Potr | 12.0 | rotten | Potr | 13.0 | rotten |
| Potr | 13.0 | rotten | Potr | 11.0 | rotten | Potr | 17.0 | sloughing |
| Potr | 14.5 | rotten | Potr | 13.0 | sloughing | Potr | 7.5 | rotten |
| Potr | 8.0 | rotten | Poba | 8.0 | punky | Potr | 9.0 | rotten |
| Potr | 10.0 | sloughing | Potr | 13.0 | rotten | Potr | 20.0 | rotten |
| Plot 2 | | | | | | | | |
| Potr | 10.8 | sloughing | Potr | 9.0 | sloughing | Potr | 8.2 | sloughing |
| Potr | 9.8 | punky | Potr | 8.2 | sloughing | Potr | 7.4 | sloughing |
| Potr | 8.6 | sloughing | Potr | 8.4 | sloughing | Potr | 7.8 | rotten |
| Potr | 11.0 | punky | Potr | 7.4 | sloughing | Potr | 8.5 | sloughing |
| Potr | 11.2 | sloughing | — ^b | — | — | — | — | — |

^a Poba = *Populus balsamifera*, Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-08 | 15 (0) | 14.1 | 2.2 | 0 |
| Plot 2 | 1994-06-08 | 15 (0) | 11.5 | 2.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 6 | 6 | 0.110 | 61.5 | 24 |
| Line 2 | 8 | 8 | 0.106 | 58.2 | 27 |
| Line 3 | 13 | 13 | 0.110 | 51.8 | 43 |

SITE CODE: SASK TE-OBS (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 2 (sampled 1994-06-27) | | | | | | | |
| Intersections | 49 | 4 | 0 | 0 | 0 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Plot 3 (sampled 1994-07-09) | | | | | | | |
| Intersections | 56 | 17 | 4 | 3 | 1 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.3 | 0.3 | 1.0 | 0.6 | 0.0 | 2.5 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.2 | 0.5 | 0.3 | 0.0 | 1.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.0 | 0.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species | Diameter | Condition | Species | Diameter | Condition | Species | Diameter | Condition |
|-----------------------------|----------|-----------|----------------|----------|-----------|---------|----------|-----------|
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^a | — | — | — | — | — |
| Plot 3 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1994-06-27 | 15 (0) | 23.7 | 7.2 | 0 |
| Plot 3 | 1994-07-09 | 15 (0) | 34.1 | 5.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 27 | 17 | 0.029 | 90.4 | 41 |
| Line 2 | 20 | 17 | 0.024 | 92.9 | 26 |
| Line 3 | 18 | 18 | 0.056 | 85.7 | 50 |
| Plot 3 | | | | | |
| Line 1 | 26 | 26 | 0.045 | 86.1 | 59 |
| Line 2 | 37 | 37 | 0.022 | 86.9 | 41 |
| Line 3 | 32 | 32 | 0.047 | 89.5 | 78 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-07-08) | | | | | | | |
| Intersections | 96 | 27 | 23 | 0 | 1 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.6 | 2.0 | 0.0 | 0.6 | 3.2 | 6.9 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.3 | 1.0 | 0.0 | 0.3 | 1.1 | 2.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.5 | 0.0 | 0.1 | 0.6 | 1.5 |
| Plot 2 (sampled 1994-07-08) | | | | | | | |
| Intersections | 79 | 19 | 4 | 9 | 2 | 2 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.4 | 0.3 | 2.9 | 1.2 | 2.2 | 7.5 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.2 | 0.2 | 1.3 | 0.5 | 0.9 | 3.4 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.1 | 0.7 | 0.3 | 0.5 | 1.7 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 8.0 | sound | Piba | 9.5 | rotten | Piba | 9.0 | rotten |
| Plot 2 | | | | | | | | |
| Piba | 9.0 | sound | Piba | 9.0 | sound | — ^b | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-07-08 | 15 (0) | 6.5 | 1.6 | 0 |
| Plot 2 | 1994-07-08 | 15 (0) | 5.0 | 1.5 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 7 | 7 | 0.071 | 80.7 | 23 |
| Line 2 | 7 | 7 | 0.060 | 44.3 | 11 |
| Line 3 | 7 | 7 | 0.052 | 63.7 | 14 |
| Plot 2 | | | | | |
| Line 1 | 5 | 5 | 0.032 | 80.9 | 7 |
| Line 2 | 4 | 4 | 0.030 | 86.8 | 6 |
| Line 3 | 4 | 4 | 0.055 | 66.7 | 8 |

SITE CODE: SASK TF-YA (1)

Tower Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-07-11) | | | | | | | |
| Intersections | 19 | 45 | 39 | 20 | 14 | 8 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.2 | 1.0 | 3.3 | 6.4 | 7.9 | 13.8 | 32.5 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.5 | 1.5 | 2.7 | 3.3 | 4.8 | 12.8 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.2 | 0.7 | 1.3 | 1.7 | 2.4 | 6.4 |
| Plot 2 (sampled 1994-07-11) | | | | | | | |
| Intersections | 74 | 54 | 45 | 19 | 11 | 16 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 1.2 | 3.8 | 6.0 | 6.2 | 47.7 | 65.6 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.5 | 1.7 | 2.5 | 2.6 | 16.6 | 24.3 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 0.8 | 1.3 | 1.3 | 8.3 | 12.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 14.0 | rotten | Potr | 9.0 | punky | Potr | 14.0 | punky |
| Potr | 10.0 | punky | Potr | 8.0 | rotten | Potr | 8.0 | sloughing |
| Unid | 15.0 | rotten | Potr | 9.0 | punky | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Potr | 11.0 | sloughing | Potr | 8.0 | punky | Potr | 10.2 | punky |
| Potr | 19.5 | rotten | Potr | 16.0 | rotten | Potr | 14.0 | punky |
| Potr | 10.0 | sloughing | Potr | 15.0 | rotten | Potr | 18.5 | rotten |
| Potr | 17.0 | punky | Potr | 21.0 | sloughing | Potr | 15.0 | rotten |
| Potr | 8.5 | punky | Potr | 8.5 | sloughing | Potr | 10.5 | sloughing |
| Potr | 22.0 | punky | — | — | — | — | — | — |

^a Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-07-11 | 15 (0) | 9.6 | 3.0 | 0 |
| Plot 2 | 1994-07-11 | 15 (0) | 11.9 | 5.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 16 | 16 | 0.059 | 72.8 | 40 |
| Line 2 | 9 | 9 | 0.088 | 60.6 | 28 |
| Line 3 | 12 | 12 | 0.061 | 73.0 | 31 |
| Plot 2 | | | | | |
| Line 1 | 10 | 10 | 0.082 | 80.7 | 37 |
| Line 2 | 8 | 8 | 0.049 | 79.4 | 18 |
| Line 3 | 12 | 12 | 0.098 | 36.5 | 25 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-07-09) | | | | | | | |
| Intersections | 49 | 42 | 34 | 41 | 35 | 16 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.9 | 2.9 | 13.2 | 20.2 | 45.2 | 82.7 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.5 | 1.5 | 6.1 | 8.9 | 15.2 | 32.2 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.7 | 3.0 | 4.5 | 7.6 | 16.1 |
| Plot 2 (sampled 1994-07-09) | | | | | | | |
| Intersections | 71 | 13 | 23 | 26 | 18 | 8 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.3 | 2.0 | 8.3 | 10.4 | 11.0 | 32.4 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.1 | 1.0 | 3.8 | 4.6 | 3.6 | 13.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.5 | 1.9 | 2.3 | 1.8 | 6.7 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 14.0 | rotten | Piba | 10.0 | rotten | Piba | 12.0 | rotten |
| Unid | 18.0 | rotten | Piba | 10.0 | rotten | Unid | 13.0 | rotten |
| Unid | 12.0 | rotten | Unid | 12.0 | rotten | Unid | 21.0 | rotten |
| Piba | 9.0 | rotten | Piba | 10.0 | punky | Piba | 10.0 | rotten |
| Unid | 14.0 | rotten | Piba | 9.0 | punky | Piba | 14.0 | rotten |
| Unid | 28.0 | rotten | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 9.5 | punky | Piba | 7.8 | rotten | Piba | 10.0 | rotten |
| Piba | 10.0 | rotten | Piba | 15.0 | rotten | Piba | 8.2 | rotten |
| Piba | 8.2 | rotten | Piba | 9.5 | rotten | — | — | — |

^a Piba = *Pinus banksiana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-07-09 | 15 (0) | 1.9 | 1.0 | 0 |
| Plot 2 | 1994-07-09 | 15 (0) | 1.4 | 0.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 1 | 1 | 0.409 | 61.1 | 7 |
| Line 2 | 2 | 2 | 0.085 | 85.1 | 8 |
| Line 3 | 1 | 1 | 0.254 | 48.5 | 4 |
| Plot 2 | | | | | |
| Line 1 | 1 | 1 | 0.229 | 49.5 | 7 |
| Line 2 | 2 | 2 | 0.192 | 25.4 | 6 |
| Line 3 | 3 | 3 | 0.100 | 71.2 | 12 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 2 (sampled 1993-08-16) | | | | | | | |
| Intersections | 277 | 43 | 37 | 13 | 6 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.3 | 0.9 | 3.1 | 4.1 | 3.4 | 0.8 | 14.7 |
| Detrital mass (t ha ⁻¹) | 1.2 | 0.4 | 1.4 | 1.7 | 1.4 | 0.3 | 6.5 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.2 | 0.7 | 0.9 | 0.7 | 0.2 | 3.3 |
| Plot 3 (sampled 1993-08-17) | | | | | | | |
| Intersections | 322 | 65 | 31 | 6 | 11 | 1 | na |
| Volume (m ³ ha ⁻¹) | 2.7 | 1.4 | 2.6 | 1.9 | 6.2 | 0.8 | 15.7 |
| Detrital mass (t ha ⁻¹) | 1.4 | 0.7 | 1.2 | 0.8 | 2.6 | 0.3 | 7.0 |
| Detrital carbon (t C ha ⁻¹) | 0.7 | 0.3 | 0.6 | 0.4 | 1.3 | 0.1 | 3.5 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Bepa | 7.4 | sloughing | — ^b | — | — | — | — | — |
| Plot 3 | | | | | | | | |
| Potr | 7.4 | sloughing | — | — | — | — | — | — |

^a Bepa = *Betula papyrifera*, Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-16 | 15 (0) | 12.7 | 2.7 | 0 |
| Plot 3 | 1993-08-17 | 15 (0) | 6.4 | 1.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 8 | 8 | 0.115 | 58.2 | 31 |
| Line 2 | 5 | 5 | 0.164 | 58.6 | 28 |
| Line 3 | 10 | 10 | 0.091 | 48.4 | 24 |
| Plot 2 | | | | | |
| Line 1 | 3 | 3 | 0.406 | 27.1 | 19 |
| Line 2 | 5 | 5 | 0.224 | 28.1 | 18 |
| Line 3 | 6 | 6 | 0.141 | 48.6 | 24 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|------------|----------|----------|----------|-----------------|-----------------|
| | <0.5 | 0.5- $<$ 1 | 1- $<$ 3 | 3- $<$ 5 | 5- $<$ 7 | | |
| Plot 1 (sampled 1993-08-21) | | | | | | | |
| Intersections | 152 | 30 | 18 | 16 | 14 | 10 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.3 | 0.7 | 1.5 | 5.1 | 7.9 | 24.9 | 41.4 |
| Detrital mass (t ha ⁻¹) | 0.7 | 0.3 | 0.7 | 2.1 | 3.3 | 8.9 | 16.0 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 0.3 | 1.1 | 1.7 | 4.5 | 8.0 |
| Plot 2 (sampled 1993-08-20) | | | | | | | |
| Intersections | 236 | 19 | 19 | 14 | 21 | 13 | na |
| Volume (m ³ ha ⁻¹) | 2.0 | 0.4 | 1.6 | 4.4 | 11.9 | 34.1 | 54.4 |
| Detrital mass (t ha ⁻¹) | 1.1 | 0.2 | 0.7 | 1.9 | 5.0 | 12.3 | 21.1 |
| Detrital carbon (t C ha ⁻¹) | 0.5 | 0.1 | 0.4 | 0.9 | 2.5 | 6.2 | 10.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 10.4 | sloughing | Potr | 12.3 | rotten | Potr | 13.0 | sloughing |
| Potr | 11.5 | rotten | Potr | 17.5 | sloughing | Potr | 15.5 | rotten |
| Potr | 16.5 | rotten | Potr | 11.6 | sloughing | Potr | 9.2 | sloughing |
| Potr | 14.8 | sloughing | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Potr | 11.9 | sloughing | Potr | 17.1 | sloughing | Potr | 12.1 | sloughing |
| Potr | 10.4 | rotten | Potr | 13.1 | sloughing | Potr | 11.8 | sloughing |
| Potr | 16.5 | rotten | Potr | 14.3 | rotten | Potr | 12.2 | rotten |
| Potr | 12.3 | sloughing | Potr | 18.7 | sloughing | Potr | 14.3 | rotten |
| Potr | 12.4 | sloughing | — | — | — | — | — | — |

^a Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-21 | 15 (0) | 6.5 | 1.3 | 0 |
| Plot 2 | 1993-08-20 | 15 (0) | 6.5 | 0.7 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 4 | 4 | 0.152 | 46.5 | 16 |
| Line 2 | 5 | 5 | 0.110 | 76.9 | 24 |
| Line 3 | 8 | 8 | 0.128 | 47.0 | 26 |
| Plot 2 | | | | | |
| Line 1 | 5 | 5 | 0.228 | 34.0 | 22 |
| Line 2 | 5 | 5 | 0.280 | 27.8 | 23 |
| Line 3 | 7 | 7 | 0.221 | 27.8 | 23 |

Woody debris

| Parameter | Diameter class (cm) | | | | | | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | Æ7 ^a | |
| Plot 1 (sampled 1993-08-18) | | | | | | | |
| Intersections ^b | 50 | 21 | 6 | 4 | 3 | 3 | na ^c |
| Volume (m ³ ha ⁻¹) | 0.8 | 1.3 | 1.5 | 3.8 | 5.2 | 11.1 | 23.7 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.7 | 0.7 | 1.7 | 2.4 | 4.2 | 10.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 0.4 | 0.9 | 1.2 | 2.1 | 5.1 |
| Plot 2 (sampled 1993-08-18) | | | | | | | |
| Intersections | 143 | 38 | 22 | 22 | 36 | 17 | na |
| Volume (m ³ ha ⁻¹) | 1.2 | 0.8 | 1.9 | 7.0 | 20.4 | 31.9 | 63.2 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.4 | 0.8 | 2.9 | 8.6 | 10.8 | 24.2 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 0.4 | 1.5 | 4.3 | 5.4 | 12.1 |
| Plot 3 (sampled 1994-07-22) | | | | | | | |
| Intersections | 381 | 67 | 59 | 21 | 20 | 4 | na |
| Volume (m ³ ha ⁻¹) | 3.2 | 1.5 | 5.0 | 6.7 | 11.3 | 5.2 | 32.9 |
| Detrital mass (t ha ⁻¹) | 1.7 | 0.7 | 2.2 | 2.8 | 4.8 | 1.8 | 13.9 |
| Detrital carbon (t C ha ⁻¹) | 0.9 | 0.3 | 1.1 | 1.4 | 2.4 | 0.9 | 7.0 |

^aDetails on items in this size class are listed in the table below.

^b These counts are based on a single side of a triangle. Calculations assume that the missing sides are the same.

^c na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pisp | 10.5 | sloughing | Pisp | 9.7 | sloughing | Bepa | 8.1 | sloughing |
| Plot 2 | | | | | | | | |
| Unid | 13.1 | rotten | Unid | 12.1 | rotten | Unid | 10.6 | rotten |
| Unid | 15.0 | rotten | Unid | 9.4 | rotten | Unid | 13.4 | rotten |
| Unid | 18.0 | rotten | Unid | 9.7 | rotten | Unid | 9.4 | rotten |
| Unid | 12.6 | rotten | Unid | 8.2 | rotten | Unid | 9.9 | rotten |
| Unid | 9.0 | rotten | Unid | 10.4 | rotten | Unid | 12.8 | rotten |
| Unid | 8.7 | rotten | Unid | 11.9 | rotten | — ^b | — | — |
| Plot 3 | | | | | | | | |
| Unid | 10.5 | rotten | Unid | 9.0 | rotten | Pima | 9.5 | rotten |
| Unid | 10.0 | rotten | — | — | — | — | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*, Pisp = *Picea sp.*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-18 | 5 (0) | 14.6 | 1.9 | 0 |
| Plot 2 | 1993-08-18 | 5 (0) | 4.4 | 1.9 | 0 |
| Plot 3 | 1994-07-22 | 15 (0) | 12.0 | 3.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 6 | 6 | 0.200 | 59.4 | 38 |
| Line 2 | 8 | 8 | 0.135 | 57.9 | 34 |
| Line 3 | 9 | 9 | 0.066 | 51.9 | 17 |
| Plot 3 | | | | | |
| Line 1 | 12 | 12 | 0.053 | 55.8 | 21 |
| Line 2 | 16 | 16 | 0.027 | 89.1 | 22 |
| Line 3 | 10 | 10 | 0.115 | 62.7 | 42 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-21) | | | | | | | |
| Intersections | 67 | 10 | 4 | 2 | 1 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.2 | 0.3 | 0.6 | 0.6 | 8.6 | 10.9 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.1 | 0.1 | 0.3 | 0.2 | 3.5 | 4.6 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 1.7 | 2.3 |
| Plot 2 (sampled 1993-08-21) | | | | | | | |
| Intersections | 43 | 4 | 5 | 9 | 1 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.1 | 0.4 | 2.9 | 0.6 | 0.0 | 4.3 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.0 | 0.2 | 1.2 | 0.2 | 0.0 | 1.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.0 | 0.1 | 0.6 | 0.1 | 0.0 | 0.9 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 13.5 | sloughing | Unid | 17.5 | sloughing | Unid | 11.8 | sloughing |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |

^a Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-21 | 5 (0) | 1.1 | 0.6 | 0 |
| Plot 2 | 1993-08-21 | 5 (0) | 1.7 | 0.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 1 | 1 | 0.162 | 58.6 | 3 |
| Line 2 | 1 | 1 | 0.371 | 45.8 | 5 |
| Line 3 | 1 | 1 | 0.304 | 42.1 | 7 |
| Plot 2 | | | | | |
| Line 1 | 1 | 1 | 0.341 | 36.8 | 7 |
| Line 2 | 1 | 1 | 0.245 | 48.0 | 7 |
| Line 3 | 1 | 1 | 0.168 | 65.3 | 6 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-13) | | | | | | | |
| Intersections | 320 | 16 | 17 | 3 | 20 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.3 | 0.3 | 1.5 | 1.0 | 11.3 | 0.0 | 15.3 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.2 | 0.8 | 0.5 | 5.3 | 0.0 | 7.4 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.1 | 0.4 | 0.2 | 2.6 | 0.0 | 3.7 |
| Plot 2 (sampled 1993-08-13) | | | | | | | |
| Intersections | 69 | 24 | 29 | 10 | 2 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.5 | 2.5 | 3.3 | 1.1 | 0.0 | 7.7 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.3 | 1.4 | 1.7 | 0.5 | 0.0 | 4.0 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.7 | 0.8 | 0.3 | 0.0 | 2.0 |
| Plot 5 (sampled 1994-07-23) | | | | | | | |
| Intersections | 116 | 6 | 22 | 3 | 2 | 4 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.1 | 1.9 | 1.0 | 1.1 | 4.6 | 9.2 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.1 | 1.1 | 0.5 | 0.5 | 1.6 | 3.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.0 | 0.5 | 0.2 | 0.3 | 0.8 | 2.0 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |
| Plot 5 | | | | | | | | |
| Pima | 12.0 | rotten | Pima | 8.0 | rotten | Pima | 8.0 | rotten |
| Pima | 8.0 | rotten | — | — | — | — | — | — |

^aPima = *Picea mariana*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-13 | 9 (0) | 76.7 | 6.7 | 0 |
| Plot 2 | 1993-08-13 | 5 (0) | 14.4 | 3.9 | 0 |
| Plot 5 | 1994-07-23 | 15 (0) | 20.9 | 9.1 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 19 | 19 | 0.044 | 73.3 | 35 |
| Line 2 | 19 | 19 | 0.043 | 79.5 | 38 |
| Line 3 | 22 | 22 | 0.072 | 78.3 | 72 |
| Plot 2 | | | | | |
| Line 1 | 11 | 11 | 0.101 | 59.8 | 37 |
| Line 2 | 19 | 19 | 0.057 | 89.0 | 56 |
| Line 3 | 12 | 12 | 0.078 | 78.6 | 43 |
| Plot 5 | | | | | |
| Line 1 | 4 | 4 | 0.178 | 27.9 | 12 |
| Line 2 | 34 | 34 | 0.056 | 49.4 | 55 |
| Line 3 | 7 | 7 | 0.092 | 45.9 | 16 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 3 (sampled 1993-08-13) | | | | | | | |
| Intersections | 92 | 21 | 20 | 7 | 10 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.4 | 1.7 | 2.3 | 5.6 | 2.3 | 12.8 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.2 | 1.0 | 1.2 | 2.6 | 0.8 | 6.0 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.5 | 0.6 | 1.3 | 0.4 | 3.0 |
| Plot 4 (sampled 1993-08-13) | | | | | | | |
| Intersections | 62 | 27 | 17 | 8 | 17 | 2 | na |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.5 | 1.5 | 2.6 | 9.6 | 2.4 | 16.9 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.3 | 0.8 | 1.3 | 4.5 | 0.9 | 8.0 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.4 | 0.7 | 2.2 | 0.5 | 4.0 |
| Plot 6 (sampled 1994-07-24) | | | | | | | |
| Intersections | 196 | 28 | 36 | 27 | 10 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.8 | 0.6 | 3.1 | 8.9 | 5.6 | 1.8 | 20.8 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.3 | 1.7 | 4.5 | 2.6 | 0.6 | 10.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.9 | 2.2 | 1.3 | 0.3 | 5.1 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 3 | | | | | | | | |
| Pima | 8.5 | rotten | Pima | 9.8 | rotten | — ^b | — | — |
| Plot 4 | | | | | | | | |
| Pima | 7.9 | sound | Unid | 10.6 | rotten | — | — | — |
| Plot 6 | | | | | | | | |
| Unid | 11.5 | rotten | — | — | — | — | — | — |

^aPima = *Picea mariana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 3 | 1993-08-13 | 5 (0) | 12.0 | 3.0 | 0 |
| Plot 4 | 1993-08-13 | 4 (0) | 22.5 | 5.0 | 0 |
| Plot 6 | 1994-07-24 | 15 (0) | 10.8 | 8.3 | — ^b |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 3 | | | | | |
| Line 1 | 12 | 12 | 0.074 | 63.7 | 32 |
| Line 2 | 13 | 13 | 0.034 | 86.2 | 21 |
| Line 3 | 12 | 12 | 0.058 | 84.9 | 34 |
| Plot 4 | | | | | |
| Line 1 | 12 | 12 | 0.090 | 83.5 | 50 |
| Line 2 | 14 | 14 | 0.050 | 82.7 | 34 |
| Line 3 | 12 | 12 | 0.059 | 76.3 | 30 |
| Plot 6 | | | | | |
| Line 1 | 4 | 4 | 0.174 | 46.1 | 19 |
| Line 2 | 7 | 7 | 0.125 | 62.8 | 30 |
| Line 3 | 10 | 10 | 0.066 | 60.2 | 23 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-15) | | | | | | | |
| Intersections | 252 | 18 | 17 | 7 | 10 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.0 | 0.4 | 1.5 | 2.3 | 5.6 | 1.0 | 11.8 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.2 | 0.8 | 1.2 | 2.6 | 0.4 | 5.7 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.4 | 0.6 | 1.3 | 0.2 | 2.8 |
| Plot 5 (sampled 1994-07-21) | | | | | | | |
| Intersections | 318 | 33 | 22 | 8 | 2 | 0 | na |
| Volume (m ³ ha ⁻¹) | 1.3 | 0.7 | 1.9 | 2.6 | 1.1 | 0.0 | 7.6 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.4 | 1.1 | 1.3 | 0.5 | 0.0 | 3.9 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 0.5 | 0.7 | 0.3 | 0.0 | 1.9 |
| Plot 6 (sampled 1994-07-21) | | | | | | | |
| Intersections | 285 | 51 | 30 | 5 | 6 | 1 | na |
| Volume (m ³ ha ⁻¹) | 1.1 | 1.0 | 2.6 | 1.7 | 3.4 | 0.9 | 10.6 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.6 | 1.4 | 0.8 | 1.6 | 0.3 | 5.3 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.3 | 0.7 | 0.4 | 0.8 | 0.2 | 2.7 |

^a Details on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 8.5 | sloughing | — ^b | — | — | — | — | — |
| Plot 5 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |
| Plot 6 | | | | | | | | |
| Unid | 8.0 | punky | — | — | — | — | — | — |

^a Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-15 | 14 (0) | 14.4 | 3.7 | 0 |
| Plot 5 | 1994-07-21 | 15 (0) | 12.4 | 2.7 | 0 |
| Plot 6 | 1994-07-21 | 15 (0) | 16.8 | 8.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 5 | | | | | |
| Line 1 | 14 | 14 | 0.026 | 87.9 | 18 |
| Line 2 | 11 | 11 | 0.046 | 89.4 | 25 |
| Line 3 | 14 | 14 | 0.019 | 84.2 | 13 |
| Plot 6 | | | | | |
| Line 1 | 14 | 14 | 0.024 | 92.6 | 18 |
| Line 2 | 26 | 26 | 0.023 | 90.8 | 31 |
| Line 3 | 27 | 27 | 0.030 | 95.5 | 45 |

Woody debris

| Parameter | Diameter class (cm) | | | | | | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | Æ7 ^a | |
| Plot 4 (sampled 1993-08-15) | | | | | | | |
| Intersections | 896 | 47 | 16 | 7 | 10 | 9 | na ^b |
| Volume (m ³ ha ⁻¹) | 3.6 | 0.9 | 1.4 | 2.3 | 5.6 | 15.9 | 29.8 |
| Detrital mass (t ha ⁻¹) | 1.6 | 0.5 | 0.8 | 1.2 | 2.6 | 6.1 | 12.9 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.3 | 0.4 | 0.6 | 1.3 | 3.1 | 6.5 |
| Plot 7 (sampled 1994-07-21) | | | | | | | |
| Intersections | 102 | 10 | 11 | 3 | 6 | 4 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.2 | 0.9 | 1.0 | 3.4 | 5.1 | 11.1 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.1 | 0.5 | 0.5 | 1.6 | 2.0 | 4.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.3 | 0.2 | 0.8 | 1.0 | 2.4 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 4 | | | | | | | | |
| Pima | 9.0 | sloughing | Pima | 15.3 | sound | Bepa | 11.6 | rotten |
| Pima | 10.7 | sound | Pima | 9.3 | sloughing | Pima | 10.2 | sloughing |
| Bepa | 12.2 | rotten | Bepa | 12.6 | rotten | Bepa | 10.0 | rotten |
| Plot 7 | | | | | | | | |
| Pima | 10.0 | sloughing | Pima | 9.0 | punky | Pima | 11.0 | punky |
| Pima | 8.5 | punky | — ^b | — | — | — | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 4 | 1993-08-15 | 15 (0) | 18.2 | 3.8 | 0 |
| Plot 7 | 1994-07-21 | 15 (5) | 24.6 | 15.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 12 | 12 | 0.032 | 77.2 | 17 |
| Line 2 | 10 | 10 | 0.039 | 91.3 | 21 |
| Line 3 | 7 | 7 | 0.094 | 53.8 | 20 |
| Plot 7 | | | | | |
| Line 1 | 21 | 21 | 0.023 | 91.6 | 26 |
| Line 2 | 30 | 30 | 0.017 | 86.8 | 26 |
| Line 3 | 24 | 24 | 0.037 | 85.2 | 44 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 3 (sampled 1993-08-15) | | | | | | | |
| Intersections | 239 | 11 | 4 | 2 | 3 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.0 | 0.2 | 0.3 | 0.7 | 1.7 | 0.0 | 3.9 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.1 | 0.2 | 0.3 | 0.8 | 0.0 | 1.9 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.1 | 0.2 | 0.4 | 0.0 | 0.9 |
| Plot 8 (sampled 1994-07-22) | | | | | | | |
| Intersections | 47 | 19 | 19 | 11 | 2 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.4 | 1.6 | 3.6 | 1.1 | 0.0 | 7.0 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.9 | 1.8 | 0.5 | 0.0 | 3.6 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.5 | 0.9 | 0.3 | 0.0 | 1.8 |
| Plot 9 (sampled 1994-07-22) | | | | | | | |
| Intersections | 94 | 8 | 11 | 6 | 2 | 5 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.2 | 0.9 | 2.0 | 1.1 | 7.4 | 12.0 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.1 | 0.5 | 1.0 | 0.5 | 2.8 | 5.1 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.0 | 0.3 | 0.5 | 0.3 | 1.4 | 2.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 3 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |
| Plot 8 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |
| Plot 9 | | | | | | | | |
| Pima | 10.0 | sloughing | Pima | 11.5 | punky | Pima | 11.0 | punky |
| Unid | 7.5 | rotten | Pima | 11.5 | punky | — | — | — |

^a Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 3 | 1993-08-15 | 15 (0) | 21.7 | 5.1 | 0 |
| Plot 8 | 1994-07-22 | 15 (2) | 28.7 | 10.2 | 0 |
| Plot 9 | 1994-07-22 | 15 (1) | 24.2 | 10.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 8 | | | | | |
| Line 1 | 31 | 31 | 0.018 | 88.9 | 28 |
| Line 2 | 24 | 24 | 0.019 | 81.9 | 22 |
| Line 3 | 33 | 33 | 0.022 | 92.7 | 39 |
| Plot 9 | | | | | |
| Line 1 | 37 | 37 | 0.018 | 95.5 | 37 |
| Line 2 | 16 | 16 | 0.039 | 89.4 | 33 |
| Line 3 | 25 | 25 | 0.036 | 91.5 | 48 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-08-13) | | | | | | | |
| Intersections | 412 | 47 | 28 | 5 | 3 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.6 | 0.9 | 2.4 | 1.7 | 1.7 | 0.0 | 8.3 |
| Detrital mass (t ha ⁻¹) | 0.8 | 0.5 | 1.3 | 0.8 | 0.8 | 0.0 | 4.3 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.3 | 0.7 | 0.4 | 0.4 | 0.0 | 2.1 |
| Plot 2 (sampled 1993-08-13) | | | | | | | |
| Intersections | 435 | 75 | 35 | 5 | 3 | 0 | na |
| Volume (m ³ ha ⁻¹) | 1.7 | 1.5 | 3.0 | 1.7 | 1.7 | 0.0 | 9.6 |
| Detrital mass (t ha ⁻¹) | 0.8 | 0.9 | 1.7 | 0.8 | 0.8 | 0.0 | 5.0 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.4 | 0.8 | 0.4 | 0.4 | 0.0 | 2.5 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species | Diameter | Condition | Species | Diameter | Condition | Species | Diameter | Condition |
|-----------------------------|----------|-----------|----------------|----------|-----------|---------|----------|-----------|
| Plot 1 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^a | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-13 | 15 (0) | 19.0 | 5.5 | 0 |
| Plot 2 | 1993-08-13 | 15 (0) | 12.8 | 3.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 9 | 9 | 0.069 | 80.6 | 29 |
| Line 2 | 13 | 13 | 0.024 | 89.6 | 16 |
| Line 3 | 12 | 12 | 0.062 | 76.3 | 33 |
| Plot 2 | | | | | |
| Line 1 | 9 | 9 | 0.127 | 71.6 | 48 |
| Line 2 | 10 | 10 | 0.053 | 68.9 | 21 |
| Line 3 | 9 | 9 | 0.120 | 52.6 | 33 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-08-12) | | | | | | | |
| Intersections | 280 | 21 | 5 | 0 | 0 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.1 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 2.0 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 1.0 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.5 |
| Plot 2 (sampled 1993-08-12) | | | | | | | |
| Intersections | 318 | 22 | 13 | 0 | 2 | 0 | na |
| Volume (m ³ ha ⁻¹) | 1.3 | 0.4 | 1.1 | 0.0 | 1.1 | 0.0 | 4.0 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.3 | 0.6 | 0.0 | 0.5 | 0.0 | 2.0 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.1 | 0.3 | 0.0 | 0.3 | 0.0 | 1.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species | Diameter | Condition | Species | Diameter | Condition | Species | Diameter | Condition |
|-----------------------------|----------|-----------|----------------|----------|-----------|---------|----------|-----------|
| Plot 1 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^a | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-12 | 15 (15) | 37.0 | 14.4 | 0 |
| Plot 2 | 1993-08-12 | 5 (5) | 33.0 | 10.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 15 | 15 | 0.099 | 87.9 | 76 |
| Line 2 | 23 | 23 | 0.139 | 83.6 | 155 |
| Line 3 | 25 | 25 | 0.038 | 82.7 | 46 |
| Plot 2 | | | | | |
| Line 1 | 11 | 11 | 0.100 | 83.5 | 51 |
| Line 2 | 28 | 28 | 0.089 | 80.1 | 115 |
| Line 3 | 13 | 13 | 0.064 | 78.9 | 37 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 2 (sampled 1993-08-18) | | | | | | | |
| Intersections | 297 | 9 | 14 | 2 | 5 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.2 | 0.2 | 1.2 | 0.7 | 2.8 | 0.9 | 6.9 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.1 | 0.7 | 0.3 | 1.3 | 0.3 | 3.3 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.1 | 0.3 | 0.2 | 0.7 | 0.2 | 1.7 |
| Plot 4 (sampled 1994-07-23) | | | | | | | |
| Intersections | 166 | 26 | 10 | 4 | 6 | 6 | na |
| Volume (m ³ ha ⁻¹) | 0.7 | 0.5 | 0.9 | 1.3 | 3.4 | 9.2 | 16.0 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.3 | 0.5 | 0.7 | 1.6 | 3.7 | 7.0 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.2 | 0.3 | 0.8 | 1.8 | 3.5 |
| Plot 5 (sampled 1994-07-23) | | | | | | | |
| Intersections | 239 | 32 | 17 | 7 | 4 | 3 | na |
| Volume (m ³ ha ⁻¹) | 1.0 | 0.6 | 1.5 | 2.3 | 2.3 | 3.2 | 10.9 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.4 | 0.8 | 1.2 | 1.1 | 1.2 | 5.0 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.4 | 0.6 | 0.5 | 0.6 | 2.5 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Pima | 7.9 | sloughing | — ^b | — | — | — | — | — |
| Plot 4 | | | | | | | | |
| Pima | 11.0 | sloughing | Pima | 15.0 | sloughing | Pima | 8.5 | punky |
| Pima | 8.0 | punky | Pima | 9.0 | sloughing | Pima | 10.5 | sloughing |
| Plot 5 | | | | | | | | |
| Pima | 8.0 | sloughing | Pima | 8.5 | rotten | Pima | 10.0 | rotten |

^aPima = *Picea mariana*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-18 | 15 (0) | 11.4 | 2.8 | 0 |
| Plot 4 | 1994-07-23 | 15 (0) | 13.8 | 5.8 | 0 |
| Plot 5 | 1994-07-23 | 15 (0) | 18.6 | 4.9 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 4 | | | | | |
| Line 1 | 9 | 9 | 0.069 | 84.1 | 30 |
| Line 2 | 13 | 13 | 0.033 | 81.8 | 20 |
| Line 3 | 13 | 13 | 0.064 | 69.4 | 33 |
| Plot 5 | | | | | |
| Line 1 | 16 | 16 | 0.038 | 91.2 | 32 |
| Line 2 | 19 | 19 | 0.033 | 88.3 | 33 |
| Line 3 | 24 | 24 | 0.029 | 92.6 | 37 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 3 (sampled 1993-08-18) | | | | | | | |
| Intersections | 273 | 10 | 9 | 2 | 10 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.1 | 0.2 | 0.8 | 0.7 | 5.6 | 1.2 | 9.6 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.1 | 0.4 | 0.3 | 2.6 | 0.5 | 4.6 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.2 | 0.2 | 1.3 | 0.3 | 2.3 |
| Plot 6 (sampled 1994-07-23) | | | | | | | |
| Intersections | 282 | 45 | 25 | 9 | 12 | 1 | na |
| Volume (m ³ ha ⁻¹) | 1.1 | 0.9 | 2.1 | 3.0 | 6.8 | 1.0 | 14.9 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.5 | 1.2 | 1.5 | 3.2 | 0.4 | 7.3 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.3 | 0.6 | 0.7 | 1.6 | 0.2 | 3.7 |
| Plot 7 (sampled 1994-07-23) | | | | | | | |
| Intersections | 219 | 41 | 27 | 20 | 2 | 5 | na |
| Volume (m ³ ha ⁻¹) | 0.9 | 0.8 | 2.3 | 6.6 | 1.1 | 5.5 | 17.2 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.5 | 1.3 | 3.3 | 0.5 | 2.1 | 8.2 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.6 | 1.7 | 0.3 | 1.1 | 4.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|---------------|----------------------|-----------|----------------|----------------------|-----------|-----------|----------------------|----------|-----------|
| Plot 3 | | | | | | | | | |
| Pima | 9.4 | sound | — ^b | — | — | — | — | — | — |
| Plot 6 | | | | | | | | | |
| Pima | 8.5 | sloughing | — | — | — | — | — | — | — |
| Plot 7 | | | | | | | | | |
| Pima | 10.0 | sloughing | Pima | 8.5 | sloughing | Pima | 10.0 | rotten | — |
| Pima | 7.5 | sloughing | Pima | 8.5 | sloughing | — | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 3 | 1993-08-18 | 15 (0) | 9.5 | 2.8 | 0 |
| Plot 6 | 1994-07-23 | 15 (0) | 15.7 | 4.8 | 0 |
| Plot 7 | 1994-07-23 | 15 (0) | 11.4 | 4.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 6 | | | | | |
| Line 1 | 17 | 17 | 0.029 | 90.8 | 26 |
| Line 2 | 23 | 23 | 0.031 | 94.0 | 39 |
| Line 3 | 14 | 14 | 0.051 | 71.7 | 30 |
| Plot 7 | | | | | |
| Line 1 | 14 | 14 | 0.024 | 89.3 | 18 |
| Line 2 | 19 | 19 | 0.054 | 86.7 | 52 |
| Line 3 | 10 | 10 | 0.049 | 85.2 | 24 |

SITE CODE: MAN BIM-12a (1)

Northern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-08-15) | | | | | | | |
| Intersections | 95 | 26 | 30 | 18 | 6 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.5 | 2.6 | 6.0 | 3.4 | 6.0 | 18.8 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.3 | 1.4 | 3.0 | 1.6 | 2.1 | 8.6 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.7 | 1.5 | 0.8 | 1.1 | 4.3 |
| Plot 6 (sampled 1994-07-11) | | | | | | | |
| Intersections | 186 | 24 | 18 | 3 | 3 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.7 | 0.5 | 1.5 | 1.0 | 1.7 | 0.8 | 6.2 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.3 | 0.9 | 0.5 | 0.8 | 0.3 | 3.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.4 | 0.2 | 0.4 | 0.1 | 1.5 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 8.9 | sound | Pima | 9.1 | rotten | Pima | 16.5 | rotten |
| Plot 6 | | | | | | | | |
| Pima | 7.5 | punky | — ^b | — | — | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-15 | 5 (0) | 18.6 | 1.9 | 0 |
| Plot 6 | 1994-07-11 | 15 (3) | 24.3 | 6.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 6 | | | | | |
| Line 1 | 20 | 17 | 0.034 | 92.6 | 36 |
| Line 2 | 26 | 17 | 0.035 | 91.5 | 48 |
| Line 3 | 30 | 17 | 0.029 | 93.1 | 47 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 2 (sampled 1993-08-15) | | | | | | | |
| Intersections | 104 | 17 | 14 | 10 | 3 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.3 | 1.2 | 3.3 | 1.7 | 2.3 | 9.2 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.2 | 0.7 | 1.7 | 0.8 | 0.9 | 4.4 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.3 | 0.8 | 0.4 | 0.5 | 2.2 |
| Plot 4 (sampled 1994-07-11) | | | | | | | |
| Intersections | 324 | 22 | 12 | 4 | 8 | 6 | na |
| Volume (m ³ ha ⁻¹) | 1.3 | 0.4 | 1.0 | 1.3 | 4.5 | 8.2 | 16.8 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.3 | 0.6 | 0.7 | 2.1 | 3.1 | 7.3 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.1 | 0.3 | 0.3 | 1.1 | 1.6 | 3.7 |
| Plot 5 (sampled 1994-07-11) | | | | | | | |
| Intersections | 203 | 16 | 11 | 1 | 1 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.8 | 0.3 | 0.9 | 0.3 | 0.6 | 1.1 | 4.1 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.2 | 0.5 | 0.2 | 0.3 | 0.4 | 1.9 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.3 | 0.1 | 0.1 | 0.2 | 1.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Pima | 12.9 | sloughing | — ^b | — | — | — | — | — |
| Plot 4 | | | | | | | | |
| Pima | 12.0 | sound | Pima | 8.5 | punky | Pima | 7.5 | punky |
| Pima | 10.5 | sloughing | Pima | 11.5 | rotten | Pima | 9.0 | rotten |
| Plot 5 | | | | | | | | |
| Pima | 9.0 | punky | — | — | — | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-15 | 5 (0) | 21.4 | 3.4 | 0 |
| Plot 4 | 1994-07-11 | 15 (6) | 31.4 | 8.8 | 0 |
| Plot 5 | 1994-07-11 | 15 (9) | 27.4 | 7.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 4 | | | | | |
| Line 1 | 44 | 17 | 0.034 | 82.6 | 73 |
| Line 2 | 25 | 17 | 0.033 | 76.5 | 36 |
| Line 3 | 31 | 17 | 0.056 | 76.2 | 76 |
| Plot 5 | | | | | |
| Line 1 | 32 | 17 | 0.049 | 94.1 | 85 |
| Line 2 | 26 | 17 | 0.029 | 94.8 | 41 |
| Line 3 | 20 | 17 | 0.040 | 89.3 | 41 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 2 (sampled 1993-08-17) | | | | | | | |
| Intersections | 62 | 20 | 26 | 7 | 1 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.4 | 2.2 | 2.3 | 0.6 | 0.0 | 5.8 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 1.3 | 1.2 | 0.3 | 0.0 | 3.0 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.6 | 0.6 | 0.1 | 0.0 | 1.5 |
| Plot 3 (sampled 1993-08-17) | | | | | | | |
| Intersections | 62 | 29 | 23 | 8 | 1 | 2 | na |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.6 | 2.0 | 2.6 | 0.6 | 2.5 | 8.5 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.3 | 1.1 | 1.3 | 0.3 | 1.1 | 4.2 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.6 | 0.7 | 0.1 | 0.5 | 2.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |
| Plot 3 | | | | | | | | |
| Pima | 7.2 | sound | Pima | 11.4 | sound | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-17 | 5 (0) | 10.6 | 1.4 | 0 |
| Plot 3 | 1993-08-17 | 5 (0) | 12.4 | 3.7 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 9 | 9 | 0.057 | 83.8 | 25 |
| Line 2 | 5 | 5 | 0.285 | 35.8 | 30 |
| Line 3 | 8 | 8 | 0.109 | 39.9 | 19 |
| Plot 2 | | | | | |
| Line 1 | 13 | 13 | 0.081 | 63.6 | 39 |
| Line 2 | 12 | 12 | 0.066 | 83.0 | 38 |
| Line 3 | 14 | 14 | 0.041 | 89.9 | 30 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 2 (sampled 1993-08-19) | | | | | | | |
| Intersections | 89 | 20 | 9 | 6 | 6 | 15 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.4 | 0.8 | 2.0 | 3.4 | 31.2 | 38.1 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.2 | 0.4 | 1.0 | 1.6 | 13.3 | 16.7 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.2 | 0.5 | 0.8 | 6.6 | 8.3 |
| Plot 3 (sampled 1993-08-19) | | | | | | | |
| Intersections | 108 | 23 | 14 | 10 | 9 | 14 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.5 | 1.2 | 3.3 | 5.1 | 30.8 | 41.3 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.3 | 0.7 | 1.7 | 2.4 | 13.3 | 18.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.3 | 0.8 | 1.2 | 6.7 | 9.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Pima | 12.5 | rotten | Pima | 14.0 | sound | Pima | 15.4 | sound |
| Pima | 15.0 | sound | Bepa | 9.8 | sound | Pima | 9.3 | sound |
| Pima | 15.0 | sloughing | Pima | 9.9 | sound | Pima | 9.3 | sound |
| Pima | 16.7 | sound | Pima | 9.4 | sound | Pima | 7.9 | sound |
| Pima | 8.0 | sound | Pima | 17.3 | sloughing | Bepa | 8.9 | sloughing |
| Plot 3 | | | | | | | | |
| Pima | 11.8 | sound | Pima | 13.3 | sound | Pima | 11.5 | sound |
| Pima | 12.4 | sound | Pima | 8.3 | sound | Pima | 15.4 | sound |
| Pima | 12.7 | sound | Pima | 14.3 | sloughing | Pima | 10.3 | sound |
| Pima | 16.0 | sound | Pima | 15.4 | sound | Pima | 11.5 | sound |
| Pima | 11.4 | sound | Unid | 10.5 | rotten | — ^b | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-19 | 5 (0) | 22.6 | 2.2 | 0 |
| Plot 3 | 1993-08-19 | 5 (0) | 21.0 | 3.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 20 | 20 | 0.031 | 85.4 | 30 |
| Line 2 | 10 | 10 | 0.041 | 87.0 | 21 |
| Line 3 | 6 | 6 | 0.124 | 89.6 | 39 |
| Plot 3 | | | | | |
| Line 1 | 34 | 34 | 0.036 | 88.6 | 63 |
| Line 2 | 16 | 16 | 0.021 | 92.3 | 18 |
| Line 3 | 13 | 13 | 0.109 | 74.6 | 61 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-08-12) | | | | | | | |
| Intersections | 17 | 10 | 8 | 3 | 1 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.2 | 0.7 | 1.0 | 0.6 | 0.0 | 2.5 |
| Detrital mass (t ha ⁻¹) | 0.0 | 0.1 | 0.4 | 0.5 | 0.3 | 0.0 | 1.3 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.2 | 0.2 | 0.1 | 0.0 | 0.6 |
| Plot 2 (sampled 1993-08-12) | | | | | | | |
| Intersections | 28 | 12 | 14 | 0 | 0 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.2 | 1.2 | 0.0 | 0.0 | 0.0 | 1.6 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.1 | 0.7 | 0.0 | 0.0 | 0.0 | 0.9 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.4 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species | Diameter | Condition | Species | Diameter | Condition | Species | Diameter | Condition |
|-----------------------------|----------|-----------|----------------|----------|-----------|---------|----------|-----------|
| Plot 1 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^a | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-12 | 15 (0) | 18.0 | 4.8 | 0 |
| Plot 2 | 1993-08-12 | 15 (0) | 14.9 | 3.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 20 | 20 | 0.114 | 83.4 | 110 |
| Line 2 | 29 | 29 | 0.102 | 77.5 | 133 |
| Line 3 | 21 | 21 | 0.110 | 77.0 | 104 |
| Plot 2 | | | | | |
| Line 1 | 22 | 22 | 0.078 | 81.1 | 81 |
| Line 2 | 32 | 32 | 0.074 | 73.6 | 101 |
| Line 3 | 15 | 15 | 0.077 | 91.1 | 61 |

SITE CODE: MAN BMM-8a (1)

Northern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 2 (sampled 1993-08-19) | | | | | | | |
| Intersections | 196 | 37 | 40 | 25 | 14 | 35 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.8 | 0.7 | 3.4 | 8.3 | 7.9 | 95.9 | 117.0 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.4 | 1.9 | 4.1 | 3.7 | 40.1 | 50.7 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 1.0 | 2.1 | 1.9 | 20.1 | 25.3 |
| Plot 5 (sampled 1994-07-12) | | | | | | | |
| Intersections | 265 | 52 | 30 | 5 | 7 | 28 | na |
| Volume (m ³ ha ⁻¹) | 1.1 | 1.0 | 2.6 | 1.7 | 3.9 | 39.1 | 49.3 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.6 | 1.4 | 0.8 | 1.9 | 15.0 | 20.3 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 0.7 | 0.4 | 0.9 | 7.5 | 10.1 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Pima | 10.0 | sound | Pima | 13.2 | sound | Pima | 9.9 | sound |
| Pima | 10.6 | rotten | Pima | 15.8 | sound | Pima | 12.1 | sloughing |
| Pima | 13.7 | sloughing | Pima | 26.5 | sound | Unid | 9.3 | rotten |
| Pima | 22.8 | sound | Pima | 14.0 | sound | Pima | 10.8 | sound |
| Bepa | 9.0 | sloughing | Pigl | 10.5 | sloughing | Pima | 9.4 | sloughing |
| Pima | 21.3 | sloughing | Pima | 10.2 | sloughing | Pima | 13.6 | sloughing |
| Pima | 9.3 | sloughing | Pima | 11.4 | sound | Pima | 10.9 | sound |
| Pima | 7.3 | sound | Pima | 17.4 | sloughing | Pima | 16.2 | sloughing |
| Pima | 20.0 | sound | Pima | 11.4 | sound | Pima | 11.4 | sloughing |
| Pima | 10.0 | sloughing | Pima | 15.0 | sloughing | Pima | 19.7 | sloughing |
| Pima | 20.0 | sloughing | Pima | 7.0 | sloughing | Pima | 14.7 | sloughing |
| Pima | 10.2 | sloughing | Pima | 13.6 | sloughing | — ^b | — | — |
| Plot 5 | | | | | | | | |
| Pima | 11.0 | punky | Pima | 8.5 | sloughing | Pima | 14.0 | sloughing |
| Pima | 16.0 | sloughing | Pima | 10.0 | sloughing | Pima | 10.5 | sloughing |
| Pima | 8.0 | punky | Pima | 8.0 | punky | Pima | 9.0 | punky |
| Pima | 8.0 | punky | Pima | 8.5 | punky | Pima | 8.0 | punky |
| Pima | 10.0 | punky | Pima | 8.0 | sloughing | Pima | 9.0 | punky |
| Pima | 15.0 | punky | Pima | 10.0 | punky | Pima | 10.0 | sloughing |
| Pima | 14.0 | sloughing | Bepa | 9.0 | punky | Bepa | 8.0 | punky |
| Pima | 9.5 | punky | Pima | 9.0 | punky | Pima | 9.0 | punky |
| Pima | 8.0 | punky | Pigl | 8.5 | punky | Pima | 8.0 | punky |
| Pima | 11.0 | punky | — | — | — | — | — | — |

^aBepa = *Betula papyrifera*, Pigl = *Picea glauca*, Pima = *Picea mariana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-19 | 5 (0) | 19.8 | 3.0 | 0 |
| Plot 5 | 1994-07-12 | 15 (0) | 24.3 | 5.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 5 | | | | | |
| Line 1 | 32 | 17 | 0.021 | 94.1 | 36 |
| Line 2 | 31 | 17 | 0.032 | 94.3 | 54 |
| Line 3 | 27 | 17 | 0.026 | 92.0 | 38 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 3 (sampled 1993-08-19) | | | | | | | |
| Intersections | 288 | 75 | 27 | 14 | 10 | 15 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.1 | 1.5 | 2.3 | 4.6 | 5.6 | 20.3 | 35.5 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.9 | 1.3 | 2.3 | 2.6 | 8.2 | 15.9 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.4 | 0.6 | 1.2 | 1.3 | 4.1 | 7.9 |
| Plot 4 (sampled 1993-08-19) | | | | | | | |
| Intersections | 208 | 21 | 24 | 0 | 5 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.8 | 0.4 | 2.1 | 0.0 | 2.8 | 0.0 | 6.1 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.2 | 1.2 | 0.0 | 1.3 | 0.0 | 3.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.6 | 0.0 | 0.7 | 0.0 | 1.6 |
| Plot 6 (sampled 1994-07-12) | | | | | | | |
| Intersections | 223 | 12 | 8 | 2 | 0 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.9 | 0.2 | 0.7 | 0.7 | 0.0 | 0.0 | 2.5 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.1 | 0.4 | 0.3 | 0.0 | 0.0 | 1.3 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.2 | 0.2 | 0.0 | 0.0 | 0.6 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 3 | | | | | | | | |
| Pima | 8.5 | sloughing | Pima | 13.0 | sloughing | Pima | 9.0 | punky |
| Pima | 10.0 | sloughing | Pima | 9.0 | sloughing | Pima | 9.0 | sloughing |
| Pima | 9.0 | sloughing | Pima | 8.5 | sloughing | Pima | 8.0 | sloughing |
| Pima | 8.0 | sloughing | Pima | 14.0 | sloughing | Pima | 13.0 | sloughing |
| Pima | 7.5 | sloughing | Pima | 11.0 | sloughing | Pima | 8.5 | sloughing |
| Plot 4 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |
| Plot 6 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^aPima = *Picea mariana*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 3 | 1993-08-19 | 15 (9) | 29.3 | 4.4 | 0 |
| Plot 4 | 1993-08-19 | 15 (0) | 19.3 | 6.0 | 0 |
| Plot 6 | 1994-07-12 | 15 (12) | 31.7 | 4.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 3 | | | | | |
| Line 1 | 34 | 17 | 0.021 | 94.2 | 38 |
| Line 2 | 24 | 17 | 0.022 | 87.8 | 27 |
| Line 3 | 35 | 17 | 0.039 | 92.7 | 73 |
| Plot 6 | | | | | |
| Line 1 | 33 | 17 | 0.042 | 94.6 | 76 |
| Line 2 | 30 | 17 | 0.033 | 91.2 | 53 |
| Line 3 | 35 | 17 | 0.044 | 93.5 | 84 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-11) | | | | | | | |
| Intersections | 2360 | 27 | 20 | 15 | 51 | 9 | na ^b |
| Volume (m ³ ha ⁻¹) | 14.2 | 0.6 | 1.7 | 4.8 | 29.5 | 14.2 | 64.9 |
| Detrital mass (t ha ⁻¹) | 6.7 | 0.3 | 0.9 | 2.2 | 13.0 | 4.8 | 27.8 |
| Detrital carbon (t C ha ⁻¹) | 3.3 | 0.1 | 0.4 | 1.1 | 6.5 | 2.4 | 13.9 |
| Plot 2 (sampled 1993-08-11) | | | | | | | |
| Intersections | 3218 | 11 | 36 | 24 | 27 | 4 | na |
| Volume (m ³ ha ⁻¹) | 19.3 | 0.2 | 3.1 | 7.7 | 15.6 | 5.8 | 51.7 |
| Detrital mass (t ha ⁻¹) | 9.1 | 0.1 | 1.6 | 3.5 | 6.9 | 1.9 | 23.0 |
| Detrital carbon (t C ha ⁻¹) | 4.5 | 0.1 | 0.8 | 1.8 | 3.4 | 0.9 | 11.5 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 10.9 | rotten | Piba | 11.1 | rotten | Piba | 14.6 | rotten |
| Piba | 13.0 | rotten | Piba | 8.7 | rotten | Piba | 8.7 | sloughing |
| Piba | 10.2 | rotten | Piba | 10.0 | sloughing | Piba | 7.5 | sloughing |
| Plot 2 | | | | | | | | |
| Piba | 8.4 | rotten | Piba | 11.0 | rotten | Piba | 10.0 | rotten |
| Piba | 11.5 | rotten | — ^b | — | — | — | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-11 | 15 (0) | 0.9 | 0.7 | 13 |
| Plot 2 | 1993-08-11 | 15 (0) | 1.3 | 0.6 | 8 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 2 | 2 | 0.353 | 14.0 | 6 |
| Line 2 | 1 | 1 | 0.257 | 32.8 | 2 |
| Line 3 | 1 | 1 | 0.670 | 17.1 | 7 |
| Plot 2 | | | | | |
| Line 1 | 2 | 2 | 0.362 | 15.3 | 5 |
| Line 2 | 1 | 1 | 0.785 | 10.7 | 5 |
| Line 3 | 2 | 2 | 0.907 | 7.2 | 6 |

SITE CODE: MAN JDM-1 (1)

Northern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-11) | | | | | | | |
| Intersections | 596 | 40 | 28 | 11 | 27 | 65 | na ^b |
| Volume (m ³ ha ⁻¹) | 3.6 | 0.8 | 2.4 | 3.5 | 15.6 | 110.7 | 136.6 |
| Detrital mass (t ha ⁻¹) | 1.7 | 0.4 | 1.2 | 1.6 | 6.9 | 38.4 | 50.2 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.2 | 0.6 | 0.8 | 3.4 | 19.2 | 25.1 |
| Plot 2 (sampled 1993-08-11) | | | | | | | |
| Intersections | 434 | 28 | 19 | 20 | 24 | 29 | na |
| Volume (m ³ ha ⁻¹) | 2.6 | 0.6 | 1.6 | 6.4 | 13.9 | 140.4 | 165.5 |
| Detrital mass (t ha ⁻¹) | 1.2 | 0.3 | 0.8 | 3.0 | 6.1 | 45.8 | 57.3 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.2 | 0.4 | 1.5 | 3.1 | 22.9 | 28.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 11.9 | sloughing | Piba | 10.6 | rotten | Piba | 10.9 | sloughing |
| Piba | 10.8 | sloughing | Piba | 9.6 | sloughing | Piba | 11.3 | sloughing |
| Piba | 11.4 | rotten | Piba | 9.5 | rotten | Piba | 9.0 | rotten |
| Piba | 9.9 | rotten | Piba | 9.3 | rotten | Piba | 8.4 | rotten |
| Piba | 10.0 | rotten | Piba | 10.5 | rotten | Piba | 10.4 | rotten |
| Piba | 12.3 | rotten | Piba | 7.7 | rotten | Piba | 10.2 | rotten |
| Piba | 8.1 | rotten | Piba | 12.0 | rotten | Piba | 10.0 | rotten |
| Piba | 8.5 | rotten | Piba | 12.5 | sloughing | Piba | 9.2 | sloughing |
| Piba | 10.2 | sloughing | Piba | 9.4 | rotten | Piba | 10.0 | rotten |
| Piba | 12.2 | sloughing | Piba | 10.0 | sloughing | Piba | 10.9 | rotten |
| Piba | 9.1 | sloughing | Piba | 16.3 | sloughing | Piba | 9.6 | sloughing |
| Piba | 10.6 | sloughing | Piba | 12.4 | sloughing | Piba | 9.0 | sloughing |
| Piba | 8.9 | sloughing | Piba | 14.9 | rotten | Piba | 14.2 | rotten |
| Piba | 8.7 | rotten | Piba | 10.1 | rotten | Piba | 8.3 | rotten |
| Piba | 12.4 | rotten | Piba | 10.5 | rotten | Piba | 17.5 | rotten |
| Piba | 14.3 | rotten | Piba | 11.1 | sloughing | Piba | 15.4 | sloughing |
| Piba | 12.7 | sloughing | Piba | 12.3 | sloughing | Piba | 9.0 | sloughing |
| Piba | 7.9 | sloughing | Piba | 7.5 | sloughing | Piba | 9.0 | sloughing |
| Piba | 10.9 | sloughing | Piba | 12.3 | rotten | Piba | 12.6 | rotten |
| Piba | 9.1 | rotten | Piba | 13.1 | rotten | Piba | 14.8 | rotten |
| Piba | 10.5 | rotten | Piba | 14.9 | rotten | Piba | 14.3 | rotten |
| Piba | 10.8 | sloughing | Piba | 8.5 | rotten | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Piba | 11.0 | rotten | Piba | 11.5 | rotten | Piba | 9.0 | rotten |
| Piba | 8.2 | rotten | Piba | 9.3 | sloughing | Piba | 7.5 | sloughing |
| Piba | 7.3 | sloughing | Piba | 8.4 | sloughing | Piba | 7.7 | sloughing |
| Piba | 11.3 | sloughing | Piba | 10.2 | rotten | Piba | 8.4 | rotten |
| Piba | 9.0 | rotten | Piba | 8.3 | rotten | Piba | 8.4 | sloughing |
| Piba | 8.6 | rotten | Piba | 10.8 | rotten | Piba | 9.1 | sloughing |
| Piba | 8.2 | rotten | Piba | 10.0 | sloughing | Piba | 9.5 | sloughing |
| Piba | 10.3 | rotten | Piba | 10.4 | rotten | Piba | 8.3 | sloughing |
| Piba | 8.1 | sloughing | Piba | 8.8 | sloughing | Piba | 87.8 | rotten |
| Piba | 10.9 | rotten | Piba | 14.4 | rotten | — | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

SITE CODE: MAN JDM-1 (1) continued

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|--------------|------------|-----------------------|
| Plot 1 | 1993-08-11 | 15 (0) | 0.1 | 0.1 | 0 |
| Plot 2 | 1993-08-11 | 15 (0) | 0.1 | 0.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------------|-------------------------|--|----------------------------|---|
| Plot 1 | | | | | |
| Line 1 | 6 | 6 | 0.287 | 19.4 | 19 |
| Line 2 | 3 | 3 | 0.340 | 14.6 | 9 |
| Line 3 | 2 | 2 | 0.697 | 11.4 | 9 |
| Plot 2 | | | | | |
| Line 1 | 3 | 3 | 0.684 | 7.4 | 9 |
| Line 2 | 3 | 3 | 0.246 | 34.1 | 15 |
| Line 3 | 3 | 3 | 0.382 | 14.1 | 9 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-14) | | | | | | | |
| Intersections | 432 | 47 | 43 | 27 | 65 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.6 | 1.0 | 3.7 | 8.7 | 37.6 | 4.3 | 57.7 |
| Detrital mass (t ha ⁻¹) | 1.2 | 0.5 | 1.9 | 4.0 | 16.5 | 1.6 | 25.8 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.3 | 0.9 | 2.0 | 8.3 | 0.8 | 12.9 |
| Plot 2 (sampled 1993-08-14) | | | | | | | |
| Intersections | 1750 | 17 | 23 | 12 | 27 | 3 | na |
| Volume (m ³ ha ⁻¹) | 10.5 | 0.4 | 2.0 | 3.8 | 15.6 | 3.0 | 35.3 |
| Detrital mass (t ha ⁻¹) | 4.9 | 0.2 | 1.0 | 1.8 | 6.9 | 1.2 | 15.9 |
| Detrital carbon (t C ha ⁻¹) | 2.5 | 0.1 | 0.5 | 0.9 | 3.4 | 0.6 | 8.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 13.0 | sloughing | Piba | 8.0 | sloughing | Piba | 8.8 | sloughing |
| Plot 2 | | | | | | | | |
| Piba | 9.4 | sloughing | Piba | 8.4 | sloughing | Piba | 7.9 | sloughing |

^a Piba = *Pinus banksiana*.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-14 | 15 (0) | 14.5 | 3.8 | 0 |
| Plot 2 | 1993-08-14 | 15 (0) | 11.7 | 3.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 22 | 22 | 0.047 | 61.1 | 36 |
| Line 2 | 11 | 11 | 0.065 | 57.6 | 23 |
| Line 3 | 12 | 12 | 0.033 | 81.9 | 18 |
| Plot 2 | | | | | |
| Line 1 | 7 | 7 | 0.044 | 89.1 | 16 |
| Line 2 | 13 | 13 | 0.023 | 81.3 | 14 |
| Line 3 | 15 | 15 | 0.030 | 77.2 | 20 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-08-12) | | | | | | | |
| Intersections | 2649 | 11 | 19 | 0 | 1 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 15.9 | 0.2 | 1.6 | 0.0 | 0.6 | 7.5 | 25.8 |
| Detrital mass (t ha ⁻¹) | 7.5 | 0.1 | 0.8 | 0.0 | 0.3 | 2.4 | 11.1 |
| Detrital carbon (t C ha ⁻¹) | 3.7 | 0.1 | 0.4 | 0.0 | 0.1 | 1.2 | 5.5 |
| Plot 2 (sampled 1993-08-12) | | | | | | | |
| Intersections | 2050 | 12 | 2 | 2 | 2 | 0 | na |
| Volume (m ³ ha ⁻¹) | 12.3 | 0.2 | 0.2 | 0.6 | 1.2 | 0.0 | 14.5 |
| Detrital mass (t ha ⁻¹) | 5.8 | 0.1 | 0.1 | 0.3 | 0.5 | 0.0 | 6.8 |
| Detrital carbon (t C ha ⁻¹) | 2.9 | 0.1 | 0.0 | 0.1 | 0.3 | 0.0 | 3.4 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 16.2 | rotten | Piba | 16.9 | rotten | — ^b | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-12 | 15 (0) | 3.7 | 1.1 | 0 |
| Plot 2 | 1993-08-12 | 15 (0) | 3.7 | 1.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 2 | 2 | 0.277 | 38.1 | 12 |
| Line 2 | 2 | 2 | 0.175 | 79.7 | 12 |
| Line 3 | 2 | 2 | 0.442 | 15.9 | 8 |
| Plot 2 | | | | | |
| Line 1 | 3 | 3 | 0.713 | 17.7 | 18 |
| Line 2 | 4 | 4 | 0.145 | 25.7 | 8 |
| Line 3 | 3 | 3 | 0.212 | 29.9 | 11 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-14) | | | | | | | |
| Intersections | 1182 | 36 | 62 | 49 | 39 | 4 | na ^b |
| Volume (m ³ ha ⁻¹) | 7.1 | 0.7 | 5.3 | 15.7 | 22.6 | 8.3 | 59.7 |
| Detrital mass (t ha ⁻¹) | 3.3 | 0.4 | 2.7 | 7.2 | 9.9 | 3.2 | 26.8 |
| Detrital carbon (t C ha ⁻¹) | 1.7 | 0.2 | 1.3 | 3.6 | 5.0 | 1.6 | 13.4 |
| Plot 2 (sampled 1993-08-14) | | | | | | | |
| Intersections | 1015 | 26 | 45 | 41 | 27 | 11 | na |
| Volume (m ³ ha ⁻¹) | 6.1 | 0.5 | 3.8 | 13.2 | 15.6 | 19.1 | 58.3 |
| Detrital mass (t ha ⁻¹) | 2.9 | 0.3 | 1.9 | 6.1 | 6.9 | 6.6 | 24.6 |
| Detrital carbon (t C ha ⁻¹) | 1.4 | 0.1 | 1.0 | 3.0 | 3.4 | 3.3 | 12.3 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 12.0 | sloughing | Piba | 10.4 | sloughing | Piba | 14.2 | sloughing |
| Piba | 12.4 | sloughing | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Unid | 12.0 | rotten | Unid | 14.6 | rotten | Piba | 10.9 | sloughing |
| Piba | 8.5 | sloughing | Unid | 11.8 | rotten | Unid | 13.0 | rotten |
| Piba | 10.4 | rotten | Piba | 10.0 | rotten | Piba | 8.2 | sloughing |
| Piba | 9.4 | sloughing | Piba | 13.1 | rotten | — | — | — |

^a Piba = *Pinus banksiana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-14 | 5 (0) | 4.8 | 0.7 | 0 |
| Plot 2 | 1993-08-14 | 5 (0) | 5.6 | 0.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 5 | 5 | 0.174 | 37.1 | 17 |
| Line 2 | 2 | 2 | 0.212 | 48.4 | 12 |
| Line 3 | 5 | 5 | 0.098 | 62.6 | 18 |
| Plot 3 | | | | | |
| Line 1 | 2 | 2 | 0.185 | 30.9 | 7 |
| Line 2 | 3 | 3 | 0.196 | 55.2 | 19 |
| Line 3 | 3 | 3 | 0.225 | 52.8 | 21 |

SITE CODE: MAN MW-1a (1)

Northern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 3 (sampled 1993-08-19) | | | | | | | |
| Intersections | 610 | 71 | 38 | 3 | 9 | 5 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.4 | 1.4 | 3.3 | 1.0 | 5.1 | 7.5 | 20.6 |
| Detrital mass (t ha ⁻¹) | 1.1 | 0.8 | 1.8 | 0.5 | 2.4 | 2.9 | 9.6 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.4 | 0.9 | 0.2 | 1.2 | 1.5 | 4.8 |

^a Details on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 3 | | | | | | | | |
| Pima | 13.8 | sloughing | Pima | 11.0 | sloughing | Pima | 8.4 | rotten |
| Pima | 10.3 | sloughing | Pima | 7.5 | rotten | — ^b | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 3 | 1993-08-19 | 15 (0) | 8.1 | 3.6 | 3 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 25 | 25 | 0.019 | 91.5 | 26 |
| Line 2 | 16 | 16 | 0.043 | 80.1 | 32 |
| Line 3 | 16 | 16 | 0.038 | 87.6 | 31 |
| Plot 3 | | | | | |
| Line 1 | 12 | 12 | 0.027 | 86.5 | 16 |
| Line 2 | 21 | 21 | 0.037 | 86.4 | 39 |
| Line 3 | 7 | 7 | 0.063 | 88.8 | 23 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 2 (sampled 1993-08-19) | | | | | | | |
| Intersections | 343 | 37 | 57 | 10 | 4 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.4 | 0.7 | 4.9 | 3.3 | 2.3 | 4.7 | 17.3 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.4 | 2.7 | 1.7 | 1.1 | 1.9 | 8.4 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 1.4 | 0.8 | 0.5 | 0.9 | 4.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Potr | 9.3 | sloughing | Pima | 12.2 | sloughing | Potr | 10.5 | sloughing |

^a Pima = *Picea mariana*, Potr = *Populus tremuloides*.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-19 | 15 (0) | 8.2 | 2.1 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 17 | 17 | 0.078 | 49.9 | 38 |
| Line 2 | 13 | 13 | 0.122 | 46.5 | 43 |
| Line 3 | 10 | 10 | 0.068 | 89.6 | 34 |
| Plot 4 | | | | | |
| Line 1 | 10 | 10 | 0.053 | 62.8 | 20 |
| Line 2 | 13 | 13 | 0.042 | 89.2 | 28 |
| Line 3 | 16 | 16 | 0.035 | 90.3 | 30 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 4 (sampled 1993-08-20) | | | | | | | |
| Intersections | 176 | 42 | 22 | 0 | 2 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.1 | 0.9 | 1.9 | 0.0 | 1.2 | 0.0 | 5.0 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.5 | 1.0 | 0.0 | 0.5 | 0.0 | 2.4 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.5 | 0.0 | 0.3 | 0.0 | 1.2 |
| Plot 5 (sampled 1994-08-07) | | | | | | | |
| Intersections | 123 | 55 | 48 | 4 | 3 | 13 | na |
| Volume (m ³ ha ⁻¹) | 0.7 | 1.1 | 4.1 | 1.3 | 1.7 | 18.4 | 27.4 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.6 | 2.1 | 0.6 | 0.8 | 5.7 | 10.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 1.0 | 0.3 | 0.4 | 2.9 | 5.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 4 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |
| Plot 5 | | | | | | | | |
| Potr | 8.0 | punky | Poba | 8.0 | punky | Unid | 20.0 | rotten |
| Unid | 8.0 | punky | Unid | 8.0 | rotten | Poba | 8.5 | punky |
| Poba | 7.5 | punky | Poba | 8.0 | punky | Poba | 8.5 | punky |
| Poba | 9.5 | punky | Poba | 14.0 | punky | Poba | 7.5 | sloughing |
| Unid | 9.0 | rotten | — | — | — | — | — | — |

^a Poba = *Populus balsamifera*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 4 | 1993-08-20 | 0 (0) | 8.2 | 2.1 | 0 |
| Plot 5 | 1994-08-07 | 15 (0) | 13.0 | 2.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 3 | | | | | |
| Line 1 | 5 | 5 | 0.209 | 47.9 | 29 |
| Line 2 | 9 | 9 | 0.114 | 44.1 | 25 |
| Line 3 | 7 | 7 | 0.087 | 80.0 | 26 |
| Plot 4 | | | | | |
| Line 1 | 6 | 6 | 0.155 | 67.0 | 33 |
| Line 2 | 5 | 5 | 0.195 | 44.1 | 23 |
| Line 3 | 7 | 7 | 0.128 | 43.5 | 23 |
| Plot 5 | | | | | |
| Line 1 | 13 | 13 | 0.065 | 79.1 | 39 |
| Line 2 | 16 | 16 | 0.043 | 75.8 | 30 |
| Line 3 | 13 | 13 | 0.104 | 57.4 | 45 |

SITE CODE: MAN MW-2b (2)

Northern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 2 (sampled 1993-08-20) | | | | | | | |
| Intersections | 460 | 76 | 31 | 14 | 5 | 7 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.8 | 1.6 | 2.6 | 4.5 | 2.9 | 8.6 | 22.9 |
| Detrital mass (t ha ⁻¹) | 1.3 | 0.8 | 1.3 | 2.1 | 1.3 | 3.3 | 10.1 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.4 | 0.7 | 1.0 | 0.6 | 1.7 | 5.1 |

^a Details on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Piba | 11.0 | sloughing | Unid | 8.0 | sloughing | Potr | 9.2 | sloughing |
| Piba | 11.4 | sloughing | Piba | 9.4 | sloughing | Potr | 7.5 | sloughing |
| Potr | 9.0 | sloughing | — ^b | — | — | — | — | — |

^a Piba = *Pinus banksiana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-08-20 | 15 (0) | 11.5 | 2.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 12 | 12 | 0.090 | 64.8 | 39 |
| Line 2 | 11 | 11 | 0.063 | 80.4 | 32 |
| Line 3 | 11 | 11 | 0.118 | 43.5 | 31 |
| Plot 2 | | | | | |
| Line 1 | 7 | 7 | 0.103 | 70.0 | 29 |
| Line 2 | 12 | 12 | 0.053 | 72.5 | 27 |
| Line 3 | 10 | 10 | 0.079 | 84.7 | 39 |

SITE CODE: SASK ADH-2 (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-19) | | | | | | | |
| Intersections | 128 | 97 | 73 | 18 | 10 | 72 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.1 | 2.1 | 6.2 | 5.7 | 5.7 | 177.1 | 197.9 |
| Detrital mass (t ha ⁻¹) | 0.6 | 1.0 | 2.7 | 2.4 | 2.4 | 64.5 | 73.5 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.5 | 1.4 | 1.2 | 1.2 | 32.2 | 36.8 |
| Plot 2 (sampled 1993-07-19) | | | | | | | |
| Intersections | 147 | 112 | 59 | 4 | 11 | 89 | na |
| Volume (m ³ ha ⁻¹) | 1.2 | 2.5 | 5.0 | 1.3 | 6.2 | 213.6 | 229.8 |
| Detrital mass (t ha ⁻¹) | 0.7 | 1.1 | 2.2 | 0.5 | 2.6 | 82.2 | 89.3 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.6 | 1.1 | 0.3 | 1.3 | 41.1 | 44.7 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 11.9 | rotten | Potr | 14.7 | rotten | Potr | 10.9 | rotten |
| Potr | 11.4 | sloughing | Potr | 15.2 | rotten | Potr | 7.8 | sloughing |
| Potr | 11.1 | rotten | Potr | 12.7 | rotten | Potr | 10.6 | rotten |
| Potr | 8.6 | sloughing | Potr | 12.7 | rotten | Potr | 10.6 | sloughing |
| Potr | 10.9 | sloughing | Potr | 13.4 | sloughing | Potr | 16.0 | sloughing |
| Potr | 13.4 | sloughing | Potr | 15.7 | sloughing | Potr | 15.2 | sloughing |
| Potr | 11.4 | sloughing | Potr | 11.4 | rotten | Potr | 15.2 | rotten |
| Potr | 12.7 | rotten | Potr | 18.2 | sloughing | Potr | 12.4 | sloughing |
| Potr | 8.6 | rotten | Potr | 15.2 | sloughing | Potr | 10.1 | sloughing |
| Potr | 12.7 | sloughing | Potr | 22.8 | rotten | Potr | 9.1 | sloughing |
| Potr | 10.1 | sloughing | Potr | 20.8 | sloughing | Potr | 12.1 | sloughing |
| Potr | 17.0 | sloughing | Potr | 19.8 | rotten | Potr | 11.9 | rotten |
| Potr | 12.1 | sloughing | Potr | 10.1 | sloughing | Potr | 13.2 | rotten |
| Potr | 13.7 | sloughing | Potr | 11.1 | sloughing | Potr | 15.7 | sloughing |
| Potr | 10.6 | sloughing | Potr | 9.9 | sloughing | Potr | 12.9 | sloughing |
| Potr | 12.7 | sloughing | Potr | 12.7 | sloughing | Potr | 10.9 | rotten |
| Potr | 9.1 | rotten | Potr | 16.0 | sloughing | Potr | 15.2 | sloughing |
| Potr | 19.0 | sloughing | Potr | 8.3 | sloughing | Potr | 15.2 | sloughing |
| Potr | 15.7 | sloughing | Potr | 10.6 | sloughing | Potr | 13.7 | sloughing |
| Potr | 15.2 | rotten | Potr | 18.2 | sloughing | Potr | 12.7 | sloughing |
| Potr | 9.1 | sloughing | Potr | 8.1 | rotten | Potr | 14.9 | rotten |
| Potr | 12.7 | rotten | Potr | 15.2 | sloughing | Potr | 12.7 | sloughing |
| Potr | 13.2 | rotten | Potr | 15.7 | sloughing | Potr | 9.1 | sloughing |
| Potr | 10.1 | sloughing | Potr | 15.7 | rotten | Potr | 13.4 | sloughing |
| Plot 2 | | | | | | | | |
| Unid | 11.7 | sloughing | Unid | 8.9 | sloughing | Unid | 12.7 | rotten |
| Unid | 10.2 | rotten | Unid | 10.4 | rotten | Unid | 9.7 | sloughing |
| Unid | 10.7 | sloughing | Unid | 16.5 | sloughing | Unid | 10.7 | sloughing |
| Unid | 13.7 | sloughing | Unid | 12.2 | sloughing | Unid | 10.2 | sloughing |
| Unid | 7.9 | sloughing | Unid | 8.6 | sloughing | Unid | 9.4 | rotten |
| Unid | 19.1 | rotten | Unid | 9.7 | rotten | Unid | 10.2 | sloughing |
| Unid | 12.7 | rotten | Unid | 14.0 | rotten | Unid | 14.0 | sloughing |
| Unid | 8.9 | rotten | Unid | 11.4 | rotten | Unid | 11.4 | sloughing |
| Unid | 15.2 | rotten | Unid | 15.7 | sloughing | Unid | 15.2 | rotten |
| Unid | 10.2 | rotten | Unid | 15.2 | rotten | Unid | 10.4 | sloughing |

SITE CODE: SASK ADH-2 (1) continued

Data on individual items ± 7 cm (continued)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 continued | | | | | | | | |
| Unid | 7.6 | sloughing | Unid | 13.7 | sloughing | Unid | 10.2 | sloughing |
| Unid | 10.9 | rotten | Unid | 19.1 | sloughing | Unid | 12.7 | sloughing |
| Unid | 10.7 | sloughing | Unid | 10.2 | sloughing | Unid | 13.2 | sloughing |
| Unid | 7.4 | sloughing | Unid | 17.8 | sloughing | Unid | 14.0 | sloughing |
| Unid | 8.6 | sloughing | Unid | 14.2 | rotten | Unid | 17.8 | rotten |
| Unid | 17.5 | sloughing | Unid | 21.6 | sloughing | Unid | 17.0 | sloughing |
| Unid | 15.2 | rotten | Unid | 11.7 | sloughing | Unid | 9.7 | sloughing |
| Unid | 9.4 | sloughing | Unid | 8.9 | sloughing | Unid | 8.9 | sloughing |
| Unid | 12.7 | rotten | Unid | 21.3 | sloughing | Unid | 9.1 | sloughing |
| Unid | 20.3 | sloughing | Unid | 19.6 | sloughing | Unid | 11.9 | rotten |
| Unid | 17.8 | rotten | Unid | 11.2 | rotten | Unid | 9.1 | sloughing |
| Unid | 9.4 | rotten | Unid | 15.2 | sloughing | Unid | 10.2 | rotten |
| Unid | 10.7 | rotten | Unid | 18.8 | sloughing | Unid | 12.7 | sloughing |
| Unid | 17.8 | sloughing | Unid | 19.1 | sloughing | Unid | 7.1 | rotten |
| Unid | 8.1 | sloughing | Unid | 17.3 | rotten | Unid | 13.0 | sloughing |
| Unid | 21.1 | sloughing | Unid | 12.7 | rotten | Unid | 14.2 | sloughing |
| Unid | 15.2 | sloughing | Unid | 12.7 | sloughing | Unid | 10.2 | sloughing |
| Unid | 12.7 | rotten | Unid | 12.7 | sloughing | Unid | 12.7 | sloughing |
| Unid | 11.4 | sloughing | Unid | 8.9 | sloughing | Unid | 10.2 | rotten |
| Unid | 10.7 | rotten | Unid | 10.4 | sloughing | — ^b | — | — |

^a Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-19 | 14 (0) | 7.0 | 1.6 | 0 |
| Plot 2 | 1993-07-19 | 15 (0) | 10.1 | 3.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 12 | 12 | 0.090 | 44.5 | 28 |
| Line 2 | 6 | 6 | 0.184 | 46.3 | 30 |
| Line 3 | 9 | 9 | 0.162 | 79.3 | 67 |
| Plot 2 | | | | | |
| Line 1 | 10 | 10 | 0.088 | 64.7 | 33 |
| Line 2 | 10 | 10 | 0.073 | 73.8 | 31 |
| Line 3 | 17 | 17 | 0.073 | 64.6 | 45 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-07-07) | | | | | | | |
| Intersections | 30 | 21 | 22 | 7 | 11 | 25 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.5 | 1.9 | 2.2 | 6.2 | 91.3 | 102.3 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.8 | 0.9 | 2.6 | 32.6 | 37.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.4 | 0.5 | 1.3 | 16.3 | 18.6 |
| Plot 2 (sampled 1994-07-07) | | | | | | | |
| Intersections | 104 | 37 | 33 | 7 | 10 | 36 | na |
| Volume (m ³ ha ⁻¹) | 0.9 | 0.8 | 2.8 | 2.2 | 5.7 | 116.6 | 129.0 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.4 | 1.2 | 0.9 | 2.4 | 40.0 | 45.4 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.6 | 0.5 | 1.2 | 20.0 | 22.7 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 22.0 | rotten | Unid | 9.0 | punky | Unid | 10.0 | punky |
| Unid | 13.0 | punky | Unid | 12.0 | punky | Unid | 13.0 | punky |
| Unid | 14.0 | punky | Unid | 28.0 | rotten | Unid | 21.0 | rotten |
| Unid | 9.0 | rotten | Unid | 10.0 | rotten | Unid | 10.0 | punky |
| Unid | 14.0 | punky | Unid | 8.0 | punky | Unid | 14.0 | rotten |
| Unid | 28.0 | rotten | Unid | 15.0 | punky | Unid | 14.0 | punky |
| Unid | 12.0 | punky | Unid | 18.0 | punky | Unid | 21.0 | punky |
| Unid | 16.0 | punky | Unid | 10.0 | punky | Unid | 21.0 | punky |
| Unid | 21.0 | rotten | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Potr | 22.0 | punky | Potr | 17.0 | punky | Unid | 18.0 | punky |
| Unid | 16.0 | punky | Pigl | 11.0 | punky | Pigl | 8.4 | punky |
| Pigl | 8.0 | punky | Pigl | 10.0 | punky | Potr | 21.5 | punky |
| Pigl | 8.4 | punky | Pigl | 9.0 | punky | Pigl | 9.4 | punky |
| Potr | 16.5 | punky | Potr | 18.0 | punky | Pigl | 12.0 | punky |
| Potr | 15.5 | punky | Potr | 9.5 | punky | Potr | 15.0 | punky |
| Pigl | 9.5 | punky | Pigl | 9.4 | punky | Pigl | 10.0 | punky |
| Pigl | 9.4 | punky | Potr | 12.2 | rotten | Pigl | 9.0 | punky |
| Potr | 22.0 | punky | Pigl | 9.8 | rotten | Pigl | 8.0 | punky |
| Potr | 16.0 | punky | Potr | 22.0 | rotten | Potr | 21.0 | rotten |
| Potr | 26.0 | rotten | Potr | 18.0 | rotten | Pima | 8.0 | punky |
| Potr | 19.2 | punky | Potr | 22.5 | punky | Potr | 21.0 | punky |

^aPigl = *Picea glauca*, Pima = *Picea mariana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-07-07 | 15 (0) | 8.1 | 2.4 | 0 |
| Plot 2 | 1994-07-07 | 15 (0) | 10.2 | 2.7 | 0 |

^aValue in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 9 | 9 | 0.048 | 75.7 | 19 |
| Line 2 | 4 | 4 | 0.063 | 58.8 | 9 |
| Line 3 | 6 | 6 | 0.142 | 45.9 | 21 |
| Plot 2 | | | | | |
| Line 1 | 14 | 14 | 0.060 | 56.8 | 28 |
| Line 2 | 9 | 9 | 0.082 | 50.1 | 21 |
| Line 3 | 9 | 9 | 0.053 | 69.4 | 19 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 2 (sampled 1993-07-18) | | | | | | | |
| Intersections | 67 | 39 | 61 | 51 | 28 | 16 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.9 | 5.2 | 16.2 | 15.9 | 20.2 | 58.9 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.4 | 2.3 | 6.8 | 6.7 | 7.6 | 24.0 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 1.1 | 3.4 | 3.3 | 3.8 | 12.0 |
| Plot 3 (sampled 1993-07-17) | | | | | | | |
| Intersections | 170 | 24 | 38 | 19 | 20 | 7 | na |
| Volume (m ³ ha ⁻¹) | 1.4 | 0.5 | 3.2 | 6.0 | 11.3 | 9.8 | 32.4 |
| Detrital mass (t ha ⁻¹) | 0.8 | 0.2 | 1.4 | 2.5 | 4.8 | 3.5 | 13.2 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.1 | 0.7 | 1.3 | 2.4 | 1.7 | 6.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Potr | 12.1 | rotten | Potr | 14.9 | rotten | Potr | 10.5 | sound |
| Potr | 7.5 | sloughing | Potr | 9.9 | sloughing | Potr | 9.2 | sloughing |
| Potr | 8.9 | sloughing | Potr | 9.2 | sloughing | Potr | 9.3 | sloughing |
| Potr | 7.2 | sloughing | Potr | 7.4 | sloughing | Potr | 8.2 | sound |
| Potr | 9.6 | sloughing | Potr | 7.6 | sloughing | Potr | 8.4 | sloughing |
| Potr | 10.7 | sloughing | — ^b | — | — | — | — | — |
| Plot 3 | | | | | | | | |
| Potr | 7.5 | sound | Potr | 8.0 | sloughing | Potr | 12.5 | rotten |
| Potr | 12.0 | sloughing | Potr | 10.0 | rotten | Potr | 10.5 | rotten |
| Potr | 9.2 | sloughing | — | — | — | — | — | — |

^a Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-07-18 | 15 (0) | 3.4 | 1.2 | 0 |
| Plot 3 | 1993-07-17 | 15 (0) | 7.9 | 3.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 7 | 7 | 0.087 | 65.7 | 22 |
| Line 2 | 7 | 7 | 0.165 | 35.5 | 24 |
| Line 3 | 12 | 12 | 0.099 | 39.5 | 27 |
| Plot 2 | | | | | |
| Line 1 | 9 | 9 | 0.117 | 47.9 | 28 |
| Line 2 | 7 | 7 | 0.093 | 75.0 | 28 |
| Line 3 | 40 | 40 | 0.013 | 49.4 | 15 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-07-26) | | | | | | | |
| Intersections | 299 | 180 | 52 | 26 | 13 | 10 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.5 | 3.7 | 4.5 | 7.7 | 7.7 | 18.1 | 44.3 |
| Detrital mass (t ha ⁻¹) | 1.2 | 1.6 | 1.9 | 3.0 | 2.8 | 6.4 | 16.8 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.8 | 0.9 | 1.5 | 1.4 | 3.2 | 8.4 |
| Plot 2 (sampled 1993-07-26) | | | | | | | |
| Intersections | 173 | 119 | 33 | 12 | 10 | 1 | na |
| Volume (m ³ ha ⁻¹) | 1.5 | 2.5 | 2.9 | 3.6 | 5.9 | 1.0 | 17.2 |
| Detrital mass (t ha ⁻¹) | 0.7 | 1.0 | 1.2 | 1.4 | 2.1 | 0.3 | 6.7 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.5 | 0.6 | 0.7 | 1.1 | 0.2 | 3.4 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 9.6 | sound | Potr | 16.6 | rotten | Potr | 10.0 | sloughing |
| Poba | 12.5 | sloughing | Poba | 12.6 | sloughing | Potr | 7.7 | sloughing |
| Potr | 7.9 | sloughing | Potr | 9.6 | sloughing | Potr | 16.2 | sloughing |
| Potr | 8.0 | rotten | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Poba | 8.5 | sloughing | — | — | — | — | — | — |

^a Poba = *Populus balsamifera*, Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-26 | 11 (0) | 6.1 | 1.6 | 0 |
| Plot 2 | 1993-07-26 | 15 (0) | 9.5 | 2.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 16 | 16 | 0.121 | 56.2 | 63 |
| Line 2 | 15 | 15 | 0.061 | 77.8 | 41 |
| Line 3 | 9 | 9 | 0.131 | 71.7 | 49 |
| Plot 2 | | | | | |
| Line 1 | 9 | 9 | 0.087 | 55.9 | 25 |
| Line 2 | 6 | 6 | 0.107 | 50.9 | 19 |
| Line 3 | 11 | 11 | 0.089 | 60.2 | 34 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 2 (sampled 1993-07-20) | | | | | | | |
| Intersections | 29 | 35 | 58 | 16 | 11 | 18 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.8 | 4.9 | 5.1 | 6.2 | 18.2 | 35.4 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.4 | 2.2 | 2.1 | 2.6 | 7.2 | 14.6 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 1.1 | 1.1 | 1.3 | 3.6 | 7.3 |
| Plot 3 (sampled 1993-07-19) | | | | | | | |
| Intersections | 44 | 18 | 29 | 13 | 33 | 11 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.4 | 2.5 | 4.1 | 18.7 | 15.8 | 41.8 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.2 | 1.1 | 1.7 | 7.9 | 6.1 | 17.1 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.5 | 0.9 | 3.9 | 3.0 | 8.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Potr | 9.0 | sloughing | Potr | 8.3 | sloughing | Potr | 10.0 | sloughing |
| Potr | 8.0 | sloughing | Potr | 8.2 | sloughing | Potr | 8.0 | sound |
| Potr | 8.0 | sound | Potr | 8.0 | sloughing | Potr | 10.2 | sound |
| Potr | 9.7 | sloughing | Potr | 8.3 | sound | Potr | 7.8 | sloughing |
| Potr | 9.9 | sound | Potr | 8.6 | sound | Potr | 7.1 | rotten |
| Potr | 8.4 | sloughing | Potr | 9.1 | sloughing | Potr | 7.1 | rotten |
| Plot 3 | | | | | | | | |
| Potr | 14.0 | sloughing | Potr | 10.2 | sloughing | Potr | 10.4 | sloughing |
| Potr | 7.3 | sloughing | Potr | 8.0 | sloughing | Potr | 8.3 | sloughing |
| Potr | 7.5 | sloughing | Potr | 14.2 | sloughing | Potr | 8.5 | sloughing |
| Potr | 13.0 | sloughing | Potr | 7.5 | sloughing | — ^b | — | — |

^a Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-07-20 | 15 (0) | 5.9 | 3.3 | 0 |
| Plot 3 | 1993-07-19 | 15 (0) | 6.8 | 2.1 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 16 | 16 | 0.079 | 53.3 | 39 |
| Line 2 | 14 | 14 | 0.058 | 79.4 | 38 |
| Line 3 | 12 | 12 | 0.139 | 28.8 | 28 |
| Plot 2 | | | | | |
| Line 1 | 9 | 9 | 0.138 | 34.1 | 25 |
| Line 2 | 12 | 12 | 0.084 | 77.4 | 45 |
| Line 3 | 11 | 11 | 0.106 | 42.6 | 29 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-27) | | | | | | | |
| Intersections | 135 | 142 | 59 | 15 | 20 | 15 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.1 | 3.1 | 5.0 | 4.8 | 11.3 | 21.6 | 47.0 |
| Detrital mass (t ha ⁻¹) | 0.6 | 1.4 | 2.2 | 2.0 | 4.8 | 8.0 | 19.0 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.7 | 1.1 | 1.0 | 2.4 | 4.0 | 9.5 |
| Plot 2 (sampled 1993-07-27) | | | | | | | |
| Intersections | 183 | 110 | 48 | 6 | 12 | 18 | na |
| Volume (m ³ ha ⁻¹) | 1.5 | 2.4 | 4.1 | 1.9 | 6.8 | 32.0 | 48.7 |
| Detrital mass (t ha ⁻¹) | 0.8 | 1.1 | 1.8 | 0.8 | 2.9 | 11.3 | 18.7 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.6 | 0.9 | 0.4 | 1.4 | 5.7 | 9.4 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 13.1 | sloughing | Potr | 8.2 | sloughing | Potr | 8.6 | sloughing |
| Poba | 10.8 | sloughing | Potr | 10.3 | sloughing | Potr | 10.5 | sloughing |
| Potr | 14.0 | sloughing | Poba | 9.2 | sloughing | Potr | 10.9 | sound |
| Unid | 10.0 | rotten | Potr | 12.7 | rotten | Unid | 9.8 | sloughing |
| Potr | 7.6 | sloughing | Potr | 7.8 | sloughing | Potr | 7.4 | sloughing |
| Plot 2 | | | | | | | | |
| Poba | 9.3 | sloughing | Unid | 8.0 | sloughing | Poba | 7.6 | sloughing |
| Poba | 8.0 | rotten | Unid | 11.0 | rotten | Unid | 28.0 | rotten |
| Poba | 7.5 | sloughing | Unid | 7.2 | rotten | Poba | 11.0 | sloughing |
| Unid | 9.0 | sloughing | Potr | 14.0 | sloughing | Potr | 10.1 | sloughing |
| Potr | 8.9 | sloughing | Unid | 9.0 | sloughing | Unid | 7.4 | sloughing |
| Potr | 10.0 | sloughing | Potr | 12.4 | sloughing | Potr | 8.8 | sloughing |

^a Poba = *Populus balsamifera*, Potr = *Populus tremuloides*, Unid = Unidentified.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-27 | 15 (0) | 10.3 | 2.6 | 0 |
| Plot 2 | 1993-07-27 | 15 (0) | 9.1 | 2.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 9 | 9 | 0.131 | 33.9 | 23 |
| Line 2 | 4 | 4 | 0.092 | 70.1 | 15 |
| Line 3 | 7 | 7 | 0.130 | 46.7 | 25 |
| Plot 2 | | | | | |
| Line 1 | 6 | 6 | 0.117 | 63.9 | 26 |
| Line 2 | 5 | 5 | 0.072 | 86.1 | 18 |
| Line 3 | 6 | 6 | 0.098 | 78.8 | 27 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-07-25) | | | | | | | |
| Intersections | 248 | 50 | 7 | 4 | 1 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.0 | 1.0 | 0.6 | 1.3 | 0.6 | 0.9 | 5.4 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.6 | 0.3 | 0.7 | 0.3 | 0.4 | 2.7 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 0.2 | 0.3 | 0.1 | 0.2 | 1.3 |
| Plot 2 (sampled 1993-07-25) | | | | | | | |
| Intersections | 430 | 86 | 6 | 7 | 1 | 2 | na |
| Volume (m ³ ha ⁻¹) | 1.7 | 1.7 | 0.5 | 2.3 | 0.6 | 6.1 | 13.0 |
| Detrital mass (t ha ⁻¹) | 0.8 | 1.0 | 0.3 | 1.2 | 0.3 | 2.5 | 6.0 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.5 | 0.1 | 0.6 | 0.1 | 1.2 | 3.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 8.0 | sloughing | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Pima | 16.2 | sloughing | Unid | 13.6 | sloughing | — | — | — |

^a Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-25 | 15 (0) | 18.3 | 3.1 | 0 |
| Plot 2 | 1993-07-25 | 15 (0) | 17.7 | 2.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 17 | 17 | 0.018 | 90.7 | 16 |
| Line 2 | 11 | 11 | 0.014 | 90.4 | 8 |
| Line 3 | 7 | 7 | 0.032 | 87.1 | 11 |
| Plot 2 | | | | | |
| Line 1 | 2 | 2 | 0.063 | 85.8 | 7 |
| Line 2 | 2 | 2 | 0.107 | 89.3 | 12 |
| Line 3 | 10 | 10 | 0.020 | 87.3 | 10 |

SITE CODE: SASK BDH-4 (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-06-24) | | | | | | | |
| Intersections | 49 | 15 | 19 | 17 | 12 | 16 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.3 | 1.6 | 5.5 | 6.9 | 16.3 | 30.9 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.8 | 2.5 | 3.1 | 6.1 | 12.8 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.4 | 1.3 | 1.5 | 3.0 | 6.4 |
| Plot 2 (sampled 1994-06-24) | | | | | | | |
| Intersections | 127 | 123 | 52 | 16 | 32 | 59 | na |
| Volume (m ³ ha ⁻¹) | 0.8 | 2.5 | 4.4 | 5.1 | 18.5 | 149.7 | 181.1 |
| Detrital mass (t ha ⁻¹) | 0.4 | 1.3 | 2.3 | 2.4 | 8.1 | 52.9 | 67.3 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.7 | 1.1 | 1.2 | 4.1 | 26.4 | 33.7 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 9.5 | punky | Pima | 8.0 | punky | Pima | 9.2 | punky |
| Pima | 7.1 | punky | Pima | 7.5 | punky | Pima | 7.5 | sloughing |
| Pima | 7.5 | punky | Pima | 11.0 | punky | Pima | 9.0 | punky |
| Pima | 8.5 | punky | Pima | 10.4 | punky | Pima | 7.2 | punky |
| Pima | 10.5 | punky | Pima | 8.0 | punky | Pima | 7.5 | punky |
| Pima | 8.0 | punky | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 19.0 | punky | Piba | 20.0 | punky | Unid | 18.0 | punky |
| Unid | 11.0 | rotten | Piba | 16.0 | punky | Piba | 13.0 | punky |
| Piba | 10.0 | punky | Piba | 21.0 | punky | Piba | 11.0 | punky |
| Piba | 8.0 | punky | Piba | 12.0 | punky | Piba | 8.5 | punky |
| Piba | 16.0 | punky | Piba | 16.0 | punky | Piba | 14.0 | punky |
| Piba | 17.0 | punky | Piba | 10.0 | punky | Piba | 11.0 | punky |
| Piba | 12.0 | punky | Piba | 13.0 | punky | Piba | 12.0 | punky |
| Piba | 14.0 | punky | Piba | 13.0 | punky | Piba | 10.0 | punky |
| Piba | 10.0 | punky | Piba | 14.0 | punky | Piba | 12.0 | punky |
| Piba | 13.0 | punky | Piba | 13.0 | punky | Piba | 12.0 | punky |
| Piba | 8.0 | punky | Piba | 14.0 | punky | Piba | 14.0 | punky |
| Piba | 9.0 | punky | Piba | 9.0 | punky | Piba | 14.0 | punky |
| Piba | 12.5 | punky | Piba | 11.0 | punky | Piba | 10.0 | punky |
| Piba | 12.0 | punky | Piba | 17.3 | punky | Piba | 8.0 | punky |
| Piba | 10.0 | punky | Piba | 18.0 | punky | Piba | 16.0 | punky |
| Unid | 14.0 | punky | Piba | 12.0 | rotten | Piba | 12.0 | punky |
| Piba | 13.0 | punky | Piba | 20.0 | punky | Piba | 12.0 | punky |
| Piba | 13.0 | punky | Piba | 17.0 | punky | Piba | 16.0 | punky |
| Piba | 18.0 | punky | Piba | 14.0 | punky | Piba | 11.0 | rotten |
| Piba | 16.0 | punky | Piba | 10.0 | punky | — | — | — |

^aPiba = *Pinus banksiana*, Pima = *Picea mariana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

SITE CODE: SASK BDH-4 (1) concluded

Duff depth measurements

| <u>Location</u> | <u>Date</u> | <u>n^a</u> | <u>Mean (cm)</u> | <u>SD (cm)</u> | <u>% mineral exposure</u> |
|-----------------|-------------|----------------------|----------------------|--------------------|-------------------------------|
| Plot 1 | 1994-06-24 | 15 (3) | 7.1 | 14.2 | 0 |
| Plot 2 | 1994-06-24 | 15 (0) | 3.1 | 2.1 | 6 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| <u>Location</u> | <u>Duff depth (cm)</u> | <u>Sample depth (cm)</u> | <u>Sample density (g cm⁻³)</u> | <u>Loss on ignition (%)</u> | <u>Duff carbon (t C ha⁻¹)</u> |
|-----------------|--------------------------------|----------------------------------|---|-------------------------------------|--|
| Plot 1 | | | | | |
| Line 1 | 26 | 0 | — ^a | — | — |
| Line 2 | 30 | 0 | — | — | — |
| Line 3 | 17 | 17 | 0.084 | 87.5 | 71 |
| Plot 2 | | | | | |
| Line 1 | 4 | 4 | 0.321 | 25.2 | 19 |
| Line 2 | 3 | 3 | 0.156 | 37.9 | 10 |
| Line 3 | 3 | 3 | 0.123 | 34.5 | 7 |

^a Dashes indicate no measurement taken.

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-05-26) | | | | | | | |
| Intersections | 69 | 15 | 6 | 1 | 0 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.3 | 0.5 | 0.3 | 0.0 | 16.5 | 17.9 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.3 | 0.2 | 0.0 | 6.2 | 7.0 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 3.1 | 3.5 |
| Plot 3 (sampled 1994-05-27) | | | | | | | |
| Intersections | 29 | 5 | 9 | 0 | 1 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.1 | 0.8 | 0.0 | 0.6 | 1.9 | 3.5 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.1 | 0.4 | 0.0 | 0.3 | 0.8 | 1.6 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.4 | 0.8 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 8.6 | sound | Pima | 20.0 | punky | Pima | 27.0 | punky |
| Plot 3 | | | | | | | | |
| Pima | 11.8 | sloughing | — ^b | — | — | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-05-26 | 15 (0) | 27.5 | 9.9 | 0 |
| Plot 3 | 1994-05-27 | 15 (0) | 28.0 | 6.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 19 | 19 | 0.076 | 85.4 | 72 |
| Line 2 | 36 | 36 | 0.027 | 86.4 | 49 |
| Line 3 | 37 | 37 | 0.030 | 92.7 | 59 |
| Plot 2 | | | | | |
| Line 1 | 36 | 36 | 0.044 | 85.9 | 79 |
| Line 2 | 32 | 32 | 0.027 | 89.0 | 44 |
| Line 3 | 44 | 44 | 0.025 | 89.7 | 57 |

SITE CODE: SASK BIH (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-23) | | | | | | | |
| Intersections | 871 | 118 | 79 | 28 | 25 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 3.5 | 2.4 | 6.8 | 9.3 | 14.1 | 7.0 | 42.9 |
| Detrital mass (t ha ⁻¹) | 1.6 | 1.4 | 3.8 | 4.6 | 6.6 | 2.4 | 20.4 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.7 | 1.9 | 2.3 | 3.3 | 1.2 | 10.2 |
| Plot 6 (sampled 1994-06-11) | | | | | | | |
| Intersections | 86 | 29 | 12 | 8 | 18 | 62 | na |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.6 | 1.0 | 2.6 | 10.1 | 105.4 | 120.1 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.3 | 0.6 | 1.3 | 4.8 | 37.2 | 44.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.3 | 0.7 | 2.4 | 18.6 | 22.2 |
| Plot 7 (sampled 1994-06-12) | | | | | | | |
| Intersections | 164 | 40 | 48 | 11 | 7 | 4 | na |
| Volume (m ³ ha ⁻¹) | 0.7 | 0.8 | 4.1 | 3.6 | 3.9 | 7.2 | 20.4 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.5 | 2.3 | 1.8 | 1.9 | 2.6 | 9.3 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 1.2 | 0.9 | 0.9 | 1.3 | 4.6 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 17.5 | rotten | Unid | 14.2 | rotten | — ^b | — | — |
| Plot 6 | | | | | | | | |
| Pima | 10.0 | rotten | Pima | 9.0 | rotten | Pima | 17.0 | rotten |
| Pima | 9.5 | rotten | Piba | 14.5 | rotten | Unid | 8.0 | rotten |
| Piba | 12.0 | rotten | Unid | 9.0 | rotten | Unid | 14.0 | rotten |
| Unid | 9.5 | rotten | Bepa | 11.5 | rotten | Unid | 8.0 | rotten |
| Pima | 12.0 | rotten | Pima | 11.0 | punky | Unid | 9.9 | punky |
| Unid | 14.1 | punky | Unid | 11.0 | rotten | Unid | 7.5 | rotten |
| Pima | 11.0 | punky | Pima | 9.0 | sloughing | Unid | 10.5 | sloughing |
| Unid | 9.0 | rotten | Unid | 12.2 | punky | Unid | 10.0 | rotten |
| Unid | 8.0 | punky | Unid | 8.0 | punky | Unid | 12.0 | rotten |
| Unid | 10.0 | rotten | Unid | 24.0 | rotten | Pima | 8.5 | sloughing |
| Unid | 16.0 | punky | Unid | 13.4 | rotten | Unid | 9.3 | punky |
| Pima | 8.0 | rotten | Pima | 9.5 | rotten | Pima | 9.0 | punky |
| Pima | 9.0 | punky | Unid | 8.0 | punky | Unid | 8.0 | punky |
| Pima | 11.0 | sloughing | Unid | 9.0 | punky | Unid | 7.3 | punky |
| Pima | 9.0 | punky | Pima | 11.5 | punky | Unid | 10.0 | rotten |
| Pima | 8.8 | sloughing | Pima | 8.0 | sloughing | Pima | 8.9 | sloughing |
| Unid | 9.0 | rotten | Pima | 15.0 | rotten | Pima | 8.0 | punky |
| Unid | 9.0 | rotten | Unid | 10.2 | rotten | Unid | 13.2 | rotten |
| Pima | 7.7 | rotten | Unid | 13.4 | rotten | Unid | 10.5 | rotten |
| Pima | 15.0 | rotten | Unid | 14.0 | rotten | Unid | 8.0 | rotten |
| Unid | 10.0 | punky | Unid | 18.0 | rotten | — | — | — |
| Plot 7 | | | | | | | | |
| Pima | 10.5 | rotten | Pima | 15.0 | punky | Pima | 10.0 | rotten |
| Pima | 9.5 | rotten | — | — | — | — | — | — |

^aBepa = *Betula papyrifera*, Piba = *Pinus banksiana*, Pima = *Picea mariana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

SITE CODE: SASK BIH (1) continued

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|--------------|------------|-----------------------|
| Plot 1 | 1993-07-23 | 15 (0) | 7.1 | 1.7 | 0 |
| Plot 6 | 1994-06-11 | 15 (0) | 13.9 | 3.4 | 0 |
| Plot 7 | 1994-06-12 | 14 (0) | 16.6 | 4.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------------|-------------------------|--|----------------------------|---|
| Plot 6 | | | | | |
| Line 1 | 13 | 13 | 0.045 | 72.0 | 24 |
| Line 2 | 18 | 18 | 0.033 | 70.7 | 24 |
| Line 3 | 16 | 16 | 0.031 | 79.4 | 23 |
| Plot 7 | | | | | |
| Line 1 | 20 | 20 | 0.059 | 57.3 | 38 |
| Line 2 | 11 | 11 | 0.051 | 75.4 | 25 |
| Line 3 | 16 | 16 | 0.074 | 79.0 | 55 |

SITE CODE: SASK BMH (2)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 2 (sampled 1993-07-23) | | | | | | | |
| Intersections | 204 | 49 | 28 | 6 | 23 | 19 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.2 | 1.0 | 2.4 | 1.9 | 13.3 | 44.2 | 64.0 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.5 | 1.2 | 0.9 | 5.9 | 17.6 | 26.7 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.3 | 0.6 | 0.4 | 2.9 | 8.8 | 13.3 |
| Plot 4 (sampled 1994-06-10) | | | | | | | |
| Intersections | 143 | 26 | 23 | 10 | 3 | 15 | na |
| Volume (m ³ ha ⁻¹) | 0.9 | 0.5 | 2.0 | 3.2 | 1.7 | 26.3 | 34.6 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.3 | 1.0 | 1.5 | 0.8 | 10.6 | 14.5 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.5 | 0.7 | 0.4 | 5.3 | 7.3 |
| Plot 5 (sampled 1994-06-11) | | | | | | | |
| Intersections | 174 | 50 | 23 | 7 | 9 | 18 | na |
| Volume (m ³ ha ⁻¹) | 1.0 | 1.0 | 2.0 | 2.2 | 5.2 | 34.0 | 45.5 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.5 | 1.0 | 1.0 | 2.3 | 13.1 | 18.5 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 0.5 | 0.5 | 1.1 | 6.6 | 9.2 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Unid | 13.4 | sloughing | Unid | 10.3 | sloughing | Unid | 14.4 | rotten |
| Pima | 14.9 | sound | Unid | 13.3 | sloughing | Pima | 16.6 | sound |
| Unid | 15.4 | sloughing | Unid | 15.7 | sloughing | Unid | 10.4 | sloughing |
| Pima | 11.9 | sloughing | Unid | 16.1 | sloughing | Unid | 9.9 | sloughing |
| Pima | 12.6 | rotten | Unid | 12.3 | sloughing | Unid | 12.1 | rotten |
| Unid | 8.9 | rotten | Unid | 7.9 | rotten | Unid | 16.2 | sloughing |
| Pima | 10.3 | sloughing | — ^b | — | — | — | — | — |
| Plot 4 | | | | | | | | |
| Pima | 11.0 | sound | Pima | 9.0 | sound | Pima | 9.0 | sound |
| Pima | 8.0 | sound | Piba | 19.0 | sound | Pima | 10.7 | sound |
| Pima | 14.4 | sloughing | Pima | 9.5 | punky | Piba | 7.1 | punky |
| Piba | 13.0 | punky | Piba | 12.0 | sloughing | Pima | 7.4 | sound |
| Pima | 14.0 | sloughing | Piba | 8.0 | rotten | Pima | 11.0 | punky |
| Plot 5 | | | | | | | | |
| Piba | 9.5 | punky | Piba | 15.3 | sound | Pima | 9.0 | sloughing |
| Pima | 9.3 | sloughing | Piba | 12.4 | sound | Pima | 7.4 | sloughing |
| Piba | 11.0 | rotten | Pima | 11.3 | sound | Piba | 11.0 | rotten |
| Piba | 22.2 | sloughing | Pima | 7.7 | sound | Piba | 10.7 | sloughing |
| Pima | 9.0 | sound | Pima | 11.8 | sound | Pima | 10.0 | rotten |
| Unid | 12.0 | rotten | Piba | 11.1 | punky | Pima | 12.5 | rotten |

^aPiba = *Pinus banksiana*, Pima = *Picea mariana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-07-23 | 15 (0) | 9.3 | 2.5 | 0 |
| Plot 4 | 1994-06-10 | 15 (0) | 18.5 | 8.1 | 0 |
| Plot 5 | 1994-06-11 | 14 (0) | 14.0 | 6.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 4 | | | | | |
| Line 1 | 21 | 21 | 0.067 | 49.5 | 40 |
| Line 2 | 14 | 14 | 0.086 | 34.8 | 24 |
| Line 3 | 15 | 15 | 0.047 | 68.8 | 28 |
| Plot 5 | | | | | |
| Line 1 | 14 | 14 | 0.062 | 40.5 | 21 |
| Line 2 | 19 | 19 | 0.057 | 63.2 | 39 |
| Line 3 | 15 | 15 | 0.130 | 57.8 | 65 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1993-07-20) | | | | | | | |
| Intersections | 885 | 140 | 12 | 4 | 5 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 3.5 | 2.8 | 1.0 | 1.3 | 2.8 | 0.0 | 11.5 |
| Detrital mass (t ha ⁻¹) | 1.6 | 1.6 | 0.6 | 0.7 | 1.3 | 0.0 | 5.8 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.8 | 0.3 | 0.3 | 0.7 | 0.0 | 2.9 |
| Plot 2 (sampled 1993-07-20) | | | | | | | |
| Intersections | 589 | 108 | 25 | 8 | 10 | 4 | na |
| Volume (m ³ ha ⁻¹) | 2.3 | 2.2 | 2.1 | 2.6 | 5.6 | 4.9 | 19.9 |
| Detrital mass (t ha ⁻¹) | 1.1 | 1.3 | 1.2 | 1.3 | 2.6 | 2.0 | 9.5 |
| Detrital carbon (t C ha ⁻¹) | 0.5 | 0.6 | 0.6 | 0.7 | 1.3 | 1.0 | 4.8 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Pima | 7.8 | sloughing | Pima | 8.5 | sloughing | Pima | 12.0 | sloughing |
| Pima | 9.1 | sloughing | — | — | — | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-20 | 15 (0) | 65.0 | 0.0 | 0 |
| Plot 2 | 1993-07-20 | 15 (0) | 65.0 | 0.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 65 | 17 | 0.028 | 84.9 | 88 |
| Line 2 | 65 | 17 | 0.069 | 82.0 | 213 |
| Line 3 | 65 | 17 | 0.039 | 89.2 | 132 |
| Plot 2 | | | | | |
| Line 1 | 65 | 17 | 0.046 | 59.0 | 102 |
| Line 2 | 65 | 17 | 0.055 | 82.6 | 172 |
| Line 3 | 65 | 17 | 0.049 | 85.2 | 158 |

SITE CODE: SASK BMM-1a (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5–<1 | 1–<3 | 3–<5 | 5–<7 | | |
| Plot 1 (sampled 1993–07–20) | | | | | | | |
| Intersections | 75 | 13 | 15 | 5 | 6 | 4 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.3 | 1.3 | 1.7 | 3.4 | 4.5 | 11.4 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.7 | 0.8 | 1.6 | 1.9 | 5.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.4 | 0.4 | 0.8 | 1.0 | 2.7 |
| Plot 2 (sampled 1994–06–13) | | | | | | | |
| Intersections | 161 | 26 | 17 | 6 | 5 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.5 | 1.5 | 2.0 | 2.8 | 1.1 | 8.5 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.3 | 0.8 | 1.0 | 1.3 | 0.5 | 4.2 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.4 | 0.5 | 0.7 | 0.2 | 2.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 7.9 | sound | Pima | 10.5 | sound | Pigl | 8.7 | sound |
| Pigl | 9.0 | sound | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Pima | 9.0 | sloughing | — | — | — | — | — | — |

^a Pigl = *Picea glauca*, Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993–07–20 | 0 (0) | 65.0 | 0.0 | 0 |
| Plot 2 | 1994–06–13 | 14 (0) | 17.1 | 6.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 14 | 14 | 0.105 | 68.0 | 58 |
| Line 2 | 25 | 25 | 0.049 | 77.3 | 54 |
| Line 3 | 15 | 15 | 0.080 | 39.8 | 28 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 2 (sampled 1993-07-21) | | | | | | | |
| Intersections | 30 | 15 | 7 | 2 | 5 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.3 | 0.6 | 0.7 | 2.8 | 4.5 | 9.0 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.3 | 0.3 | 1.3 | 1.8 | 4.1 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.2 | 0.2 | 0.7 | 0.9 | 2.0 |
| Plot 3 (sampled 1994-06-16) | | | | | | | |
| Intersections | 37 | 9 | 7 | 2 | 9 | 9 | na |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.2 | 0.6 | 0.7 | 5.1 | 13.0 | 19.7 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.1 | 0.3 | 0.3 | 2.4 | 4.6 | 7.9 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.2 | 0.2 | 1.2 | 2.3 | 3.9 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Pima | 11.0 | sloughing | Pima | 14.5 | sloughing | — ^b | — | — |
| Plot 3 | | | | | | | | |
| Pima | 7.4 | sloughing | Unid | 13.0 | rotten | Pima | 13.0 | rotten |
| Pima | 8.0 | punky | Pima | 8.0 | punky | Unid | 7.8 | punky |
| Pima | 11.0 | rotten | Pima | 13.6 | rotten | Pima | 8.0 | sloughing |

^a Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-07-21 | 0 (0) | 65.0 | 0.0 | 0 |
| Plot 3 | 1994-06-16 | 14 (14) | 22.1 | 8.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 3 | | | | | |
| Line 1 | 17 | 17 | 0.016 | 89.7 | 14 |
| Line 2 | 34 | 17 | 0.017 | 91.2 | 31 |
| Line 3 | 27 | 27 | 0.013 | 79.7 | 16 |

SITE CODE: SASK Jail House (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | Æ7 ^a | |
| Plot 1 (sampled 1994-06-01) | | | | | | | |
| Intersections | 82 | 40 | 27 | 9 | 8 | 29 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.7 | 0.9 | 2.3 | 2.9 | 4.5 | 93.3 | 104.5 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.4 | 1.0 | 1.2 | 1.9 | 31.2 | 36.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.5 | 0.6 | 1.0 | 15.6 | 18.0 |
| Plot 2 (sampled 1994-06-01) | | | | | | | |
| Intersections | 77 | 36 | 43 | 5 | 2 | 17 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.8 | 3.7 | 1.6 | 1.1 | 62.0 | 69.8 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.4 | 1.6 | 0.7 | 0.5 | 21.7 | 25.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.8 | 0.3 | 0.2 | 10.8 | 12.6 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 19.0 | punky | Pigl | 10.5 | sound | Pigl | 11.0 | sloughing |
| Potr | 8.8 | sloughing | Pigl | 11.0 | punky | Pigl | 14.0 | punky |
| Pigl | 9.0 | sound | Potr | 8.0 | punky | Pigl | 8.3 | sound |
| Potr | 10.2 | punky | Pigl | 12.5 | punky | Pigl | 15.0 | rotten |
| Potr | 10.0 | rotten | Potr | 34.0 | rotten | Potr | 11.1 | punky |
| Potr | 16.5 | punky | Potr | 12.8 | punky | Pigl | 11.5 | sound |
| Potr | 10.0 | punky | Potr | 11.0 | punky | Pigl | 10.0 | rotten |
| Potr | 8.0 | punky | Potr | 21.5 | punky | Potr | 15.0 | punky |
| Potr | 8.0 | rotten | Pigl | 7.3 | sound | Pigl | 16.7 | punky |
| Potr | 10.1 | sound | Pigl | 40.0 | rotten | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Potr | 20.0 | punky | Potr | 8.0 | punky | Potr | 7.5 | punky |
| Potr | 14.0 | rotten | Potr | 38.0 | punky | Potr | 12.0 | sloughing |
| Potr | 15.0 | rotten | Potr | 19.0 | rotten | Potr | 8.0 | sloughing |
| Potr | 21.0 | punky | Potr | 14.0 | punky | Potr | 8.0 | punky |
| Potr | 9.5 | sloughing | Potr | 18.0 | punky | Potr | 7.5 | punky |
| Potr | 13.0 | punky | Potr | 15.0 | punky | — | — | — |

^aPigl = *Picea glauca*, Potr = *Populus tremuloides*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | na | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|--------|-----------|---------|--------------------|
| Plot 1 | 1994-06-01 | 15 (0) | 11.9 | 2.8 | — ^b |
| Plot 2 | 1994-06-01 | 15 (0) | 11.7 | 2.9 | — |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 11 | 11 | 0.062 | 58.3 | 22 |
| Line 2 | 17 | 17 | 0.054 | 27.0 | 14 |
| Line 3 | 11 | 11 | 0.108 | 30.9 | 20 |
| Plot 2 | | | | | |
| Line 1 | 7 | 7 | 0.183 | 60.3 | 42 |
| Line 2 | 15 | 15 | 0.093 | 32.0 | 26 |
| Line 3 | 15 | 15 | 0.079 | 32.2 | 22 |

SITE CODE: SASK JDM-8 (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-18) | | | | | | | |
| Intersections | 441 | 83 | 60 | 18 | 5 | 33 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.6 | 1.7 | 5.1 | 5.8 | 2.9 | 129.9 | 148.0 |
| Detrital mass (t ha ⁻¹) | 1.2 | 0.9 | 2.6 | 2.7 | 1.3 | 50.3 | 58.9 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.4 | 1.3 | 1.3 | 0.6 | 25.1 | 29.5 |
| Plot 2 (sampled 1993-07-18) | | | | | | | |
| Intersections | 449 | 84 | 62 | 25 | 13 | 79 | na |
| Volume (m ³ ha ⁻¹) | 2.7 | 1.7 | 5.3 | 8.0 | 7.5 | 172.0 | 197.2 |
| Detrital mass (t ha ⁻¹) | 1.3 | 0.9 | 2.7 | 3.7 | 3.3 | 66.1 | 78.0 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.5 | 1.3 | 1.8 | 1.7 | 33.1 | 39.0 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 16.8 | sloughing | Piba | 18.0 | sloughing | Piba | 17.0 | sloughing |
| Piba | 20.3 | sloughing | Piba | 9.7 | sloughing | Piba | 11.4 | sloughing |
| Piba | 17.5 | sloughing | Piba | 16.0 | sloughing | Piba | 19.3 | sloughing |
| Piba | 13.7 | sloughing | Piba | 16.3 | sloughing | Piba | 11.4 | sloughing |
| Unid | 10.4 | sloughing | Piba | 9.4 | sloughing | Piba | 24.9 | sloughing |
| Piba | 8.9 | sloughing | Piba | 9.9 | sloughing | Piba | 35.6 | sloughing |
| Piba | 30.0 | sloughing | Piba | 16.8 | sloughing | Piba | 8.6 | sloughing |
| Piba | 15.7 | sloughing | Piba | 15.2 | sloughing | Piba | 19.1 | sloughing |
| Piba | 11.7 | sloughing | Piba | 8.9 | sloughing | Piba | 13.0 | sloughing |
| Piba | 13.0 | sloughing | Piba | 14.5 | sloughing | Piba | 22.9 | sloughing |
| Piba | 17.3 | sloughing | Piba | 12.7 | sloughing | Piba | 17.8 | sloughing |
| Plot 2 | | | | | | | | |
| Piba | 13.2 | sloughing | Piba | 15.2 | sloughing | Piba | 12.7 | sloughing |
| Piba | 9.4 | sloughing | Piba | 15.0 | sloughing | Piba | 10.4 | sloughing |
| Piba | 8.9 | sloughing | Piba | 13.7 | sloughing | Piba | 11.7 | sloughing |
| Piba | 10.2 | sloughing | Piba | 11.7 | sloughing | Piba | 7.6 | sloughing |
| Piba | 10.2 | rotten | Piba | 7.6 | sloughing | Piba | 7.4 | sloughing |
| Piba | 8.4 | sloughing | Piba | 12.7 | sloughing | Piba | 8.4 | sloughing |
| Piba | 10.9 | sloughing | Piba | 17.8 | rotten | Piba | 10.7 | sloughing |
| Piba | 15.5 | sloughing | Piba | 9.9 | sloughing | Piba | 15.5 | sloughing |
| Piba | 13.7 | sloughing | Piba | 11.7 | sloughing | Piba | 8.1 | sloughing |
| Piba | 15.0 | sloughing | Piba | 8.9 | sloughing | Piba | 8.4 | sloughing |
| Plot 2 continued | | | | | | | | |
| Piba | 9.7 | sloughing | Piba | 10.7 | sloughing | Piba | 8.9 | sloughing |
| Piba | 10.2 | sloughing | Piba | 11.4 | sloughing | Piba | 16.8 | sloughing |
| Piba | 16.3 | sloughing | Piba | 10.9 | sloughing | Piba | 22.9 | sloughing |
| Piba | 16.0 | sloughing | Piba | 10.2 | sloughing | Piba | 12.2 | sloughing |
| Piba | 12.2 | sloughing | Piba | 11.9 | sloughing | Piba | 11.9 | sloughing |
| Piba | 12.7 | sloughing | Piba | 10.7 | sloughing | Piba | 8.4 | sloughing |
| Piba | 9.1 | sloughing | Piba | 9.9 | sloughing | Piba | 9.7 | sloughing |
| Piba | 16.8 | sloughing | Piba | 20.1 | sloughing | Piba | 19.8 | sloughing |
| Piba | 14.5 | sloughing | Piba | 10.2 | sloughing | Piba | 17.8 | sloughing |
| Piba | 11.7 | sloughing | Piba | 18.8 | sloughing | Piba | 8.9 | sloughing |
| Piba | 11.2 | sloughing | Piba | 13.0 | sloughing | Piba | 11.4 | sloughing |
| Piba | 11.7 | sloughing | Piba | 10.2 | sloughing | Piba | 16.5 | sloughing |
| Piba | 10.2 | sloughing | Piba | 10.4 | sloughing | Piba | 8.9 | sloughing |
| Piba | 10.2 | sloughing | Piba | 11.2 | sloughing | Piba | 9.9 | sloughing |
| Piba | 15.2 | sloughing | Piba | 14.7 | sloughing | Piba | 14.0 | sloughing |
| Piba | 14.2 | sloughing | Piba | 12.4 | sloughing | Piba | 15.7 | sloughing |
| Piba | 9.4 | sloughing | — ^b | — | — | — | — | — |

^aPiba = *Pinus banksiana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

SITE CODE: SASK JDM-8 (1) continued

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|--------------|------------|-----------------------|
| Plot 1 | 1993-07-18 | 15 (0) | 3.6 | 1.3 | 0 |
| Plot 2 | 1993-07-18 | 15 (0) | 4.6 | 3.1 | 2 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------------|-------------------------|--|----------------------------|---|
| Plot 1 | | | | | |
| Line 1 | 2 | 2 | 0.508 | 76.1 | 34 |
| Line 2 | 2 | 2 | 0.552 | 80.8 | 39 |
| Line 3 | 2 | 2 | 0.755 | 59.6 | 55 |
| Plot 2 | | | | | |
| Line 1 | 6 | 6 | 0.222 | 38.5 | 28 |
| Line 2 | 3 | 3 | 0.418 | 76.7 | 60 |
| Line 3 | 1 | 1 | 0.592 | 70.8 | 32 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-17) | | | | | | | |
| Intersections | 620 | 5 | 21 | 6 | 23 | 8 | na ^b |
| Volume (m ³ ha ⁻¹) | 3.7 | 0.1 | 1.8 | 1.9 | 13.3 | 12.0 | 32.8 |
| Detrital mass (t ha ⁻¹) | 1.7 | 0.1 | 0.9 | 0.9 | 5.9 | 3.8 | 13.3 |
| Detrital carbon (t C ha ⁻¹) | 0.9 | 0.0 | 0.5 | 0.4 | 2.9 | 1.9 | 6.6 |
| Plot 2 (sampled 1993-07-17) | | | | | | | |
| Intersections | 541 | 15 | 23 | 7 | 7 | 10 | na |
| Volume (m ³ ha ⁻¹) | 3.2 | 0.3 | 2.0 | 2.2 | 4.0 | 18.8 | 30.6 |
| Detrital mass (t ha ⁻¹) | 1.5 | 0.2 | 1.0 | 1.0 | 1.8 | 6.3 | 11.8 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.1 | 0.5 | 0.5 | 0.9 | 3.2 | 5.9 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 9.2 | rotten | Piba | 9.1 | rotten | Piba | 13.6 | rotten |
| Piba | 8.6 | rotten | Piba | 8.3 | rotten | Piba | 9.8 | rotten |
| Piba | 12.9 | rotten | Piba | 10.9 | rotten | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Piba | 9.3 | sloughing | Piba | 12.4 | rotten | Piba | 8.4 | rotten |
| Piba | 12.4 | rotten | Piba | 12.8 | sloughing | Piba | 10.6 | sloughing |
| Piba | 10.4 | rotten | Piba | 14.2 | rotten | Piba | 10.7 | rotten |
| Piba | 14.3 | rotten | — | — | — | — | — | — |

^aPiba = *Pinus banksiana*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-17 | 15 (0) | 4.9 | 1.2 | 6 |
| Plot 2 | 1993-07-17 | 15 (0) | 0.3 | 0.1 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 4 | 4 | 0.059 | — ^a | 3 |
| Line 2 | 8 | 8 | 0.062 | 21.9 | 6 |
| Line 3 | 14 | 14 | 0.035 | — | 5 |
| Plot 2 | | | | | |
| Line 1 | 14 | 14 | 0.050 | 32.2 | 13 |
| Line 2 | 9 | 9 | 0.025 | 39.0 | 5 |
| Line 3 | 10 | 10 | 0.033 | 25.8 | 5 |

^a Dashes indicate no measurement taken.

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-09-01) | | | | | | | |
| Intersections | 545 | 32 | 41 | 22 | 2 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 3.3 | 0.7 | 3.5 | 7.1 | 1.2 | 2.8 | 18.5 |
| Detrital mass (t ha ⁻¹) | 1.5 | 0.3 | 1.8 | 3.2 | 0.5 | 0.9 | 8.3 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.2 | 0.9 | 1.6 | 0.3 | 0.5 | 4.2 |
| Plot 2 (sampled 1993-09-01) | | | | | | | |
| Intersections | 433 | 39 | 47 | 22 | 6 | 0 | na |
| Volume (m ³ ha ⁻¹) | 2.6 | 0.8 | 4.0 | 7.1 | 3.5 | 0.0 | 17.9 |
| Detrital mass (t ha ⁻¹) | 1.2 | 0.4 | 2.0 | 3.2 | 1.5 | 0.0 | 8.4 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.2 | 1.0 | 1.6 | 0.8 | 0.0 | 4.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 11.5 | rotten | Piba | 8.6 | rotten | — ^b | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-09-01 | 15 (0) | 11.3 | 2.2 | 0 |
| Plot 2 | 1993-09-01 | 15 (0) | 10.9 | 4.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 9 | 9 | 0.056 | 73.1 | 21 |
| Line 2 | 20 | 20 | 0.023 | 78.7 | 21 |
| Line 3 | 8 | 8 | 0.062 | 62.3 | 18 |
| Plot 2 | | | | | |
| Line 1 | 6 | 6 | 0.060 | 86.2 | 18 |
| Line 2 | 12 | 12 | 0.046 | 75.2 | 24 |
| Line 3 | 16 | 16 | 0.052 | 64.2 | 31 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 4 (sampled 1993-09-02) | | | | | | | |
| Intersections | 533 | 48 | 15 | 6 | 4 | 34 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.1 | 1.0 | 1.3 | 2.0 | 2.3 | 108.6 | 117.2 |
| Detrital mass (t ha ⁻¹) | 1.0 | 0.6 | 0.7 | 1.0 | 1.1 | 39.4 | 43.8 |
| Detrital carbon (t C ha ⁻¹) | 0.5 | 0.3 | 0.4 | 0.5 | 0.5 | 19.7 | 21.9 |
| Plot 6 (sampled 1994-06-25) | | | | | | | |
| Intersections | 266 | 28 | 11 | 9 | 5 | 5 | na |
| Volume (m ³ ha ⁻¹) | 1.1 | 0.6 | 0.9 | 3.0 | 2.8 | 7.4 | 15.8 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.3 | 0.5 | 1.5 | 1.3 | 3.0 | 7.2 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.3 | 0.7 | 0.7 | 1.5 | 3.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 4 | | | | | | | | |
| Unid | 25.0 | rotten | Unid | 10.5 | sloughing | Unid | 9.6 | sloughing |
| Pima | 12.0 | sound | Unid | 9.0 | rotten | Unid | 10.0 | rotten |
| Unid | 20.0 | rotten | Unid | 14.5 | sloughing | Unid | 11.6 | sloughing |
| Unid | 17.3 | sloughing | Unid | 15.3 | sloughing | Unid | 16.0 | rotten |
| Unid | 20.0 | rotten | Unid | 17.0 | rotten | Unid | 10.5 | sloughing |
| Unid | 13.5 | rotten | Unid | 12.5 | rotten | Unid | 11.5 | rotten |
| Unid | 13.8 | rotten | Pima | 17.0 | rotten | Unid | 20.0 | rotten |
| Pima | 12.5 | sound | Unid | 17.5 | rotten | Unid | 12.8 | rotten |
| Unid | 8.7 | rotten | Piba | 17.0 | sloughing | Piba | 12.8 | sound |
| Piba | 14.9 | sloughing | Unid | 17.0 | rotten | Piba | 19.0 | sloughing |
| Unid | 17.0 | rotten | Unid | 14.2 | sloughing | Unid | 22.0 | rotten |
| Pima | 9.1 | sound | — ^b | — | — | — | — | — |
| Plot 6 | | | | | | | | |
| Pima | 7.5 | punky | Unid | 9.5 | rotten | Pima | 8.3 | sloughing |
| Pima | 8.3 | sloughing | Pima | 16.0 | sound | — | — | — |

^a Piba = *Pinus banksiana*, Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 4 | 1993-09-02 | 15 (0) | 11.4 | 5.0 | 0 |
| Plot 6 | 1994-06-25 | 15 (0) | 19.5 | 4.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 6 | | | | | |
| Line 1 | 11 | 11 | 0.045 | 79.7 | 22 |
| Line 2 | 15 | 15 | 0.029 | — ^a | 20 |
| Line 3 | 17 | 17 | 0.048 | — | 35 |

^a Dashes indicate no measurement taken.

SITE CODE: SASK JMH-A2 (2)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-09-01) | | | | | | | |
| Intersections | 378 | 22 | 11 | 0 | 15 | 28 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.3 | 0.5 | 0.9 | 0.0 | 8.7 | 50.5 | 62.9 |
| Detrital mass (t ha ⁻¹) | 1.1 | 0.2 | 0.5 | 0.0 | 3.8 | 19.6 | 25.2 |
| Detrital carbon (t C ha ⁻¹) | 0.5 | 0.1 | 0.2 | 0.0 | 1.9 | 9.8 | 12.6 |
| Plot 2 (sampled 1993-09-01) | | | | | | | |
| Intersections | 1525 | 20 | 15 | 10 | 13 | 38 | na |
| Volume (m ³ ha ⁻¹) | 9.1 | 0.4 | 1.3 | 3.2 | 7.5 | 59.8 | 81.4 |
| Detrital mass (t ha ⁻¹) | 4.3 | 0.2 | 0.6 | 1.5 | 3.3 | 22.5 | 32.5 |
| Detrital carbon (t C ha ⁻¹) | 2.1 | 0.1 | 0.3 | 0.7 | 1.7 | 11.3 | 16.2 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 8.5 | sloughing | Unid | 9.0 | sloughing | Piba | 14.0 | sloughing |
| Unid | 9.0 | sloughing | Unid | 9.5 | rotten | Piba | 19.5 | sloughing |
| Piba | 11.5 | sloughing | Unid | 12.0 | sloughing | Piba | 9.0 | sloughing |
| Piba | 8.3 | sloughing | Unid | 15.0 | sloughing | Piba | 11.0 | sloughing |
| Unid | 13.0 | sloughing | Unid | 10.0 | rotten | Unid | 7.5 | rotten |
| Potr | 13.5 | sloughing | Unid | 13.0 | sloughing | Piba | 13.5 | sloughing |
| Unid | 8.0 | rotten | Piba | 14.0 | sloughing | Piba | 8.0 | sloughing |
| Unid | 9.0 | rotten | Unid | 9.0 | rotten | Piba | 16.5 | sloughing |
| Piba | 14.0 | sloughing | Unid | 9.0 | sloughing | Unid | 8.0 | sloughing |
| Unid | 7.5 | sloughing | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Unid | 9.5 | rotten | Unid | 13.0 | rotten | Unid | 11.0 | sloughing |
| Unid | 8.0 | rotten | Unid | 10.0 | rotten | Unid | 8.0 | rotten |
| Unid | 7.1 | sloughing | Unid | 9.5 | sloughing | Piba | 11.0 | sloughing |
| Unid | 12.0 | sloughing | Piba | 13.0 | sloughing | Unid | 8.0 | sloughing |
| Unid | 8.0 | sloughing | Unid | 7.0 | sloughing | Unid | 11.0 | rotten |
| Piba | 16.0 | sloughing | Unid | 12.5 | sloughing | Unid | 14.0 | rotten |
| Unid | 14.0 | sloughing | Unid | 10.0 | rotten | Unid | 13.0 | rotten |
| Potr | 11.5 | sloughing | Unid | 8.0 | sloughing | Unid | 12.0 | rotten |
| Unid | 9.0 | rotten | Piba | 9.0 | sloughing | Unid | 8.0 | rotten |
| Unid | 11.5 | sloughing | Unid | 10.5 | rotten | Unid | 8.0 | sloughing |
| Piba | 11.0 | sloughing | Unid | 10.0 | rotten | Unid | 9.5 | sloughing |
| Unid | 9.5 | sloughing | Unid | 15.5 | sloughing | Unid | 10.0 | rotten |
| Unid | 8.0 | rotten | Unid | 11.5 | sloughing | — | — | — |

^aPiba = *Pinus banksiana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-09-01 | 15 (0) | 11.0 | 2.5 | 3 |
| Plot 2 | 1993-09-01 | 15 (0) | 10.1 | 4.4 | 1 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 5 | 5 | 0.048 | 70.8 | 10 |
| Line 2 | 10 | 10 | 0.024 | 76.4 | 11 |
| Line 3 | 5 | 5 | 0.039 | 80.9 | 9 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-08-31) | | | | | | | |
| Intersections | 561 | 15 | 17 | 6 | 3 | 21 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.2 | 0.3 | 1.5 | 2.0 | 1.7 | 46.4 | 54.1 |
| Detrital mass (t ha ⁻¹) | 1.0 | 0.2 | 0.8 | 1.0 | 0.8 | 17.8 | 21.6 |
| Detrital carbon (t C ha ⁻¹) | 0.5 | 0.1 | 0.4 | 0.5 | 0.4 | 8.9 | 10.8 |
| Plot 2 (sampled 1993-08-31) | | | | | | | |
| Intersections | 391 | 18 | 11 | 5 | 6 | 9 | na |
| Volume (m ³ ha ⁻¹) | 1.6 | 0.4 | 0.9 | 1.7 | 3.4 | 22.0 | 29.9 |
| Detrital mass (t ha ⁻¹) | 0.7 | 0.2 | 0.5 | 0.8 | 1.6 | 8.3 | 12.1 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.1 | 0.3 | 0.4 | 0.8 | 4.1 | 6.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 13.0 | sloughing | Pima | 8.5 | sloughing | Pima | 8.0 | sloughing |
| Pima | 8.3 | sloughing | Pima | 9.0 | rotten | Pima | 10.0 | sound |
| Unid | 21.3 | rotten | Pima | 12.5 | sloughing | Pima | 11.5 | sloughing |
| Pima | 18.0 | rotten | Pima | 12.5 | sloughing | Pima | 10.5 | sound |
| Pima | 9.5 | sound | Pima | 10.0 | sound | Piba | 17.5 | sloughing |
| Pima | 10.5 | sound | Pima | 14.0 | sloughing | Pima | 16.5 | rotten |
| Pima | 14.5 | sloughing | Pima | 11.0 | rotten | Pima | 9.5 | rotten |
| Plot 2 | | | | | | | | |
| Unid | 13.0 | sloughing | Pima | 15.0 | sloughing | Pima | 12.5 | sloughing |
| Unid | 7.5 | sloughing | Piba | 11.0 | sloughing | Pima | 9.0 | sloughing |
| Unid | 21.0 | rotten | Unid | 17.4 | rotten | Pima | 7.5 | sound |

^a Piba = *Pinus banksiana*, Pima = *Picea mariana*, Unid = Unidentified.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-08-31 | 15 (0) | 16.0 | 3.4 | 0 |
| Plot 2 | 1993-08-31 | 5 (0) | 10.6 | 2.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 23 | 23 | 0.053 | 54.9 | 39 |
| Line 2 | 24 | 24 | 0.044 | 75.0 | 45 |
| Line 3 | 18 | 18 | 0.056 | 73.0 | 43 |
| Plot 2 | | | | | |
| Line 1 | 9 | 9 | 0.057 | 63.9 | 19 |
| Line 2 | 18 | 18 | 0.037 | 65.1 | 25 |
| Line 3 | 21 | 21 | 0.061 | 48.6 | 36 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-17) | | | | | | | |
| Intersections | 413 | 68 | 53 | 2 | 2 | 9 | na ^b |
| Volume (m ³ ha ⁻¹) | 2.5 | 1.4 | 4.5 | 0.6 | 1.2 | 14.8 | 25.0 |
| Detrital mass (t ha ⁻¹) | 1.2 | 0.7 | 2.3 | 0.3 | 0.5 | 5.5 | 10.5 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.4 | 1.1 | 0.1 | 0.3 | 2.8 | 5.3 |
| Plot 2 (sampled 1993-07-17) | | | | | | | |
| Intersections | 553 | 56 | 5 | 7 | 10 | 0 | na |
| Volume (m ³ ha ⁻¹) | 3.3 | 1.2 | 0.4 | 2.2 | 5.8 | 0.0 | 12.9 |
| Detrital mass (t ha ⁻¹) | 1.6 | 0.6 | 0.2 | 1.0 | 2.5 | 0.0 | 6.0 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.3 | 0.1 | 0.5 | 1.3 | 0.0 | 3.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 11.4 | sloughing | Piba | 10.2 | sound | Piba | 8.9 | sound |
| Unid | 11.4 | rotten | Piba | 14.5 | sloughing | Piba | 13.7 | rotten |
| Unid | 8.1 | rotten | Piba | 8.4 | sloughing | Piba | 10.2 | sloughing |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |

^a Piba = *Pinus banksiana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-17 | 15 (0) | 6.9 | 2.2 | 0 |
| Plot 2 | 1993-07-17 | 15 (0) | 7.5 | 2.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 5 | 5 | 0.062 | 59.0 | 11 |
| Line 2 | 7 | 7 | 0.030 | 89.9 | 10 |
| Line 3 | 6 | 6 | 0.049 | 87.4 | 15 |
| Plot 2 | | | | | |
| Line 1 | 3 | 3 | 0.173 | 88.3 | 27 |
| Line 2 | 10 | 10 | 0.035 | 73.7 | 15 |
| Line 3 | 10 | 10 | 0.026 | 86.8 | 13 |

SITE CODE: SASK JMM-5 (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-05-27) | | | | | | | |
| Intersections | 24 | 4 | 0 | 0 | 0 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 3.4 | 3.6 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.3 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 |
| Plot 2 (sampled 1994-05-28) | | | | | | | |
| Intersections | 58 | 16 | 3 | 2 | 0 | 2 | na |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.3 | 0.3 | 0.6 | 0.0 | 1.7 | 3.3 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.2 | 0.1 | 0.3 | 0.0 | 0.6 | 1.4 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.3 | 0.7 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 8.0 | punky | Piba | 9.5 | rotten | Piba | 9.5 | sloughing |
| Plot 2 | | | | | | | | |
| Piba | 8.2 | sloughing | Piba | 7.5 | rotten | — ^b | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-05-27 | 12 (0) | 6.0 | 1.1 | 0 |
| Plot 2 | 1994-05-28 | 15 (0) | 6.0 | 1.9 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 8 | 8 | 0.040 | 89.5 | 16 |
| Line 2 | 7 | 7 | 0.067 | 45.7 | 12 |
| Line 3 | 5 | 5 | 0.035 | 81.1 | 8 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-09-02) | | | | | | | |
| Intersections | 303 | 7 | 10 | 0 | 3 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.8 | 0.1 | 0.8 | 0.0 | 1.7 | 0.0 | 4.5 |
| Detrital mass (t ha ⁻¹) | 0.9 | 0.1 | 0.4 | 0.0 | 0.8 | 0.0 | 2.1 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.0 | 0.2 | 0.0 | 0.4 | 0.0 | 1.1 |
| Plot 2 (sampled 1993-09-02) | | | | | | | |
| Intersections | 725 | 9 | 8 | 0 | 0 | 2 | na |
| Volume (m ³ ha ⁻¹) | 4.3 | 0.2 | 0.7 | 0.0 | 0.0 | 2.4 | 7.6 |
| Detrital mass (t ha ⁻¹) | 2.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.8 | 3.3 |
| Detrital carbon (t C ha ⁻¹) | 1.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.4 | 1.7 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 7.5 | sloughing | Piba | 11.0 | rotten | — | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-09-02 | 15 (0) | 8.2 | 2.4 | 0 |
| Plot 2 | 1993-09-02 | 15 (0) | 1.8 | 0.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 8 | 8 | 0.070 | 57.7 | 18 |
| Line 2 | 13 | 13 | 0.098 | 66.0 | 47 |
| Line 3 | 8 | 8 | 0.136 | 51.8 | 31 |
| Plot 2 | | | | | |
| Line 1 | 14 | 14 | 0.052 | 73.3 | 30 |
| Line 2 | 4 | 4 | 0.108 | 56.0 | 12 |
| Line 3 | 7 | 7 | 0.069 | 83.0 | 23 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-15) | | | | | | | |
| Intersections | 301 | 8 | 6 | 0 | 1 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.8 | 0.2 | 0.5 | 0.0 | 0.6 | 2.0 | 5.1 |
| Detrital mass (t ha ⁻¹) | 0.8 | 0.1 | 0.3 | 0.0 | 0.3 | 0.8 | 2.3 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 1.1 |
| Plot 2 (sampled 1993-07-15) | | | | | | | |
| Intersections | 420 | 8 | 4 | 0 | 0 | 1 | na |
| Volume (m ³ ha ⁻¹) | 2.5 | 0.2 | 0.3 | 0.0 | 0.0 | 0.8 | 3.9 |
| Detrital mass (t ha ⁻¹) | 1.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.3 | 1.8 |
| Detrital carbon (t C ha ⁻¹) | 0.6 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 0.9 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 12.1 | sound | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 7.8 | sloughing | — | — | — | — | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-15 | 15 (0) | 3.5 | 1.7 | 0 |
| Plot 2 | 1993-07-15 | 15 (0) | 0.8 | 0.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 8 | 8 | 0.049 | 60.3 | 13 |
| Line 2 | 6 | 6 | 0.088 | — ^a | 7 |
| Line 3 | 5 | 5 | 0.083 | 40.3 | 10 |
| Plot 2 | | | | | |
| Line 1 | 2 | 2 | 0.186 | 41.7 | 7 |
| Line 2 | 4 | 4 | 0.102 | — | 10 |
| Line 3 | 6 | 6 | 0.074 | 60.8 | 16 |

^a Dashes indicate no measurement taken.

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-16) | | | | | | | |
| Intersections | 319 | 5 | 1 | 0 | 0 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.9 | 0.1 | 0.1 | 0.0 | 0.0 | 0.9 | 3.0 |
| Detrital mass (t ha ⁻¹) | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 1.3 |
| Detrital carbon (t C ha ⁻¹) | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 |
| Plot 2 (sampled 1993-07-16) | | | | | | | |
| Intersections | 654 | 7 | 2 | 0 | 2 | 4 | na |
| Volume (m ³ ha ⁻¹) | 3.9 | 0.1 | 0.2 | 0.0 | 1.2 | 4.5 | 9.9 |
| Detrital mass (t ha ⁻¹) | 1.8 | 0.1 | 0.1 | 0.0 | 0.5 | 1.7 | 4.2 |
| Detrital carbon (t C ha ⁻¹) | 0.9 | 0.0 | 0.0 | 0.0 | 0.3 | 0.9 | 2.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 8.1 | sloughing | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 8.2 | sound | Piba | 8.2 | sound | Piba | 9.6 | sloughing |
| Piba | 10.1 | rotten | — | — | — | — | — | — |

^a Piba = *Pinus banksiana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-16 | 15 (0) | 0.8 | 0.3 | 0 |
| Plot 2 | 1993-07-16 | 15 (0) | 0.3 | 0.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 3 | 3 | 0.126 | 47.8 | 9 |
| Line 2 | 4 | 4 | 0.175 | 42.6 | 17 |
| Line 3 | 11 | 11 | 0.039 | 60.1 | 15 |
| Plot 2 | | | | | |
| Line 1 | 5 | 5 | 0.038 | 71.7 | 7 |
| Line 2 | 4 | 4 | 0.087 | 37.9 | 8 |
| Line 3 | 5 | 5 | 0.071 | 41.4 | 9 |

SITE CODE: SASK MW-1a (1)

Southern Aux. Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1993-07-21) | | | | | | | |
| Intersections | 1304 | 137 | 62 | 13 | 5 | 24 | na ^b |
| Volume (m ³ ha ⁻¹) | 11.0 | 3.0 | 5.3 | 4.1 | 2.8 | 131.0 | 157.2 |
| Detrital mass (t ha ⁻¹) | 5.8 | 1.4 | 2.3 | 1.7 | 1.2 | 48.3 | 60.7 |
| Detrital carbon (t C ha ⁻¹) | 2.9 | 0.7 | 1.2 | 0.9 | 0.6 | 24.2 | 30.4 |
| Plot 4 (sampled 1994-06-09) | | | | | | | |
| Intersections | 54 | 41 | 43 | 14 | 13 | 17 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.9 | 3.7 | 4.4 | 7.4 | 46.4 | 63.2 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.4 | 1.6 | 1.9 | 3.1 | 15.2 | 22.4 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.8 | 0.9 | 1.5 | 7.6 | 11.2 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pigl | 34.4 | sound | Pigl | 22.3 | sloughing | Pigl | 38.0 | sound |
| Pigl | 34.0 | sloughing | Pigl | 8.5 | sloughing | Pigl | 23.0 | sloughing |
| Bepa | 9.8 | sloughing | Pigl | 11.8 | sloughing | Pigl | 9.3 | sloughing |
| Unid | 33.8 | rotten | Pigl | 14.9 | sloughing | Pigl | 16.8 | sloughing |
| Pigl | 9.8 | sloughing | Pigl | 11.9 | sloughing | Potr | 9.3 | sloughing |
| Pigl | 13.3 | rotten | Potr | 7.8 | rotten | Unid | 11.3 | rotten |
| Unid | 10.3 | rotten | Unid | 26.8 | rotten | Pigl | 30.3 | sloughing |
| Pigl | 8.8 | sloughing | Pigl | 10.4 | sound | Pigl | 9.3 | rotten |
| Plot 4 | | | | | | | | |
| Pigl | 12.0 | rotten | Pigl | 7.5 | sound | Pigl | 13.0 | rotten |
| Pigl | 9.0 | punky | Pigl | 10.0 | punky | Pigl | 10.0 | punky |
| Poba | 8.5 | sloughing | Potr | 15.0 | punky | Potr | 8.0 | punky |
| Potr | 18.0 | punky | Potr | 16.0 | punky | Potr | 26.0 | rotten |
| Potr | 8.0 | punky | Pigl | 22.0 | rotten | Pigl | 18.0 | rotten |
| Pigl | 11.0 | punky | Pigl | 11.0 | sloughing | — ^b | — | — |

^aBepa = *Betula papyrifera*, Pigl = *Picea glauca*, Poba = *Populus balsamifera*, Potr = *Populus tremuloides*, Unid = Unidentified. ^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1993-07-21 | 15 (0) | 7.1 | 1.2 | 0 |
| Plot 4 | 1994-06-09 | 15 (0) | 18.2 | 24.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 11 | 11 | 0.085 | 67.4 | 37 |
| Line 2 | 8 | 8 | 0.123 | 65.9 | 39 |
| Line 3 | 17 | 17 | 0.086 | 81.7 | 67 |
| Plot 4 | | | | | |
| Line 1 | 7 | 7 | 0.141 | 48.8 | 26 |
| Line 2 | 17 | 17 | 0.111 | 78.6 | 84 |
| Line 3 | 17 | 17 | 0.116 | 58.9 | 65 |

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 2 (sampled 1993-07-21) | | | | | | | |
| Intersections | 403 | 109 | 43 | 15 | 25 | 17 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.5 | 2.3 | 3.4 | 4.8 | 14.8 | 24.9 | 51.7 |
| Detrital mass (t ha ⁻¹) | 0.7 | 1.3 | 1.9 | 2.3 | 6.5 | 9.3 | 21.9 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.7 | 0.9 | 1.2 | 3.3 | 4.6 | 11.0 |
| Plot 6 (sampled 1994-06-09) | | | | | | | |
| Intersections | 156 | 29 | 32 | 13 | 18 | 16 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.6 | 2.5 | 4.2 | 10.7 | 25.5 | 44.1 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.3 | 1.4 | 2.0 | 4.7 | 8.8 | 17.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.7 | 1.0 | 2.3 | 4.4 | 8.8 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 2 | | | | | | | | |
| Pisp | 10.2 | sloughing | Pisp | 8.3 | sloughing | Pisp | 15.8 | sloughing |
| Pisp | 11.3 | sloughing | Pisp | 9.8 | sloughing | Pisp | 10.0 | sloughing |
| Pisp | 8.3 | sloughing | Pisp | 7.3 | sloughing | Potr | 13.3 | sloughing |
| Potr | 11.3 | sloughing | Potr | 10.8 | sloughing | Potr | 7.3 | sloughing |
| Potr | 10.8 | sloughing | Potr | 9.9 | sloughing | Potr | 9.3 | sloughing |
| Unid | 7.8 | rotten | Unid | 10.7 | rotten | — ^b | — | — |
| Plot 6 | | | | | | | | |
| Pigl | 8.0 | rotten | Pigl | 9.0 | punky | Pigl | 11.0 | sloughing |
| Pigl | 10.0 | sloughing | Poba | 10.0 | punky | Pigl | 9.0 | punky |
| Potr | 11.0 | rotten | Potr | 10.0 | punky | Pigl | 16.0 | punky |
| Pigl | 15.0 | sloughing | Pigl | 10.0 | punky | Potr | 10.0 | rotten |
| Pigl | 9.0 | sound | Pigl | 8.0 | punky | Pigl | 13.0 | sound |
| Potr | 10.0 | punky | — | — | — | — | — | — |

^a Pigl = *Picea glauca*, Pisp = *Picea sp.*, Poba = *Populus balsamifera*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 2 | 1993-07-21 | 15 (0) | 14.4 | 3.8 | 0 |
| Plot 6 | 1994-06-09 | 15 (0) | 15.5 | 3.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|---------------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 17 | 17 | 0.037 | 74.6 | 27 |
| Line 2 | 17 | 17 | 0.075 | 92.1 | 66 |
| Line 3 | 16 | 16 | 0.083 | 50.9 | 39 |
| Plot 3 | | | | | |
| Line 1 | 14 | 14 | 0.096 | 36.2 | 28 |
| Line 2 | 15 | 15 | 0.040 | 74.8 | 26 |
| Line 3 | 12 | 12 | 0.052 | 68.3 | 24 |

SITE CODE: MAN G-BI-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-12) | | | | | | | |
| Intersections | 174 | 22 | 9 | 1 | 2 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.7 | 0.4 | 0.8 | 0.3 | 1.1 | 2.0 | 5.4 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.3 | 0.4 | 0.2 | 0.5 | 0.7 | 2.4 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.2 | 0.1 | 0.3 | 0.4 | 1.2 |
| Plot 2 (sampled 1994-08-12) | | | | | | | |
| Intersections | 240 | 21 | 7 | 5 | 3 | 4 | na |
| Volume (m ³ ha ⁻¹) | 1.0 | 0.4 | 0.6 | 1.7 | 1.7 | 4.7 | 10.1 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.2 | 0.3 | 0.8 | 0.8 | 1.8 | 4.5 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.2 | 0.4 | 0.4 | 0.9 | 2.2 |
| Plot 3 (sampled 1994-08-12) | | | | | | | |
| Intersections | 52 | 8 | 0 | 1 | 0 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.2 | 0.0 | 0.3 | 0.0 | 0.0 | 0.7 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.4 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 8.0 | punky | Pima | 9.0 | punky | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Pima | 8.0 | punky | Pima | 10.5 | sound | Pima | 9.5 | rotten |
| Pima | 9.0 | punky | — | — | — | — | — | — |
| Plot 3 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^aPima = *Picea mariana*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-12 | 15 (0) | 21.5 | 9.2 | 0 |
| Plot 2 | 1994-08-12 | 15 (0) | 18.3 | 5.2 | 0 |
| Plot 3 | 1994-08-12 | 15 (0) | 10.0 | 3.7 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 28 | 28 | 0.015 | 88.8 | 21 |
| Line 2 | 24 | 24 | 0.037 | 94.8 | 49 |
| Line 3 | 22 | 22 | 0.037 | 89.7 | 42 |
| Plot 2 | | | | | |
| Line 1 | 23 | 23 | 0.030 | 88.7 | 36 |
| Line 2 | 16 | 16 | 0.031 | 95.7 | 28 |
| Line 3 | 23 | 23 | 0.031 | 95.3 | 40 |
| Plot 3 | | | | | |
| Line 1 | 7 | 7 | 0.040 | 91.2 | 15 |
| Line 2 | 9 | 9 | 0.043 | 93.2 | 21 |
| Line 3 | 14 | 14 | 0.033 | 88.7 | 24 |

SITE CODE: MAN G-BI-2 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-13) | | | | | | | |
| Intersections | 75 | 1 | 4 | 3 | 2 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.0 | 0.3 | 1.0 | 1.1 | 1.7 | 4.4 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.0 | 0.2 | 0.5 | 0.5 | 0.6 | 1.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.0 | 0.1 | 0.2 | 0.3 | 0.3 | 1.0 |
| Plot 2 (sampled 1994-08-13) | | | | | | | |
| Intersections | 132 | 10 | 3 | 1 | 4 | 5 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.2 | 0.3 | 0.3 | 2.3 | 4.7 | 8.3 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.1 | 0.1 | 0.2 | 1.1 | 1.8 | 3.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.1 | 0.1 | 0.5 | 0.9 | 1.8 |
| Plot 3 (sampled 1994-08-13) | | | | | | | |
| Intersections | 22 | 9 | 8 | 3 | 4 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.2 | 0.7 | 1.0 | 2.3 | 1.1 | 5.3 |
| Detrital mass (t ha ⁻¹) | 0.0 | 0.1 | 0.4 | 0.5 | 1.1 | 0.5 | 2.5 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.2 | 0.2 | 0.5 | 0.2 | 1.3 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 11.0 | rotten | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Unid | 8.5 | punky | Pima | 8.0 | sloughing | Unid | 9.0 | punky |
| Unid | 8.0 | punky | Unid | 8.0 | punky | — | — | — |
| Plot 3 | | | | | | | | |
| Pima | 9.0 | sloughing | — | — | — | — | — | — |

^aPima = *Picea mariana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-13 | 15 (0) | 7.5 | 3.6 | 0 |
| Plot 2 | 1994-08-13 | 15 (0) | 15.5 | 7.3 | 0 |
| Plot 3 | 1994-08-13 | 15 (0) | 9.5 | 3.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 7 | 7 | 0.077 | 70.9 | 22 |
| Line 2 | 10 | 10 | 0.063 | 88.6 | 33 |
| Line 3 | 12 | 12 | 0.074 | 70.5 | 36 |
| Plot 2 | | | | | |
| Line 1 | 26 | 26 | 0.019 | 93.4 | 27 |
| Line 2 | 11 | 11 | 0.048 | 78.2 | 24 |
| Line 3 | 22 | 22 | 0.028 | 90.0 | 32 |
| Plot 3 | | | | | |
| Line 1 | 14 | 14 | 0.061 | 66.2 | 33 |
| Line 2 | 7 | 7 | 0.117 | 64.3 | 31 |
| Line 3 | 10 | 10 | 0.055 | 84.3 | 27 |

SITE CODE: MAN N-JM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-27) | | | | | | | |
| Intersections | 22 | 15 | 32 | 7 | 0 | 6 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.3 | 2.7 | 2.3 | 0.0 | 6.9 | 12.4 |
| Detrital mass (t ha ⁻¹) | 0.0 | 0.2 | 1.5 | 1.2 | 0.0 | 2.4 | 5.3 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.8 | 0.6 | 0.0 | 1.2 | 2.7 |
| Plot 3 (sampled 1994-06-27) | | | | | | | |
| Intersections | 4 | 8 | 13 | 5 | 1 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.0 | 0.2 | 1.1 | 1.7 | 0.6 | 1.0 | 4.5 |
| Detrital mass (t ha ⁻¹) | 0.0 | 0.1 | 0.6 | 0.8 | 0.3 | 0.3 | 2.2 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.0 | 0.3 | 0.4 | 0.1 | 0.2 | 1.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 9.0 | rotten | Piba | 9.0 | rotten | Piba | 9.5 | rotten |
| Piba | 9.5 | rotten | Piba | 9.0 | sound | Piba | 9.0 | sound |
| Plot 3 | | | | | | | | |
| Unid | 8.5 | rotten | — ^b | — | — | — | — | — |

^a Piba = *Pinus banksiana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-27 | 15 (0) | 3.5 | 3.0 | 75 |
| Plot 3 | 1994-06-27 | 15 (0) | 2.1 | 3.2 | 87 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 2 | 2 | 0.093 | 82.6 | 9 |
| Line 2 | 4 | 4 | 0.068 | 79.4 | 13 |
| Line 3 | 4 | 4 | 0.141 | 35.7 | 12 |
| Plot 3 | | | | | |
| Line 1 | 6 | 6 | 0.099 | 69.1 | 24 |
| Line 2 | 2 | 2 | 0.114 | 84.8 | 8 |
| Line 3 | 2 | 2 | 0.191 | 77.4 | 13 |

SITE CODE: MAN P-AM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-24) | | | | | | | |
| Intersections | 18 | 31 | 34 | 11 | 6 | 7 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.7 | 2.9 | 3.5 | 3.4 | 11.7 | 22.3 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.3 | 1.3 | 1.5 | 1.4 | 4.1 | 8.7 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.2 | 0.6 | 0.7 | 0.7 | 2.1 | 4.3 |
| Plot 3 (sampled 1994-06-25) | | | | | | | |
| Intersections | 149 | 95 | 50 | 3 | 8 | 4 | na |
| Volume (m ³ ha ⁻¹) | 1.3 | 2.1 | 4.2 | 1.0 | 4.5 | 6.6 | 19.6 |
| Detrital mass (t ha ⁻¹) | 0.7 | 1.0 | 1.9 | 0.4 | 1.9 | 2.3 | 8.1 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.5 | 0.9 | 0.2 | 1.0 | 1.1 | 4.0 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|--------|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | | |
| | Potr | 9.0 | punky | Potr | 8.0 | punky | Potr | 12.0 | punky |
| | Potr | 8.0 | punky | Potr | 9.0 | punky | Potr | 14.0 | punky |
| | Potr | 15.0 | punky | — ^b | — | — | — | — | — |
| Plot 3 | | | | | | | | | |
| | Potr | 9.0 | punky | Unid | 14.0 | rotten | Potr | 9.0 | punky |
| | Potr | 11.0 | punky | — | — | — | — | — | — |

^a Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-24 | 15 (0) | 10.2 | 4.7 | 0 |
| Plot 3 | 1994-06-25 | 15 (0) | 7.9 | 2.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) | |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|----|
| Plot 1 | | | | | | |
| | Line 1 | 4 | 4 | 0.142 | 54.0 | 16 |
| | Line 2 | 6 | 6 | 0.082 | 77.9 | 20 |
| | Line 3 | 8 | 8 | 0.092 | 44.2 | 19 |
| Plot 3 | | | | | | |
| | Line 1 | 8 | 8 | 0.065 | 76.8 | 23 |
| | Line 2 | 7 | 7 | 0.097 | 52.2 | 19 |
| | Line 3 | 6 | 6 | 0.058 | 75.7 | 15 |

SITE CODE: MAN P-JM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-25) | | | | | | | |
| Intersections | 88 | 65 | 48 | 13 | 11 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.5 | 1.3 | 4.1 | 4.2 | 6.4 | 6.0 | 22.5 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.7 | 2.1 | 1.9 | 2.8 | 2.3 | 10.0 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.4 | 1.0 | 1.0 | 1.4 | 1.1 | 5.0 |
| Plot 2 (sampled 1994-06-26) | | | | | | | |
| Intersections | 130 | 72 | 59 | 4 | 2 | 8 | na |
| Volume (m ³ ha ⁻¹) | 0.8 | 1.5 | 5.0 | 1.3 | 1.2 | 15.1 | 24.8 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.8 | 2.6 | 0.6 | 0.5 | 5.7 | 10.5 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.4 | 1.3 | 0.3 | 0.3 | 2.8 | 5.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 10.0 | sound | Potr | 13.0 | punky | Potr | 13.0 | sloughing |
| Plot 2 | | | | | | | | |
| Piba | 8.0 | punky | Potr | 9.0 | punky | Potr | 10.0 | punky |
| Potr | 9.0 | rotten | Potr | 20.0 | sound | Potr | 12.0 | punky |
| Potr | 8.0 | punky | Potr | 13.0 | punky | — ^b | — | — |

^a Piba = *Pinus banksiana*, Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-25 | 14 (0) | 9.0 | 2.5 | 0 |
| Plot 2 | 1994-06-26 | 15 (0) | 11.4 | 3.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 10 | 10 | 0.065 | 49.0 | 18 |
| Line 2 | 8 | 8 | 0.111 | 51.8 | 27 |
| Line 3 | 8 | 8 | 0.098 | 56.3 | 26 |
| Plot 2 | | | | | |
| Line 1 | 10 | 10 | 0.043 | 86.2 | 21 |
| Line 2 | 13 | 13 | 0.075 | 72.6 | 41 |
| Line 3 | 12 | 12 | 0.063 | 44.9 | 20 |

SITE CODE: MAN S-AD-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-28) | | | | | | | |
| Intersections | 46 | 54 | 29 | 20 | 48 | 55 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 1.1 | 2.5 | 6.4 | 27.8 | 108.5 | 146.5 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.6 | 1.3 | 3.0 | 12.2 | 39.4 | 56.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.3 | 0.6 | 1.5 | 6.1 | 19.7 | 28.3 |
| Plot 2 (sampled 1994-06-28) | | | | | | | |
| Intersections | 207 | 54 | 77 | 28 | 26 | 24 | na |
| Volume (m ³ ha ⁻¹) | 1.2 | 1.1 | 6.5 | 9.0 | 15.0 | 26.8 | 59.7 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.6 | 3.3 | 4.1 | 6.6 | 9.7 | 25.0 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.3 | 1.7 | 2.1 | 3.3 | 4.9 | 12.5 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 8.5 | rotten | Unid | 14.0 | rotten | Unid | 10.0 | rotten |
| Unid | 10.0 | rotten | Unid | 17.0 | rotten | Unid | 14.0 | rotten |
| Unid | 8.0 | rotten | Unid | 14.0 | rotten | Unid | 9.0 | rotten |
| Unid | 12.0 | rotten | Unid | 10.0 | rotten | Unid | 8.0 | punky |
| Unid | 13.0 | punky | Unid | 14.0 | punky | Unid | 10.0 | punky |
| Unid | 12.0 | rotten | Unid | 15.0 | punky | Unid | 13.0 | punky |
| Unid | 13.0 | rotten | Unid | 10.0 | punky | Unid | 8.0 | punky |
| Unid | 9.0 | punky | Unid | 10.0 | punky | Unid | 14.0 | rotten |
| Unid | 12.0 | rotten | Unid | 10.0 | punky | Unid | 8.0 | punky |
| Unid | 9.0 | punky | Unid | 14.0 | punky | Unid | 14.0 | punky |
| Unid | 10.0 | punky | Unid | 10.0 | punky | Unid | 8.0 | punky |
| Unid | 14.0 | punky | Unid | 14.0 | punky | Unid | 14.0 | punky |
| Unid | 9.0 | punky | Unid | 9.0 | punky | Unid | 16.0 | punky |
| Unid | 19.0 | punky | Unid | 9.0 | punky | Unid | 9.0 | punky |
| Unid | 10.0 | punky | Unid | 10.0 | punky | Unid | 8.0 | punky |
| Unid | 9.0 | punky | Unid | 20.0 | punky | Unid | 12.0 | punky |
| Unid | 23.0 | punky | Unid | 8.0 | punky | Unid | 14.0 | punky |
| Unid | 9.0 | rotten | Unid | 10.0 | rotten | Unid | 8.0 | rotten |
| Unid | 10.0 | punky | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Unid | 8.5 | punky | Unid | 9.0 | punky | Unid | 7.5 | punky |
| Unid | 7.5 | punky | Unid | 9.0 | punky | Unid | 8.0 | punky |
| Unid | 9.0 | rotten | Unid | 7.5 | rotten | Unid | 9.0 | rotten |
| Unid | 8.5 | punky | Unid | 9.0 | punky | Unid | 9.0 | punky |
| Unid | 13.5 | punky | Unid | 10.0 | punky | Unid | 7.5 | rotten |
| Unid | 8.0 | rotten | Unid | 10.5 | punky | Unid | 10.0 | punky |
| Unid | 8.0 | punky | Unid | 11.0 | punky | Unid | 7.5 | rotten |
| Unid | 8.0 | rotten | Unid | 9.0 | punky | Unid | 9.5 | rotten |

^a Unid = Unidentified.

^b Dashes indicate no measurement taken.

SITE CODE: MAN S-AD-1 (1) continued

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|--------------|------------|-----------------------|
| Plot 1 | 1994-06-28 | 15 (0) | 7.0 | 2.3 | 0 |
| Plot 2 | 1994-06-28 | 15 (0) | 7.3 | 3.1 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------------|-------------------------|--|----------------------------|---|
| Plot 1 | | | | | |
| Line 1 | 4 | 4 | 0.106 | 50.8 | 13 |
| Line 2 | 10 | 10 | 0.112 | 49.1 | 32 |
| Line 3 | 8 | 8 | 0.058 | 63.5 | 17 |
| Plot 2 | | | | | |
| Line 1 | 9 | 9 | 0.109 | 73.4 | 39 |
| Line 2 | 4 | 4 | 0.032 | 76.1 | 6 |
| Line 3 | 7 | 7 | 0.052 | 77.1 | 16 |

SITE CODE: MAN SO-M-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-26) | | | | | | | |
| Intersections | 207 | 43 | 43 | 27 | 24 | 20 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.2 | 0.9 | 3.7 | 8.7 | 13.9 | 25.4 | 53.7 |
| Detrital mass (t ha ⁻¹) | 0.6 | 0.5 | 1.9 | 4.0 | 6.1 | 8.6 | 21.7 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 0.9 | 2.0 | 3.1 | 4.3 | 10.8 |
| Plot 2 (sampled 1994-06-29) | | | | | | | |
| Intersections | 77 | 34 | 26 | 10 | 11 | 22 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.7 | 2.2 | 3.2 | 6.4 | 53.0 | 66.0 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.4 | 1.1 | 1.5 | 2.8 | 18.8 | 24.8 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.6 | 0.7 | 1.4 | 9.4 | 12.4 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 12.0 | rotten | Piba | 8.5 | rotten | Unid | 9.0 | rotten |
| Unid | 9.0 | punky | Unid | 8.0 | rotten | Unid | 10.5 | rotten |
| Unid | 8.0 | rotten | Unid | 10.4 | rotten | Unid | 9.5 | rotten |
| Unid | 8.0 | rotten | Unid | 12.0 | rotten | Unid | 9.0 | rotten |
| Unid | 10.0 | rotten | Unid | 8.5 | rotten | Unid | 10.0 | rotten |
| Unid | 11.0 | rotten | Unid | 8.5 | rotten | Unid | 10.0 | rotten |
| Unid | 8.5 | rotten | Unid | 10.5 | rotten | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Unid | 12.0 | rotten | Unid | 8.0 | punky | Unid | 16.0 | rotten |
| Unid | 15.0 | punky | Unid | 9.0 | punky | Bepa | 10.0 | rotten |
| Unid | 10.0 | punky | Unid | 14.0 | rotten | Unid | 11.0 | punky |
| Unid | 17.0 | rotten | Unid | 14.0 | rotten | Unid | 11.0 | punky |
| Unid | 20.0 | punky | Unid | 18.0 | punky | Unid | 11.0 | punky |
| Unid | 10.0 | punky | Unid | 8.0 | punky | Unid | 8.0 | rotten |
| Unid | 14.0 | rotten | Unid | 15.0 | rotten | Unid | 15.0 | rotten |
| Unid | 16.0 | rotten | — | — | — | — | — | — |

^a Bepa = *Betula papyrifera*, Piba = *Pinus banksiana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-26 | 15 (0) | 5.2 | 1.9 | 0 |
| Plot 2 | 1994-06-29 | 15 (0) | 8.7 | 4.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 7 | 7 | 0.060 | 75.3 | 18 |
| Line 2 | 9 | 9 | 0.083 | 57.8 | 25 |
| Line 3 | 9 | 9 | 0.053 | 74.8 | 20 |
| Plot 2 | | | | | |
| Line 1 | 8 | 8 | 0.065 | 68.3 | 21 |
| Line 2 | 7 | 7 | 0.055 | 82.3 | 18 |
| Line 3 | 20 | 20 | 0.047 | 83.7 | 46 |

SITE CODE: MAN T-AM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-23) | | | | | | | |
| Intersections | 23 | 32 | 46 | 9 | 16 | 19 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.7 | 3.9 | 2.9 | 9.1 | 25.7 | 42.5 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.3 | 1.7 | 1.2 | 3.8 | 9.4 | 16.6 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.9 | 0.6 | 1.9 | 4.7 | 8.3 |
| Plot 2 (sampled 1994-06-23) | | | | | | | |
| Intersections | 371 | 100 | 64 | 14 | 11 | 14 | na |
| Volume (m ³ ha ⁻¹) | 3.1 | 2.2 | 5.4 | 4.4 | 6.2 | 22.4 | 43.8 |
| Detrital mass (t ha ⁻¹) | 1.7 | 1.0 | 2.4 | 1.9 | 2.6 | 8.8 | 18.3 |
| Detrital carbon (t C ha ⁻¹) | 0.8 | 0.5 | 1.2 | 0.9 | 1.3 | 4.4 | 9.2 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 10.0 | rotten | Unid | 8.5 | rotten | Unid | 7.5 | sloughing |
| Unid | 8.0 | rotten | Unid | 9.0 | punky | Unid | 10.0 | punky |
| Unid | 9.5 | punky | Unid | 13.0 | punky | Unid | 7.5 | punky |
| Unid | 9.0 | rotten | Unid | 12.5 | punky | Unid | 14.5 | punky |
| Potr | 12.0 | punky | Unid | 8.0 | punky | Unid | 9.5 | punky |
| Unid | 10.0 | punky | Potr | 8.5 | punky | Unid | 9.0 | punky |
| Unid | 9.5 | punky | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Potr | 10.0 | punky | Pima | 9.0 | sound | Potr | 10.0 | punky |
| Potr | 10.0 | punky | Pima | 9.0 | punky | Pima | 8.0 | sloughing |
| Pima | 8.0 | sound | Pima | 16.0 | sloughing | Pima | 14.0 | sloughing |
| Pima | 9.0 | sloughing | Potr | 13.0 | punky | Pima | 14.0 | sloughing |
| Pima | 8.0 | sound | Potr | 9.0 | punky | — | — | — |

^aPima = *Picea mariana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-23 | 15 (0) | 8.9 | 2.3 | 0 |
| Plot 2 | 1994-06-23 | 15 (0) | 11.0 | 3.3 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 8 | 8 | 0.045 | 83.6 | 18 |
| Line 2 | 8 | 8 | 0.084 | 54.7 | 21 |
| Line 3 | 14 | 14 | 0.060 | 70.5 | 34 |
| Plot 2 | | | | | |
| Line 1 | 10 | 10 | 0.078 | 35.1 | 16 |
| Line 2 | 16 | 16 | 0.071 | 70.6 | 46 |
| Line 3 | 13 | 13 | 0.067 | 83.1 | 42 |

SITE CODE: MAN T-BI-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-09) | | | | | | | |
| Intersections | 138 | 21 | 11 | 2 | 5 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.4 | 0.9 | 0.7 | 2.8 | 4.1 | 9.5 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.2 | 0.5 | 0.3 | 1.3 | 1.5 | 4.2 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.3 | 0.2 | 0.7 | 0.8 | 2.1 |
| Plot 2 (sampled 1994-08-09) | | | | | | | |
| Intersections | 356 | 67 | 34 | 9 | 6 | 3 | na |
| Volume (m ³ ha ⁻¹) | 1.4 | 1.4 | 2.9 | 3.0 | 3.4 | 6.4 | 18.5 |
| Detrital mass (t ha ⁻¹) | 0.7 | 0.8 | 1.6 | 1.5 | 1.6 | 2.2 | 8.3 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.4 | 0.8 | 0.7 | 0.8 | 1.1 | 4.2 |
| Plot 3 (sampled 1994-08-09) | | | | | | | |
| Intersections | 137 | 7 | 8 | 1 | 0 | 4 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.1 | 0.7 | 0.3 | 0.0 | 6.8 | 8.5 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.1 | 0.4 | 0.2 | 0.0 | 2.5 | 3.4 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 1.3 | 1.7 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|--------|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | | |
| | Pima | 10.0 | rotten | Bepa | 10.0 | sloughing | Pima | 10.0 | punky |
| Plot 2 | | | | | | | | | |
| | Bepa | 12.5 | rotten | Bepa | 12.0 | rotten | Bepa | 13.0 | rotten |
| Plot 3 | | | | | | | | | |
| | Pima | 14.0 | sloughing | Unid | 9.0 | rotten | Pima | 10.0 | punky |
| | Unid | 11.0 | rotten | — ^b | — | — | — | — | — |

^aBepa = *Betula papyrifera*, Pima = *Picea mariana*, Unid = Unidentified.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-09 | 15 (0) | 20.3 | 3.8 | 0 |
| Plot 2 | 1994-08-09 | 15 (0) | 20.8 | 5.5 | 0 |
| Plot 3 | 1994-08-09 | 15 (0) | 21.1 | 3.6 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 13 | 13 | 0.031 | 93.3 | 22 |
| Line 2 | 22 | 22 | 0.038 | 91.3 | 45 |
| Line 3 | 22 | 22 | 0.024 | 87.0 | 26 |
| Plot 2 | | | | | |
| Line 1 | 17 | 17 | 0.028 | 93.8 | 25 |
| Line 2 | 20 | 20 | 0.023 | 95.0 | 25 |
| Line 3 | 23 | 23 | 0.027 | 92.3 | 33 |
| Plot 3 | | | | | |
| Line 1 | 26 | 26 | 0.021 | 92.3 | 29 |
| Line 2 | 22 | 22 | 0.012 | 92.4 | 15 |
| Line 3 | 17 | 17 | 0.034 | 93.4 | 31 |

SITE CODE: SASK B-AM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-02) | | | | | | | |
| Intersections | 106 | 41 | 31 | 5 | 3 | 6 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.9 | 0.9 | 2.6 | 1.6 | 1.7 | 7.2 | 14.9 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.4 | 1.2 | 0.7 | 0.7 | 2.7 | 6.2 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.6 | 0.3 | 0.4 | 1.4 | 3.1 |
| Plot 3 (sampled 1994-06-02) | | | | | | | |
| Intersections | 27 | 11 | 20 | 3 | 4 | 1 | na |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.2 | 1.7 | 1.0 | 2.3 | 1.1 | 6.5 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.1 | 0.7 | 0.4 | 1.0 | 0.4 | 2.7 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.4 | 0.2 | 0.5 | 0.2 | 1.4 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 7.5 | punky | Potr | 7.5 | punky | Potr | 8.0 | sound |
| Potr | 8.5 | sloughing | Potr | 13.0 | sloughing | Potr | 10.5 | punky |
| Plot 3 | | | | | | | | |
| Potr | 9.0 | punky | — ^b | — | — | — | — | — |

^a Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-02 | 15 (0) | 10.9 | 3.5 | 0 |
| Plot 3 | 1994-06-02 | 15 (0) | 5.6 | 3.7 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 5 | 5 | 0.393 | 23.0 | 26 |
| Line 2 | 4 | 4 | 0.251 | 38.1 | 22 |
| Line 3 | 5 | 5 | 0.271 | 36.5 | 29 |
| Plot 2 | | | | | |
| Line 1 | 4 | 4 | 0.248 | 30.1 | 15 |
| Line 2 | 7 | 7 | 0.141 | 33.5 | 19 |
| Line 3 | 3 | 3 | 0.691 | 13.0 | 16 |

SITE CODE: SASK F-AM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-27) | | | | | | | |
| Intersections | 62 | 41 | 32 | 5 | 3 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.9 | 2.7 | 1.6 | 1.7 | 7.8 | 15.3 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.4 | 1.2 | 0.7 | 0.7 | 2.7 | 5.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.6 | 0.3 | 0.4 | 1.3 | 3.0 |
| Plot 2 (sampled 1994-08-27) | | | | | | | |
| Intersections | 78 | 68 | 70 | 37 | 11 | 4 | na |
| Volume (m ³ ha ⁻¹) | 0.7 | 1.5 | 5.9 | 11.8 | 6.2 | 5.7 | 31.8 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.7 | 2.6 | 4.9 | 2.6 | 1.9 | 13.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.3 | 1.3 | 2.5 | 1.3 | 0.9 | 6.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 23.9 | rotten | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Potr | 8.5 | punky | Poba | 9.9 | sloughing | Unid | 12.7 | rotten |
| Bepa | 9.1 | rotten | — | — | — | — | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*, Poba = *Populus balsamifera*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-27 | 12 (0) | 9.3 | 2.7 | 0 |
| Plot 2 | 1994-08-27 | 15 (0) | 10.3 | 2.8 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 12 | 12 | 0.055 | 68.7 | 26 |
| Line 2 | 7 | 7 | 0.146 | 56.5 | 31 |
| Line 3 | 6 | 6 | 0.099 | 56.8 | 20 |
| Plot 2 | | | | | |
| Line 1 | 11 | 11 | 0.070 | 71.1 | 32 |
| Line 2 | 10 | 10 | 0.069 | 78.4 | 32 |
| Line 3 | 16 | 16 | 0.067 | 67.7 | 42 |

SITE CODE: SASK F-BD-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|-----------|---------|---------|---------|-----------------|-----------------|
| | <0.5 | 0.5- <1 | 1- <3 | 3- <5 | 5- <7 | | |
| Plot 1 (sampled 1994-06-14) | | | | | | | |
| Intersections | 52 | 24 | 21 | 6 | 2 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.5 | 1.8 | 2.0 | 1.1 | 4.1 | 9.7 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.3 | 1.0 | 1.0 | 0.5 | 1.4 | 4.3 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.5 | 0.5 | 0.3 | 0.7 | 2.1 |
| Plot 2 (sampled 1994-06-14) | | | | | | | |
| Intersections | — ^c | — | — | — | — | 5 | na |
| Volume (m ³ ha ⁻¹) | — | — | — | — | — | 14.9 | — |
| Detrital mass (t ha ⁻¹) | — | — | — | — | — | 5.2 | — |
| Detrital carbon (t C ha ⁻¹) | — | — | — | — | — | 2.6 | — |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

^cNo counts were recorded for size classes <7 cm at this plot. Dashes indicate missing data.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 8.0 | rotten | Pima | 13.0 | rotten | Pima | 8.0 | rotten |
| Plot 2 | | | | | | | | |
| Pima | 14.0 | rotten | Piba | 10.0 | rotten | Pima | 10.0 | sloughing |
| Pima | 8.0 | punky | Pima | 25.0 | rotten | — ^b | — | — |

^aPiba = *Pinus banksiana*, Pima = *Picea mariana*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-14 | 15 (0) | 17.1 | 4.2 | 0 |
| Plot 2 | 1994-06-14 | 15 (0) | 18.6 | 5.5 | 0 |

^aValue in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 17 | 17 | 0.048 | 89.8 | 42 |
| Line 2 | 18 | 18 | 0.058 | 89.5 | 54 |
| Line 3 | 24 | 24 | 0.031 | 68.9 | 30 |
| Plot 2 | | | | | |
| Line 1 | 16 | 16 | 0.038 | 53.6 | 19 |
| Line 2 | 13 | 13 | 0.070 | 65.3 | 35 |
| Line 3 | 13 | 13 | 0.038 | 87.8 | 25 |

SITE CODE: SASK F-BI-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-25) | | | | | | | |
| Intersections | 68 | 10 | 25 | 13 | 5 | 0 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.2 | 2.1 | 4.3 | 2.8 | 0.0 | 9.7 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.1 | 1.2 | 2.1 | 1.3 | 0.0 | 4.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.6 | 1.1 | 0.7 | 0.0 | 2.5 |
| Plot 2 (sampled 1994-08-25) | | | | | | | |
| Intersections | 119 | 26 | 34 | 19 | 4 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.5 | 2.9 | 6.3 | 2.3 | 0.0 | 12.5 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.3 | 1.6 | 3.1 | 1.1 | 0.0 | 6.4 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.8 | 1.6 | 0.5 | 0.0 | 3.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species | Diameter | Condition | Species | Diameter | Condition | Species | Diameter | Condition |
|-----------------------------|----------|-----------|----------------|----------|-----------|---------|----------|-----------|
| Plot 1 | | | | | | | | |
| No items Æ7 cm encountered. | | | — ^a | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-25 | 15 (0) | 16.9 | 4.1 | 0 |
| Plot 2 | 1994-08-25 | 15 (0) | 13.8 | 3.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 14 | 14 | 0.030 | 70.3 | 17 |
| Line 2 | 13 | 13 | 0.047 | 64.0 | 22 |
| Line 3 | 17 | 17 | 0.022 | 93.5 | 20 |
| Plot 2 | | | | | |
| Line 1 | 14 | 14 | 0.055 | 87.1 | 39 |
| Line 2 | 15 | 15 | 0.025 | 84.2 | 18 |
| Line 3 | 15 | 15 | 0.033 | 91.0 | 25 |

SITE CODE: SASK F-BM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-12) | | | | | | | |
| Intersections | 203 | 85 | 34 | 10 | 9 | 12 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.8 | 1.7 | 2.9 | 3.3 | 5.1 | 31.9 | 45.7 |
| Detrital mass (t ha ⁻¹) | 0.4 | 1.0 | 1.6 | 1.7 | 2.4 | 12.4 | 19.4 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.5 | 0.8 | 0.8 | 1.2 | 6.2 | 9.7 |
| Plot 2 (sampled 1994-06-13) | | | | | | | |
| Intersections | 162 | 48 | 16 | 6 | 7 | 16 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 1.0 | 1.4 | 2.0 | 3.9 | 29.3 | 38.2 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.6 | 0.8 | 1.0 | 1.9 | 11.8 | 16.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.3 | 0.4 | 0.5 | 0.9 | 5.9 | 8.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Bepa | 10.0 | rotten | Bepa | 13.0 | rotten | Pima | 20.0 | punky |
| Pima | 10.0 | rotten | Pima | 19.0 | sound | Pima | 12.0 | rotten |
| Pima | 8.0 | punky | Pima | 15.0 | punky | Pima | 18.0 | sound |
| Pima | 16.0 | rotten | Pima | 8.0 | sound | Pima | 11.0 | sound |
| Plot 2 | | | | | | | | |
| Pima | 12.0 | sound | Pima | 8.0 | sound | Pima | 8.0 | sound |
| Pima | 11.0 | sound | Pima | 15.0 | rotten | Pima | 15.0 | rotten |
| Potr | 10.0 | punky | Pima | 8.0 | sound | Pima | 8.0 | sound |
| Pima | 8.0 | sound | Unid | 20.0 | punky | Pima | 8.0 | sound |
| Pima | 9.0 | sound | Pima | 14.0 | sound | Pima | 14.0 | sound |
| Pima | 8.0 | sound | — ^b | — | — | — | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*, Potr = *Populus tremuloides*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-12 | 15 (0) | 20.3 | 6.6 | 0 |
| Plot 2 | 1994-06-13 | 15 (0) | 22.3 | 4.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 14 | 14 | 0.029 | 92.6 | 22 |
| Line 2 | 15 | 15 | 0.029 | 77.3 | 19 |
| Line 3 | 17 | 17 | 0.026 | 90.4 | 24 |
| Plot 2 | | | | | |
| Line 1 | 28 | 28 | 0.029 | 87.9 | 41 |
| Line 2 | 17 | 17 | 0.034 | 57.4 | 19 |
| Line 3 | 23 | 23 | 0.036 | 91.1 | 44 |

SITE CODE: SASK F-BM-2 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-13) | | | | | | | |
| Intersections | 127 | 24 | 26 | 15 | 6 | 6 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.8 | 0.5 | 2.2 | 4.8 | 3.5 | 8.6 | 20.3 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.3 | 1.1 | 2.2 | 1.5 | 3.0 | 8.5 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.6 | 1.1 | 0.8 | 1.5 | 4.2 |
| Plot 2 (sampled 1994-06-13) | | | | | | | |
| Intersections | 63 | 11 | 7 | 8 | 2 | 2 | na |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.2 | 0.6 | 2.6 | 1.2 | 6.6 | 11.6 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.1 | 0.3 | 1.2 | 0.5 | 2.3 | 4.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.2 | 0.6 | 0.3 | 1.1 | 2.3 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 10.0 | sloughing | Pima | 10.0 | rotten | Bepa | 10.0 | rotten |
| Pima | 14.0 | rotten | Bepa | 8.0 | rotten | Bepa | 8.0 | rotten |
| Plot 2 | | | | | | | | |
| Pima | 14.0 | rotten | Unid | 17.0 | rotten | — ^b | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-13 | 15 (0) | 5.3 | 7.1 | 23 |
| Plot 2 | 1994-06-13 | 15 (0) | 4.1 | 3.6 | 7 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 3 | 3 | 0.071 | 88.8 | 11 |
| Line 2 | 2 | 2 | 0.051 | 91.6 | 5 |
| Line 3 | 2 | 2 | 0.161 | 90.9 | 17 |
| Plot 2 | | | | | |
| Line 1 | 0 | 0 | — ^a | — | 0 |
| Line 2 | 9 | 9 | 0.073 | 58.3 | 22 |
| Line 3 | 4 | 4 | 0.060 | 88.4 | 12 |

^a Dashes indicate no measurement taken.

SITE CODE: SASK F-BM-3 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-29) | | | | | | | |
| Intersections | 217 | 25 | 13 | 5 | 2 | 9 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.9 | 0.5 | 1.1 | 1.7 | 1.1 | 22.5 | 27.7 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.3 | 0.6 | 0.8 | 0.5 | 8.6 | 11.3 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.1 | 0.3 | 0.4 | 0.3 | 4.3 | 5.6 |
| Plot 2 (sampled 1994-08-29) | | | | | | | |
| Intersections | 44 | 23 | 31 | 0 | 0 | 2 | na |
| Volume (m ³ ha ⁻¹) | 0.2 | 0.5 | 2.7 | 0.0 | 0.0 | 1.7 | 5.0 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.3 | 1.5 | 0.0 | 0.0 | 0.6 | 2.5 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.7 | 0.0 | 0.0 | 0.3 | 1.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 21.0 | sloughing | Pima | 9.1 | sound | Pima | 7.3 | sloughing |
| Unid | 11.9 | punky | Pima | 14.7 | sloughing | Unid | 15.0 | rotten |
| Unid | 7.6 | rotten | Unid | 16.6 | rotten | Pima | 12.1 | sloughing |
| Plot 2 | | | | | | | | |
| Pima | 7.4 | punky | Pima | 8.1 | punky | — ^b | — | — |

^a Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-29 | 15 (0) | 25.9 | 7.3 | 0 |
| Plot 2 | 1994-08-29 | 15 (0) | 11.0 | 4.2 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 11 | 11 | 0.029 | 89.8 | 16 |
| Line 2 | 17 | 17 | 0.071 | 66.5 | 45 |
| Line 3 | 17 | 17 | 0.098 | 55.9 | 53 |
| Plot 2 | | | | | |
| Line 1 | 13 | 13 | 0.025 | 89.0 | 16 |
| Line 2 | 7 | 7 | 0.036 | 67.5 | 10 |
| Line 3 | 13 | 13 | 0.040 | 55.2 | 17 |

SITE CODE: SASK F-JD-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-15) | | | | | | | |
| Intersections | 45 | 16 | 42 | 54 | 51 | 34 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.3 | 3.6 | 17.3 | 29.5 | 40.9 | 91.9 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 1.8 | 8.0 | 13.0 | 16.9 | 39.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.9 | 4.0 | 6.5 | 8.4 | 20.0 |
| Plot 2 (sampled 1994-06-15) | | | | | | | |
| Intersections | 51 | 48 | 22 | 20 | 21 | 44 | na |
| Volume (m ³ ha ⁻¹) | 0.3 | 1.0 | 1.9 | 6.4 | 12.1 | 69.1 | 90.9 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.5 | 1.0 | 3.0 | 5.3 | 24.7 | 34.6 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.3 | 0.5 | 1.5 | 2.7 | 12.4 | 17.3 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 8.5 | sound | Piba | 7.5 | sound | Piba | 9.0 | sound |
| Piba | 8.0 | sound | Piba | 8.5 | sound | Piba | 7.5 | sound |
| Piba | 8.5 | sound | Piba | 8.0 | sound | Piba | 8.0 | sloughing |
| Piba | 10.0 | sound | Piba | 8.0 | sound | Piba | 10.0 | sound |
| Piba | 10.0 | sound | Piba | 9.0 | sound | Piba | 11.0 | sound |
| Piba | 8.0 | sound | Piba | 11.0 | sound | Piba | 9.0 | sound |
| Piba | 10.5 | sound | Piba | 8.0 | rotten | Piba | 8.0 | rotten |
| Piba | 9.0 | sound | Piba | 9.0 | sound | Piba | 10.0 | sound |
| Piba | 8.5 | sound | Piba | 8.0 | sound | Piba | 8.5 | sound |
| Piba | 8.0 | sound | Piba | 8.0 | sound | Piba | 12.0 | punky |
| Piba | 11.0 | sound | Piba | 9.0 | sound | Piba | 13.0 | sound |
| Piba | 14.0 | sound | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 12.5 | punky | Piba | 8.5 | punky | Unid | 16.0 | sloughing |
| Unid | 18.0 | rotten | Piba | 15.0 | sloughing | Piba | 10.0 | punky |
| Piba | 9.0 | punky | Piba | 7.5 | punky | Piba | 8.0 | punky |
| Piba | 10.0 | punky | Piba | 10.0 | punky | Piba | 13.0 | punky |
| Piba | 10.0 | punky | Piba | 8.0 | punky | Piba | 9.0 | punky |
| Piba | 10.0 | punky | Piba | 7.5 | punky | Piba | 9.0 | punky |
| Piba | 9.0 | punky | Piba | 8.0 | punky | Piba | 8.0 | punky |
| Piba | 9.0 | punky | Piba | 10.0 | punky | Piba | 12.0 | punky |
| Piba | 11.0 | punky | Piba | 12.0 | punky | Piba | 16.0 | punky |
| Piba | 12.0 | punky | Piba | 9.0 | punky | Piba | 10.0 | punky |
| Piba | 10.0 | punky | Piba | 11.0 | punky | Piba | 8.0 | punky |
| Piba | 8.0 | rotten | Piba | 8.5 | punky | Piba | 13.0 | punky |
| Piba | 9.0 | punky | Piba | 8.0 | punky | Piba | 8.0 | punky |
| Piba | 13.0 | punky | Piba | 10.0 | punky | Piba | 11.0 | punky |
| Piba | 12.0 | punky | Piba | 12.0 | sloughing | — | — | — |

^a Piba = *Pinus banksiana*, Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

SITE CODE: SASK F-JD-1 (1) continued

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|--------------|------------|-----------------------|
| Plot 1 | 1994-06-15 | 15 (0) | 3.5 | 3.2 | 17 |
| Plot 2 | 1994-06-15 | 15 (0) | 2.1 | 2.1 | 32 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------------|-------------------------|--|----------------------------|---|
| Plot 1 | | | | | |
| Line 1 | 3 | 3 | 0.137 | 54.0 | 11 |
| Line 2 | 6 | 6 | 0.326 | 20.1 | 23 |
| Line 3 | 9 | 9 | 0.074 | 47.7 | 18 |
| Plot 2 | | | | | |
| Line 1 | 4 | 4 | 0.158 | 58.5 | 19 |
| Line 2 | 4 | 4 | 0.049 | 59.8 | 7 |
| Line 3 | 0 | 0 | — ^a | — | 0 |

^a Dashes indicate no measurement taken.

SITE CODE: SASK F-JM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-11) | | | | | | | |
| Intersections | 87 | 28 | 26 | 14 | 7 | 17 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.6 | 2.2 | 4.5 | 4.0 | 25.5 | 37.4 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.3 | 1.1 | 2.1 | 1.8 | 9.1 | 14.6 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.6 | 1.0 | 0.9 | 4.5 | 7.3 |
| Plot 2 (sampled 1994-06-11) | | | | | | | |
| Intersections | 138 | 70 | 55 | 15 | 7 | 16 | na |
| Volume (m ³ ha ⁻¹) | 0.8 | 1.5 | 4.7 | 4.8 | 4.0 | 41.8 | 57.6 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.8 | 2.4 | 2.2 | 1.8 | 15.2 | 22.7 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.4 | 1.2 | 1.1 | 0.9 | 7.6 | 11.4 |

^aDetails on items in this size class are listed in the table below. ^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 7.8 | sloughing | Potr | 13.4 | sloughing | Pigl | 8.6 | sloughing |
| Pigl | 8.6 | sloughing | Pigl | 8.0 | sloughing | Pigl | 9.5 | punky |
| Pigl | 13.0 | punky | Potr | 13.2 | punky | Potr | 15.0 | punky |
| Potr | 9.0 | rotten | Potr | 11.0 | rotten | Potr | 12.8 | sloughing |
| Pigl | 9.6 | sloughing | Pigl | 8.4 | punky | Pigl | 9.2 | sloughing |
| Pigl | 8.0 | sloughing | Pigl | 8.6 | punky | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Pima | 13.0 | sloughing | Pima | 8.0 | sloughing | Pima | 7.5 | rotten |
| Pima | 8.0 | sloughing | Pima | 16.0 | punky | Pima | 15.0 | punky |
| Pima | 18.0 | rotten | Pima | 9.0 | punky | Pima | 13.0 | punky |
| Pima | 10.0 | punky | Pima | 18.0 | rotten | Pima | 12.0 | punky |
| Potr | 19.0 | sloughing | Pima | 8.0 | sloughing | Pima | 19.0 | rotten |
| Pima | 17.0 | rotten | — | — | — | — | — | — |

^a Pigl = *Picea glauca*, Pima = *Picea mariana*, Potr = *Populus tremuloides*. ^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-11 | 15 (0) | 14.2 | 4.0 | 0 |
| Plot 2 | 1994-06-11 | 15 (0) | 11.7 | 4.1 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 10 | 10 | 0.105 | 39.7 | 24 |
| Line 2 | 8 | 8 | 0.115 | 60.1 | 32 |
| Line 3 | 9 | 9 | 0.064 | 77.0 | 26 |
| Plot 2 | | | | | |
| Line 1 | 3 | 3 | 0.076 | 82.5 | 11 |
| Line 2 | 19 | 19 | 0.042 | 77.1 | 36 |
| Line 3 | 17 | 17 | 0.037 | 86.2 | 32 |

SITE CODE: SASK F-JM-2 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-12) | | | | | | | |
| Intersections | 137 | 66 | 45 | 10 | 8 | 11 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.8 | 1.4 | 3.8 | 3.2 | 4.6 | 19.8 | 33.7 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.7 | 1.9 | 1.5 | 2.0 | 6.9 | 13.4 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.4 | 1.0 | 0.7 | 1.0 | 3.4 | 6.7 |
| Plot 2 (sampled 1994-06-12) | | | | | | | |
| Intersections | 102 | 20 | 20 | 5 | 5 | 7 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.4 | 1.7 | 1.6 | 2.9 | 11.5 | 18.7 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.2 | 0.9 | 0.7 | 1.3 | 3.9 | 7.3 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.4 | 0.4 | 0.6 | 2.0 | 3.7 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 10.0 | punky | Piba | 14.0 | punky | Unid | 9.0 | punky |
| Piba | 16.0 | sloughing | Piba | 13.0 | rotten | Piba | 9.0 | rotten |
| Piba | 8.0 | rotten | Unid | 11.0 | rotten | Unid | 13.0 | rotten |
| Piba | 12.0 | rotten | Piba | 8.0 | punky | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Piba | 10.0 | punky | Unid | 8.0 | rotten | Piba | 9.0 | punky |
| Unid | 10.0 | rotten | Piba | 14.0 | punky | Unid | 10.0 | rotten |
| Piba | 14.0 | rotten | — | — | — | — | — | — |

^a Piba = *Pinus banksiana*, Piba = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-12 | 15 (0) | 3.7 | 2.8 | 38 |
| Plot 2 | 1994-06-12 | 15 (0) | 3.1 | 2.6 | 25 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 6 | 6 | 0.079 | 56.5 | 16 |
| Line 2 | 2 | 2 | 0.153 | 89.0 | 12 |
| Line 3 | 7 | 7 | 0.050 | 84.1 | 17 |
| Plot 2 | | | | | |
| Line 1 | 4 | 4 | 0.074 | 82.6 | 14 |
| Line 2 | 4 | 4 | 0.048 | 93.5 | 10 |
| Line 3 | 2 | 2 | 0.112 | 85.1 | 11 |

SITE CODE: SASK F-JM-4 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-28) | | | | | | | |
| Intersections | 72 | 9 | 22 | 6 | 3 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.2 | 1.9 | 1.9 | 1.7 | 3.0 | 9.2 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.1 | 1.0 | 0.9 | 0.8 | 1.0 | 3.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.0 | 0.5 | 0.4 | 0.4 | 0.5 | 1.9 |
| Plot 2 (sampled 1994-08-28) | | | | | | | |
| Intersections | 241 | 37 | 31 | 8 | 9 | 6 | na |
| Volume (m ³ ha ⁻¹) | 1.4 | 0.8 | 2.6 | 2.6 | 5.2 | 10.9 | 23.6 |
| Detrital mass (t ha ⁻¹) | 0.7 | 0.4 | 1.3 | 1.2 | 2.3 | 3.8 | 9.7 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 0.7 | 0.6 | 1.1 | 1.9 | 4.8 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 8.1 | rotten | Piba | 12.5 | rotten | — ^b | — | — |
| Plot 2 | | | | | | | | |
| Unid | 8.5 | rotten | Piba | 10.5 | rotten | Unid | 11.2 | rotten |
| Unid | 10.5 | rotten | Piba | 11.3 | sloughing | Unid | 15.9 | rotten |

^a Piba = *Pinus banksiana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-28 | 15 (0) | 5.9 | 6.2 | 47 |
| Plot 2 | 1994-08-28 | 15 (0) | 16.0 | 10.2 | 12 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 6 | 6 | 0.040 | 86.1 | 12 |
| Line 2 | 2 | 2 | 0.210 | 66.2 | 16 |
| Line 3 | 25 | 17 | 0.024 | 91.9 | 33 |
| Plot 2 | | | | | |
| Line 1 | 12 | 12 | 0.024 | 90.7 | 15 |
| Line 2 | 23 | 17 | 0.080 | 87.3 | 93 |
| Line 3 | 25 | 17 | 0.058 | 92.7 | 79 |

SITE CODE: SASK F-JM-5 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-30) | | | | | | | |
| Intersections | 174 | 28 | 20 | 4 | 2 | 3 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.0 | 0.6 | 1.7 | 1.3 | 1.2 | 3.1 | 8.9 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.3 | 0.9 | 0.6 | 0.5 | 1.2 | 3.9 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 0.4 | 0.3 | 0.3 | 0.6 | 2.0 |
| Plot 2 (sampled 1994-08-30) | | | | | | | |
| Intersections | 193 | 29 | 13 | 11 | 7 | 2 | na |
| Volume (m ³ ha ⁻¹) | 1.2 | 0.6 | 1.1 | 3.5 | 4.0 | 15.9 | 26.4 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.3 | 0.6 | 1.6 | 1.8 | 5.4 | 10.2 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 0.3 | 0.8 | 0.9 | 2.7 | 5.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Unid | 9.8 | rotten | Pima | 8.2 | punky | Pima | 7.9 | sound |
| Plot 2 | | | | | | | | |
| Unid | 15.2 | rotten | Unid | 30.5 | rotten | — ^b | — | — |

^a Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-30 | 15 (0) | 15.8 | 5.4 | 0 |
| Plot 2 | 1994-08-30 | 15 (0) | 15.9 | 4.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 23 | 17 | 0.044 | 95.8 | 56 |
| Line 2 | 9 | 9 | 0.047 | 71.9 | 18 |
| Line 3 | 15 | 15 | 0.018 | 91.5 | 14 |
| Plot 2 | | | | | |
| Line 1 | 15 | 15 | 0.028 | 92.4 | 23 |
| Line 2 | 9 | 9 | 0.059 | 37.4 | 12 |
| Line 3 | 17 | 17 | 0.038 | 56.4 | 21 |

SITE CODE: SASK F-M-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-08-26) | | | | | | | |
| Intersections | 295 | 37 | 70 | 6 | 2 | 4 | na ^b |
| Volume (m ³ ha ⁻¹) | 1.2 | 0.7 | 6.0 | 2.0 | 1.1 | 5.3 | 16.3 |
| Detrital mass (t ha ⁻¹) | 0.5 | 0.4 | 3.4 | 1.0 | 0.5 | 1.8 | 7.7 |
| Detrital carbon (t C ha ⁻¹) | 0.3 | 0.2 | 1.7 | 0.5 | 0.3 | 0.9 | 3.8 |
| Plot 2 (sampled 1994-08-26) | | | | | | | |
| Intersections | 146 | 62 | 67 | 8 | 7 | 14 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 1.2 | 5.8 | 2.6 | 3.9 | 19.4 | 33.6 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.7 | 3.2 | 1.3 | 1.9 | 6.8 | 14.2 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.4 | 1.6 | 0.7 | 0.9 | 3.4 | 7.1 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Bepa | 7.1 | rotten | Pima | 14.9 | rotten | Unid | 7.5 | rotten |
| Bepa | 7.4 | punky | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Pima | 10.1 | rotten | Pima | 8.4 | rotten | Bepa | 8.1 | rotten |
| Pima | 15.0 | rotten | Pima | 7.5 | sound | Unid | 9.9 | rotten |
| Unid | 10.9 | rotten | Unid | 12.1 | rotten | Pima | 10.5 | rotten |
| Unid | 9.5 | rotten | Bepa | 10.4 | rotten | Bepa | 10.0 | rotten |
| Bepa | 8.5 | sloughing | Bepa | 7.3 | punky | — | — | — |

^a Bepa = *Betula papyrifera*, Pima = *Picea mariana*, Unid = Unidentified.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-08-26 | 15 (0) | 12.8 | 3.3 | 0 |
| Plot 2 | 1994-08-26 | 15 (0) | 11.7 | 3.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 10 | 10 | 0.059 | 68.0 | 23 |
| Line 2 | 9 | 9 | 0.033 | 81.8 | 13 |
| Line 3 | 16 | 16 | 0.040 | 74.0 | 26 |
| Plot 2 | | | | | |
| Line 1 | 14 | 14 | 0.032 | 70.3 | 18 |
| Line 2 | 13 | 13 | 0.046 | 59.2 | 20 |
| Line 3 | 9 | 9 | 0.138 | 59.5 | 43 |

SITE CODE: SASK M-BD-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-05-31) | | | | | | | |
| Intersections | 87 | 62 | 131 | 52 | 6 | 1 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 1.2 | 11.3 | 17.2 | 3.4 | 1.4 | 34.8 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.7 | 6.3 | 8.6 | 1.6 | 0.5 | 17.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.4 | 3.2 | 4.3 | 0.8 | 0.2 | 8.9 |
| Plot 2 (sampled 1994-07-10) | | | | | | | |
| Intersections | 30 | 30 | 39 | 16 | 11 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.6 | 3.3 | 5.3 | 6.2 | 0.0 | 15.6 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.4 | 1.9 | 2.6 | 2.9 | 0.0 | 7.8 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.2 | 0.9 | 1.3 | 1.5 | 0.0 | 3.9 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 10.2 | rotten | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-05-31 | 15 (0) | 19.1 | 8.6 | — ^b |
| Plot 2 | 1994-07-10 | 15 (0) | 19.9 | 5.4 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 2 | | | | | |
| Line 1 | 22 | 22 | 0.046 | 85.7 | 50 |
| Line 2 | 12 | 12 | 0.044 | 87.5 | 27 |
| Line 3 | 27 | 27 | 0.046 | 91.7 | 66 |
| Plot 3 | | | | | |
| Line 1 | 13 | 13 | 0.038 | 88.1 | 25 |
| Line 2 | 25 | 25 | 0.043 | 85.4 | 54 |
| Line 3 | 19 | 19 | 0.068 | 85.6 | 64 |

SITE CODE: SASK NI-J-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-06-26) | | | | | | | |
| Intersections | 143 | 67 | 31 | 14 | 4 | 6 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.9 | 1.4 | 2.6 | 4.5 | 2.3 | 17.5 | 29.2 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.7 | 1.3 | 2.1 | 1.0 | 5.8 | 11.4 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.4 | 0.7 | 1.0 | 0.5 | 2.9 | 5.7 |
| Plot 2 (sampled 1994-06-26) | | | | | | | |
| Intersections | 106 | 34 | 72 | 19 | 11 | 18 | na |
| Volume (m ³ ha ⁻¹) | 0.6 | 0.7 | 6.1 | 6.1 | 6.4 | 25.7 | 45.6 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.4 | 3.1 | 2.8 | 2.8 | 9.8 | 19.2 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 1.6 | 1.4 | 1.4 | 4.9 | 9.6 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Piba | 22.0 | rotten | Unid | 15.0 | rotten | Unid | 15.0 | rotten |
| Piba | 10.0 | punky | Piba | 12.0 | rotten | Piba | 10.0 | punky |
| Plot 2 | | | | | | | | |
| Piba | 9.5 | punky | Piba | 9.5 | sloughing | Unid | 17.0 | rotten |
| Piba | 14.0 | sloughing | Piba | 12.0 | punky | Piba | 7.5 | sloughing |
| Piba | 7.5 | sound | Piba | 7.5 | sound | Piba | 8.0 | sound |
| Piba | 8.0 | sound | Piba | 7.5 | sound | Piba | 12.5 | sound |
| Piba | 7.5 | sound | Piba | 10.0 | sound | Piba | 10.0 | sound |
| Piba | 8.0 | punky | Piba | 12.5 | rotten | Piba | 9.0 | punky |

^a Piba = *Pinus banksiana*, Unid = Unidentified.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-06-26 | 15 (0) | 5.1 | 1.7 | 0 |
| Plot 2 | 1994-06-26 | 15 (0) | 3.6 | 2.0 | — ^b |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 6 | 6 | 0.285 | 25.4 | 25 |
| Line 2 | 5 | 5 | 0.148 | 75.9 | 33 |
| Line 3 | 9 | 9 | 0.038 | 78.5 | 16 |
| Plot 2 | | | | | |
| Line 1 | 3 | 3 | 0.233 | 36.1 | 15 |
| Line 2 | 7 | 7 | 0.096 | 39.5 | 15 |
| Line 3 | 5 | 5 | 0.170 | 15.9 | 8 |

SITE CODE: SASK PA-BM-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-05-30) | | | | | | | |
| Intersections | 73 | 19 | 15 | 15 | 4 | 2 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.3 | 0.4 | 1.3 | 5.0 | 2.3 | 2.2 | 11.4 |
| Detrital mass (t ha ⁻¹) | 0.1 | 0.2 | 0.7 | 2.5 | 1.1 | 0.9 | 5.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.1 | 0.4 | 1.2 | 0.5 | 0.4 | 2.7 |
| Plot 2 (sampled 1994-05-31) | | | | | | | |
| Intersections | 231 | 29 | 50 | 10 | 1 | 0 | na |
| Volume (m ³ ha ⁻¹) | 0.9 | 0.6 | 4.3 | 3.3 | 0.6 | 0.0 | 9.7 |
| Detrital mass (t ha ⁻¹) | 0.4 | 0.3 | 2.4 | 1.7 | 0.3 | 0.0 | 5.1 |
| Detrital carbon (t C ha ⁻¹) | 0.2 | 0.2 | 1.2 | 0.8 | 0.1 | 0.0 | 2.5 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|-----------------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pima | 8.8 | rotten | Pima | 9.2 | sound | — ^b | — | — |
| Plot 2 | | | | | | | | |
| No items Æ7 cm encountered. | | | — | — | — | — | — | — |

^a Pima = *Picea mariana*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-05-30 | 15 (0) | 21.8 | 6.3 | 0 |
| Plot 2 | 1994-05-31 | 15 (0) | 21.1 | 4.5 | — ^b |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 17 | 17 | 0.091 | 47.7 | 43 |
| Line 2 | 24 | 24 | 0.035 | 85.3 | 42 |
| Line 3 | 22 | 22 | 0.108 | 57.4 | 79 |
| Plot 2 | | | | | |
| Line 1 | 23 | 23 | 0.045 | 65.8 | 40 |
| Line 2 | 18 | 18 | 0.063 | 68.9 | 44 |
| Line 3 | 24 | 24 | 0.035 | 80.6 | 39 |

SITE CODE: SASK PA-M-1 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-05-29) | | | | | | | |
| Intersections | 102 | 31 | 22 | 5 | 7 | 18 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.4 | 0.7 | 1.7 | 1.6 | 4.1 | 34.9 | 43.4 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.4 | 0.9 | 0.8 | 1.8 | 11.8 | 15.9 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 0.5 | 0.4 | 0.9 | 5.9 | 7.9 |
| Plot 3 (sampled 1994-05-30) | | | | | | | |
| Intersections | 24 | 22 | 13 | 5 | 8 | 14 | na |
| Volume (m ³ ha ⁻¹) | 0.1 | 0.5 | 1.0 | 1.6 | 4.7 | 25.6 | 33.5 |
| Detrital mass (t ha ⁻¹) | 0.0 | 0.3 | 0.6 | 0.8 | 2.1 | 8.2 | 11.9 |
| Detrital carbon (t C ha ⁻¹) | 0.0 | 0.1 | 0.3 | 0.4 | 1.0 | 4.1 | 5.9 |

^aDetails on items in this size class are listed in the table below.

^bna = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Pigl | 23.0 | rotten | Pigl | 11.5 | sloughing | Pigl | 8.0 | rotten |
| Pigl | 8.5 | rotten | Potr | 11.1 | sloughing | Potr | 14.2 | sloughing |
| Potr | 10.6 | rotten | Potr | 8.0 | rotten | Potr | 9.0 | rotten |
| Potr | 16.5 | rotten | Pigl | 8.0 | punky | Potr | 10.8 | punky |
| Potr | 18.1 | punky | Pigl | 9.8 | punky | Potr | 9.0 | punky |
| Pigl | 8.5 | sloughing | Pigl | 7.3 | sloughing | Potr | 9.0 | sloughing |
| Plot 3 | | | | | | | | |
| Pigl | 11.0 | rotten | Potr | 19.0 | rotten | Pigl | 10.0 | punky |
| Pigl | 7.5 | sloughing | Pigl | 8.0 | sound | Bepa | 9.2 | rotten |
| Pigl | 13.0 | rotten | Pigl | 9.3 | rotten | Potr | 8.9 | rotten |
| Potr | 8.7 | rotten | Pigl | 13.2 | punky | Pigl | 17.0 | rotten |
| Potr | 8.0 | rotten | Pigl | 12.0 | rotten | — ^b | — | — |

^aBepa = *Betula papyrifera*, Pigl = *Picea glauca*, Potr = *Populus tremuloides*.

^bDashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-05-29 | 15 (0) | 10.2 | 5.2 | 0 |
| Plot 3 | 1994-05-30 | 15 (0) | 13.1 | 3.0 | 0 |

^a Value in brackets indicates measurements limited by water table or frozen soil.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 13 | 13 | 0.094 | 77.0 | 54 |
| Line 2 | 12 | 12 | 0.048 | 77.6 | 26 |
| Line 3 | 16 | 16 | 0.090 | — ^a | 40 |
| Plot 2 | | | | | |
| Line 1 | 8 | 8 | 0.081 | — | 28 |
| Line 2 | 10 | 10 | 0.058 | 85.1 | 27 |
| Line 3 | 7 | 7 | 0.066 | 71.9 | 19 |

^aDashes indicate no measurement taken.

SITE CODE: SASK PA-M-2 (1)

Transect Site

Woody debris

| Parameter | Diameter class (cm) | | | | | Æ7 ^a | Total |
|---|---------------------|--------|------|------|------|-----------------|-----------------|
| | <0.5 | 0.5-<1 | 1-<3 | 3-<5 | 5-<7 | | |
| Plot 1 (sampled 1994-05-29) | | | | | | | |
| Intersections | 98 | 41 | 50 | 28 | 7 | 7 | na ^b |
| Volume (m ³ ha ⁻¹) | 0.5 | 0.8 | 4.1 | 8.8 | 4.1 | 15.5 | 33.8 |
| Detrital mass (t ha ⁻¹) | 0.2 | 0.4 | 2.1 | 4.1 | 1.8 | 5.5 | 14.1 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.2 | 1.0 | 2.0 | 0.9 | 2.7 | 7.0 |
| Plot 2 (sampled 1994-05-29) | | | | | | | |
| Intersections | 104 | 66 | 69 | 23 | 6 | 8 | na |
| Volume (m ³ ha ⁻¹) | 0.5 | 1.4 | 5.7 | 7.3 | 3.5 | 29.9 | 48.2 |
| Detrital mass (t ha ⁻¹) | 0.3 | 0.7 | 2.8 | 3.3 | 1.6 | 9.8 | 18.5 |
| Detrital carbon (t C ha ⁻¹) | 0.1 | 0.4 | 1.4 | 1.7 | 0.8 | 4.9 | 9.2 |

^aDetails on items in this size class are listed in the table below.

^b na = not applicable.

Data on individual items Æ7 cm (as listed above)

| Species ^a | Diameter | Condition | Species ^a | Diameter | Condition | Species ^a | Diameter | Condition |
|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|
| Plot 1 | | | | | | | | |
| Potr | 7.4 | sloughing | Potr | 8.7 | sloughing | Potr | 11.5 | punky |
| Potr | 12.2 | rotten | Potr | 8.5 | punky | Potr | 20.6 | punky |
| Potr | 14.8 | punky | — ^b | — | — | — | — | — |
| Plot 2 | | | | | | | | |
| Piba | 7.1 | sound | Piba | 10.3 | punky | Piba | 26.0 | rotten |
| Piba | 8.5 | sloughing | Piba | 12.5 | rotten | Piba | 22.5 | rotten |
| Piba | 18.5 | rotten | Piba | 16.5 | rotten | — | — | — |

^a Piba = *Pinus banksiana*, Potr = *Populus tremuloides*.

^b Dashes indicate no measurement taken.

Duff depth measurements

| Location | Date | n ^a | Mean (cm) | SD (cm) | % mineral exposure |
|----------|------------|----------------|-----------|---------|--------------------|
| Plot 1 | 1994-05-29 | 10 (0) | 10.7 | 1.8 | 0 |
| Plot 2 | 1994-05-29 | 15 (0) | 6.3 | 1.5 | — ^b |

^a Value in brackets indicates measurements limited by water table or frozen soil.

^b Dashes indicate no measurement taken.

Duff carbon estimates (field samples collected in summer 1994)

| Location | Duff depth (cm) | Sample depth (cm) | Sample density (g cm ⁻³) | Loss on ignition (%) | Duff carbon (t C ha ⁻¹) |
|----------|-----------------|-------------------|--------------------------------------|----------------------|-------------------------------------|
| Plot 1 | | | | | |
| Line 1 | 13 | 13 | 0.061 | 65.9 | 30 |
| Line 2 | 10 | 10 | 0.071 | 79.3 | 31 |
| Line 3 | 9 | 9 | 0.094 | 53.5 | 26 |
| Plot 2 | | | | | |
| Line 1 | 4 | 4 | 0.111 | 67.8 | 17 |
| Line 2 | 10 | 10 | 0.062 | 63.2 | 23 |
| Line 3 | 8 | 8 | 0.059 | 68.4 | 19 |