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NEOGENE AND QUATERNARY SELECTED PALYNOLOGICAL DATA FROM YUKON AND ADJACENT NORTHWEST TERRITORIES AND ALASKA

By

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Introduction

This open file is of Neogene and Quaternary quantitative palynological data from Yukon Territory, adjacent Northwest Territories and Alaska. These data have been compiled to permit interpretation of long-term climate change and biostratigraphy in the study area. These interpretations made in the following publications:

White, J.M., Ager, T.A., Adam, D.P., Leopold, E.B., Liu, G., Jetté, H. and Schweger, C.E. 1997. An 18 million year record of vegetation and climatic change in northwestern Canada and Alaska: tectonic and global climatic correlates. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 130, pp. 293-306.

and

White, J.M., Ager, T.A., Adam, D.P., Leopold, E.B., Liu, G., Jetté, H. and Schweger, C.E. in press. A Neogene and Quaternary quantitative palynostratigraphy and paleoclimatology from sections in western Northwest and Yukon Territories and Alaska. *G.S.C. Bulletin.*

The attached files comprise the original numeric palynological data, and notes made by JMW during the process of assembling and standardizing a common database.

Taxonomy

As the data from different workers were assembled by JMW, taxa were combined at higher taxonomic levels in order to standardize identifications at common units. Although the original identifications were appropriate for the data from individual sections or zones, inclusion of taxa which have been very rarely identified, or were restricted to certain sections, or which might not have been identified by all workers, would have created an unworkably large chart. Moreover, sparse records of unique taxa do not give a great deal of information about the nature of the chronologic distribution of the underlying populations. Such taxa were removed from separate consideration. Notes made for each section or zone during taxonomic reallocations are found in Appendix 1.

Calculations

In order to characterize the gross changes in vegetation during the Miocene to Pleistocene, angiosperm and gymnosperm pollen, filicale spores and *Sphagnum* were included in the same pollen sum for the calculation of percentages for individual sections/zones. Percentage calculations are based on the full pollen and spore assemblage for each spectrum in the sections/zones, although only taxa selected for biostratigraphic or paleoclimatic significance, or for abundance, are presented in the composite database. However, the algal cysts, *Pediastrum* and *Botryococcus* (e.g., Canyon Village section 90-7), and fungi (e.g., Upper Ramparts Canyon organic beds 1 to 4) were exclude from the analysis.

The means and standard deviations representing each section/zone were calculated by pooling the percentages for the individual samples. All standard deviations of percentages from zones/sections were calculated using the population standard deviation (STD function of Quattro Pro for Windows, v. 5.0); i.e. the total number of samples in each section is treated as a population. This model was chosen in order to characterize the variability of the individual pollen spectra from each section. We did not use a sample standard deviation calculation because of the inappropriate implication that the spectra from each section truly characterizes the total variability of the pollen assemblages for each time period under consideration.

In quantitative palynology, new taxa are often encountered after the predetermined number of palynomorphs to be tallied has been reached. These are relatively rare taxa and are referred to as having been encountered "beyond the sum", or "outside of the sum", and are excluded from percentage calculations and represented only by a symbol indicating "presence" (often a "+" symbol) on pollen diagrams. For this study, useful pollen and spores, which were depicted only by "presence" on other diagrams, were given an estimated value of 0.1 % and that number was inserted into the database after the percentage calculations were made. Technically, the palynomorphs in the database add up to more than 100%, but the effect on the percentage sum is minimal, and this technique allows a quantitative database to be maintained while including useful rare types. In the case of rare taxa in the Usibelli Group, percentages represented as a "+" symbol, are indicated to mean <= 0.5% (Leopold and Liu, 1994, Figure 8), and may be either taxa which occured inside of the calculation sum at a relative abundance of 0.01% to 0.5%, or taxa which occured outside the tally sum. In this case, a value of 0.2%, has been assigned to the "+" symbols. Rare types from the Usibelli Group from Appendix 1 (Leopold and Liu, 1994) have been entered as 0.1% values on the composite table, without standard deviations.

Data Files

The data for each section or pollen zone are found in separate pages of the enclosed spreadsheet file NEO-OPFI.WB1, in QuattroPro for Windows, version 5.0. The final spreadsheet page includes means and standard deviations of the percentage transformations of each of selected taxa from previous pages. From these data, ratios representing paleoclimatic parameters and biostratigraphic patterns were assembled, following the methods discussed in White et al. (1997, in press).

The layout of the files differs on each spreadsheet page as the files have different origins, have some differences in taxonomic organization, have different sizes, and can be worked on conveniently in different layouts. All files used for the above papers have original palynological count data, excepting the Usibelli Group.

Original count palynological data from the Usibelli Group were not available to JMW in 1994 and 1995 when the data were being assembled and analyzed. As a consequence, percentage data were scaled off Figure 8 of Leopold and Liu (1994). The digital data files use to generate Leopold and Liu's Fig. 8 (1994) became available on October 3, 1996, and are included in this open file report. The COALCOMB.WK1 FILE is the count data used to generate Fig. 8. ASHFALL.WK1 and NENANA.WK1 are data used in the calculation of Fig. 10 and 11, respectively, of Leopold and Liu (1994). These are Lotus 1-2-3 version 2.x files.

The spreadsheet pages which follow as Appendix 3 are printed in the order that the pages are found in the NEO-OPFI.WB1 spreadsheet file, i.e.; Taglu, CRH-94, Lost Chicken, McCallum Creek, Lava Camp,

Canyon Village, Usibelli Group, Upper Ramparts Canyon, Composite (the integetrated, selected data). Leopold and Liu's Usibelli Group files, COALCOMB.WK1, ASHFAL.WK1 and NENANA.WK1, follow.

Bibliography

The following is a list of primary descriptive sources for the section which yielded useful palynological information for the studies of White et al. (1997 , in press). For other references, please consult those publications.

Ager, T.A., Matthews, J.V., Jr. and White, J.M., in prep. Palynology and paleoenvironmental interpretations of late Miocene lake deposits near Canyon Village, Porcupine River, northeastern Alaska.

Dallimore, S.R. and Matthews, J.V., Jr., 1997. The Mackenzie Delta borehole Project. Environmental Studies Research Funds Report No. 135. Calgary, 1 CD-ROM.

Hopkins, D.M., Matthews, J.V., Wolfe, J.A. and Silberman, M.L., 1971. A Pliocene flora and insect fauna from the Bering Strait region. Palaeogeography, Palaeoclimatology, Palaeoecology, 9: 211-231.

Kunk, M.J., Rieck, H., Fouch, T.D. and Carter, L.D., 1994. $^{40}Ar/^{39}Ar$ age constraints on Neogene sedimentary beds, Upper Ramparts, Half-way Pillar and Canyon Village sites, Porcupine River, east-central Alaska. Quaternary International, 22/23: 31-42.

Kunk, M.J., 1995. $^{40}Ar/^{39}Ar$ age-spectrum data for hornblende, plagioclase and biotite from tephras collected at Dan Creek and McCallum Creek, Alaska and in the Klondike Placer district near Dawson, Yukon Territory, Canada. United States Geological Survey Open-File Report 95-217.

Leopold, E. and Liu, G., 1994. A long pollen sequence of Neogene age, Alaska Range. Quaternary International, 22/23: 103-140.

Matthews, J.V., Jr., Drouk, A., Westgate, J.A. and Ovenden, L. in prep. Fossils of plants, insects and oribatid mites from the Upper Pit of the Lost Chicken Gold Mine (east central Alaska): a Late Pliocene window on the environment of East Beringia.

Wang, Y. and Evans, M.E. 1997. Paleomagnetism of Canadian Arctic permafrost: Quaternary magnetostratigraphy of the Mackenzie Delta. Canadian Journal of Earth Sciences, v. 34, pp. 135-139.

Weber, F.R. and Turner, D.L., 1977. A late Tertiary thrust fault in the central Alaska Range. The United States Geological Survey in Alaska: Accomplishments during 1976. Geological Survey Circular 751-B.

Westgate, J., Schweger, C., Sandhu, A., Morlan, R. and Matthews, J., 1995. Tephrochronological, palaeomagnetic and palaeoenvironmental studies of late Cenozoic deposits in the northern Yukon, Canada. In International Union for Quaternary Research. XIV International Congress, Aug. 3-10, 1995. Freie Universitat Berlin, Germany. Abstracts.

White, J.M. and Ager, T.A., 1994. Palynology, palaeoclimatolgy and correlation of middle Miocene beds from Porcupine River (Locality 90-1), Alaska. Quaternary International, 22/23: 43-77.

White, J.M., Ager, T.A., Adam, D.P., Leopold, E.B., Liu, G., Jetté, H. and Schweger, C.E. 1997. An 18 million year record of vegetation and climatic change in northwestern Canada and Alaska: tectonic and global climatic correlates. Palaeogeography, Palaeoclimatology, Palaeoecology, v. 130, pp. 293-306.

White, J.M., Ager, T.A., Adam, D.P., Leopold, E.B., Liu, G.,Jetté, H. and Schweger, C.E. in press. A Neogene and Quaternary quantitative palynostratigraphy and paleoclimatology from sections in western Northwest and Yukon Territories and Alaska. G.S.C. Bulletin.

Wolfe, J.A., Hopkins, D.M. and Leopold, E.B., 1966. Tertiary stratigraphy and paleobotany of the Cook Inlet Region, Alaska; Geological Survey Professional Paper, 398-A. United States Government Printing Office, Washington.

Wolfe, J.A. and Tanai, T., 1980. The Miocene Seldovia Point flora from the Kenai Group, Alaska. Geological Survey Professional Paper, 1105. United States Government Printing Office, Washington.

Appendix 1
Taxonomic Notes

The following are notes made by JMW as the palynological data from various authors were compiled into a common database. Generally, the notes deal with amalgamation of taxa at higher taxonomic levels.

Taglu Borehole

Column named "Treated sa" deleted from dataset - values from 0.0 - 3.0.
Pinus, *Pinus stro* and *Pinus ban* summed to Total *Pinus*. Note the higher *P. strobus* value at base of core.
Alnus ty and *Alnus* ty summed to Total *Alnus*.
Shepherdia and *Shepherdia* summed, but second *Shepherdia* column had only one value in sample 199.7 m, along with a count of 5 in the other column; assuming the one count is a "cf."?
Cruciferae put into Brassicaceae.

Rubus cham. added to Rosaceae.
Thalictrum added to Ranunculaceae.
Oxyria digyna added to Polygonaceae.
Osmunda, *Osmunda ci* and *Osmunda* ty summed to *Osmunda* sp.

CRH-94
Ericaceae, *Ledum* and *Vaccinium* included in Ericales.
Umbelliferae and *Cicuta* included in Apiaceae.
Rosaceae, *Potentilla* and *Rubus chamaemorus*, included in Rosaceae.
Three Polygonum types included in Polygonaceae, but the names are truncated; one is *Polygonum bistorta*-type (C. E. Schweger, unpublished data).
Thalictrum and *Caltha* included in Ranunculaceae.
Other taxa included in the pollen sum but not on the composite diagram are *Claytonia*, Saxifragaceae, and two *Lycopodium* species, whose names truncated (one is apparently *L. selago*-type), plus Unknowns and Indeterminables.
Caltha, *Dryas* and *Oxyria* have no values when samples within Little Timber Tephra are removed from the data set.

Lost Chicken
Ranunculus and *Aconitum* included within Ranunculaceae.
Hi-spine composites put into Tubuliflorae.
Triletes (psilate, scabrate, bumpy and striate) included in *Sphagnum*. David Adam (Mar. 21/95) indicated that these are likely *Sphagnum*. The striates were rare, so if they are not *Sphagnum*, they will not affect the sums much.

McCallum Creek
cf. *Cedrus* taken as a *Cedrus*.
Lonicera-type is only constituent of Caprifoliaceae.

Lava Camp
Alnus and *Alnaster* included in *Alnus*.
Lonicera-type is only constituent of Caprifoliaceae.

Canyon Village Section 90-7
Pediastrum and *Botryococcus* excluded from calculations.
All *Alnus* pore numbers included in *Alnus* sp.
Potentilla and *Sanguisorba* included in Rosaceae

Usibelli Group

Pinus types 11 and 12 included in Total *Pinus*.
Abies cf. *grandis* included in *Abies*.
Cedrus-type merged to *Cedrus*.
Tsuga cf. *heterophylla*, *T.* cf. *canadensis*, and *T.* cf. *mertensiana* recorded as *Tsuga heterophylla* -type, *T. canadensis* -type and *T. mertensiana*.
Sciadopitys-type put into *Sciadopitys*.
Populus-type included as *Populus*.
Myrica-type included as *Myrica/Comptonia*.
Alnus, *Alnus* 3 porate and *Alnus* cf. *firma* included in Total *Alnus*.
Betula and *Betula* cf. *nana* included in Total *Betula*. However, note pattern of *B. nana* appears to increase with cooling temperatures.
Rhododendron and Thick-walled tetrads included in Ericales.
Juglans cf. *regia* and *Juglans*-type included in *Juglans*.
Ulmus 3 porate, *Ulmus* and *Ulmus/Zelkova* included in *Ulmus*-type
Cyclocarya merged with *Pterocarya* and called *Pterocarya*. Most workers have not been familiar with this taxonomic split of these quite similar species, so they were combined for this study. *Cyclocarya* is 4 porate, and normally occurs at 0.2% except for a 4% value at the base of S-2. This lumping has little effect on the abundance of *Pterocarya*.
Zone S-2 was split into upper 6 and lower 6 samples to improve delineation of trends ca. 15.0 - 14.6 Ma. As a result, the rare taxa have to be added to both the older and younger groups because it is not possible to determine from Table 1 of Leopold and Liu (1994) which samples they are from. This affects the taxa: *Cedrus*-type, *Tsuga mertensiana*, *Sciadopitys*, *Engelhardtia/Alfaroa*, *Liriodendron*, *Magnolia*-type, *Myrica*-type, Rosaceae, *Artemisia*, Chenopodiineae, Compositae, Onagraceae, Ranunculaceae.
Rare types from Appendix 1 of Leopold and Liu (1994) entered as 0.1 values without standard deviations.

Thalictrum added to *Ranunculaceae* distribution.
Castanea-type added to S-3A.
Compositae put in Tubuliflorae category, and rare Compositae-type from Appendix 1 transfered to Asteraceae, Tubuliflorae, in S-2 and S-3b.
Rare *Myriophyllum* transfered to counts in S-1.
Rare *Sparganium* transfered to *Sparganium* counts in S-3A.
Rare count transfered to *Typha* in zone G.
Rare count of Gramineae transfered to Poaceae in zone G and S-3A.
Rare occurrences of *Rhus*-type added to upper and lower S-2 zones . Leopold and Liu 's Appendix 1 (1994) indicate the presence of this taxon in the S-2 zone, but for this study we have split the pollen spectra into upper and lower units, and have added *Rhus*-type to each unit.

Liriodendron and *Magnolia*-type not included on composite diagram because these taxa are hard to certainly identify, and appear only as certainly identified in S-2 (Appendix 1 of Leopold and Liu ,1994). Neither are identified in Wolfe *et al.* (1966), or Wolfe and Tanai (1980). However, their deletion may result in omission of significant biostratigraphic and climatic evidence.

Upper Rampart Canyon

Fungi omitted from Pollen and Spore Sum because data are not compatible with data from other sections.
Rare types encountered outside the sum have been replaced by a value of 0.1 in Rampart.wb1
All *Alnus* pore numbers put into Total *Alnus*.
Picea (large) and *Picea* spp. included in Total *Picea*.
Acer sect. *macrantha/spicata* and *Acer* sect. *rubra* included in *Acer*.
Carpinus? included in with *Ostrya/Carpinus*.
cf. *Nyssa* included with *Nyssa* sp.

Appendix 2
Samples in Usibelli Group Pollen Count Data

Three files of pollen and spore counts from the Usibelli Group are included on the diskette. The coalcomb.wk1 file is relevant to the interpretation of the Usibelli Gp. data presented above, being the raw count data used to compile the percentages presented in Fig. 8 of Leopold and Liu (1994). Ashfall.wk1 and Nenana.wk1 are data used in the calculation of Fig. 10 and 11, respectively, of Leopold and Liu (1994).

COALCOMB.WK1
x indicates that the sample is on Leopold and Liu (1994, Fig. 8)

D3469f	x
D3469e	x
D3469d	x
D3469c	x
D3469b	x
D3469a	x
D3468u	-mistyped on Leopold and Liu (1994, Fig. 8) as 3469f (G. Liu, pers. comm., Oct 3, 1996)
D3468t	x, assuming that it should be D3468 on Fig. 8, not D3469
D3468s	x, "
D3468r	x, "
D3468q	x, "
D3468p	x, "
D3468o	x, "
D3468n	x, "
D3468m	x, "
D3468l	x, "
D3468k	x, "
D3468j	x, "
D3468i	x, "

D3467hh	x
D3467f	x
D3467e	x
D3467d	x
D3467b	x
D3467a	x
D3466s	x
D3466r	x
D3466p	x
D3466o	x
D3466n	x
D3466m	x
D3466l	x
D3466k	x
D3466j	x
D3466i	x
D3466h	x
D3466f	x
D3466e	x
D3466d	x
D3466b	x
D3466a	x
D3465j	x
D3465i	x
D3465h	x
D3465e	x
D3465d	x
D3465a	- is in Leopold and Liu (1994, Fig. 8) but is not in Coalcomb.wk1 file

ASHFALL.WK1

- all samples below in Leopold and Liu (1994, Fig. 10)

D3497z	x
D3497y	x
D3497w	x
D3497v	x
D3497u	x
D3497s	x
D3497r	x
D3497p	x

D3497n	x
D3497m	x
D3497l	x
D3497h	x
D3497d	x
D3497cc	x
D3497c	x
D3497b	x
D3497a	x

NENANA.WK1 - samples below in Leopold and Liu (1994, Fig. 11)

D3557k	x
D3557j	x
D3557h	x
D3557f	x
D3557c	x
D3557a	x

Appendix 3
Attached spreadsheet pages from NEO-OPFI.WB1,
COALCOMB.WK1, ASHFAL.WK1 and NENANA.WK1

Pollen counts, Taglu megacore; from H. Jette, April 18/95

Sample	Picea	Pinus	Pinus stro	Pinus ban	Abies	Tsuga	Larix	Betula	Populus	Ulmus	Fagus	Carya	Tilia	Alnus typ	Alnus typ	Salix	Corylus	Shepherdi	Shepherdi	Myrica
5.01	122	28	0	19	2	0	0	8	0	0	0	0	0	24	17	0	0	1	0	0
10.01	161	14	0	25	0	0	0	22	2	0	0	0	0	39	8	3	1	0	0	1
18.81	120	9	0	17	0	0	0	19	3	0	0	0	0	44	53	2	0	0	0	0
50.53	4	0	0	2	0	0	0	2	0	0	0	0	0	5	0	2	0	0	0	0
70.71	155	0	0	35	6	0	2	8	5	0	0	0	0	20	2	4	0	1	0	1
75.74	126	45	0	0	4	0	0	10	1	0	0	0	0	11	4	1	1	0	0	0
79.61	151	0	0	50	8	0	1	22	0	0	0	0	0	20	6	9	0	0	0	1
89.61	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0
102	14	1	0	3	0	0	0	3	0	0	0	0	0	2	0	2	0	0	0	0
119.93	16	0	0	7	0	0	0	12	0	0	0	0	0	13	1	3	0	0	0	0
169.91	108	49	0	0	5	0	1	25	2	0	0	0	0	25	5	9	0	0	0	1
180.28	54	0	0	39	3	0	0	42	1	0	0	0	0	39	20	17	2	0	0	3
194.53	56	49	0	0	1	0	0	11	0	0	0	0	0	10	0	2	0	1	0	0
199.69	57	0	0	22	8	0	0	21	0	0	0	0	0	3	4	18	0	5	1	0
234.41	37	123	0	0	4	0	0	28	0	0	0	0	0	7	0	0	0	0	0	0
263.41	52	0	3	131	11	0	0	20	0	0	0	0	0	14	0	5	0	1	0	0
332.76	8	5	0	11	0	0	0	140	0	0	0	2	1	71	0	5	0	0	0	1
343.21	15	8	0	0	0	0	0	45	0	2	0	3	1	15	6	4	0	0	0	3
347.21	55	63	0	0	2	0	0	121	0	0	0	1	1	22	2	0	0	0	0	7
347.51	18	16	0	0	2	0	0	56	0	1	0	0	0	15	1	0	1	0	0	2
349.81	13	13	0	6	1	0	0	141	0	1	0	1	1	90	1	10	1	0	0	0
359.31	5	15	0	0	0	0	0	48	0	1	0	1	1	7	3	0	0	0	0	1
385.88	8	14	0	9	0	0	0	123	0	0	0	0	0	43	9	2	5	0	0	5
389.51	20	34	10	26	0	2	0	76	0	1	0	1	1	30	3	5	1	0	0	8
413.11	47	41	19	80	4	0	1	36	0	0	1	0	0	25	8	1	0	0	0	0

Note: Samples at 359.3, 385.9, 389.5 and 413.1 m were deleted from the dataset prior to analysis because of age uncertainty

Ericacea	Gramine	Tubuliflor	Ambrosi	Artemisia	Chenopod	Rosacea	Polygona	Caryophyl	Ranuncul	Thalictru	Crucifera	Saxifraga	Onagrace	Menyanth	Plantago	Rubiacea	Unknow	Cyperace	Lycopodiu	Lycopodiu
2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	13	2	0
1	2	1	0	0	0	2	0	0	0	0	1	0	1	0	0	0	0	16	8	0
2	3	7	0	2	0	0	0	0	0	0	0	0	0	0	0	0	6	12	0	0
1	3	0	0	4	0	1	0	1	0	0	0	0	0	0	0	0	3	3	0	0
0	17	2	1	3	2	0	0	0	0	0	0	0	0	0	0	0	7	31	0	0
2	6	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	26	0	0
1	9	0	1	2	3	0	0	0	1	0	0	0	0	0	0	0	4	29	0	0
0	2	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	2	5	0	0
0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	13	0	0
0	59	2	0	25	101	0	0	1	0	0	0	0	0	0	0	0	13	43	1	0
2	16	2	1	6	2	0	0	0	0	0	0	1	1	0	0	0	2	38	1	0
3	6	1	0	7	0	0	0	0	0	0	0	2	0	0	0	0	3	57	1	0
5	6	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	12	30	3	1
4	37	1	0	4	3	0	0	1	0	0	0	1	0	0	0	1	7	110	4	0
5	13	1	0	3	0	0	0	3	0	0	0	0	1	0	0	0	0	80	2	0
3	19	1	1	11	1	0	0	0	0	0	0	0	0	0	0	0	2	25	2	0
18	69	2	0	6	0	1	1	1	0	1	0	0	0	0	0	0	7	76	3	0
3	18	0	1	0	0	0	0	2	0	0	0	1	0	0	0	0	9	18	0	0
17	38	0	0	3	0	0	0	4	0	0	0	0	1	0	1	0	3	42	4	1
5	11	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	12	0	0
5	35	0	0	3	0	2	0	3	0	0	0	1	0	0	0	0	7	42	0	0
4	9	1	0	1	2	0	0	1	0	0	0	2	0	0	1	0	10	5	0	0
3	24	1	1	14	0	2	0	0	0	0	0	4	0	0	0	0	17	17	2	0
11	11	2	0	0	1	0	0	3	0	0	0	2	0	0	0	0	20	38	1	0
2	14	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	13	7	0	0

Selaginell	Pteridoph	Osmun	Polypodia	Sphagnu	Sparganiu	Potamoge	Nuphar	Callitrich	Pediastru	Marine di	Juniperu	Oxyria dig	Sparganiu	Osmunda	Rubus ch	Osmunda ty
0	31	0	5	3	0	0	0	0	1	0	0	0	0	0	0	0
0	5	0	8	18	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	2	13	0	1	0	0	0	0	1	1	0	2	0	0
0	2	0	6	5	0	1	0	0	2	0	0	0	0	0	0	0
0	6	1	32	41	1	0	0	0	0	0	0	0	0	0	1	0
0	41	0	21	28	0	0	0	0	0	0	0	0	0	0	0	0
0	3	0	25	42	0	0	0	3	3	0	1	0	1	0	0	0
0	0	0	9	0	0	0	0	0	1	0	0	0	0	0	0	0
0	3	0	7	3	0	4	0	0	0	3	0	0	0	0	0	0
0	4	0	12	7	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	81	41	0	0	1	0	2	12	1	0	0	0	0	0
3	9	0	207	96	0	1	0	0	7	0	1	0	0	0	0	0
1	35	0	2	38	0	0	0	0	0	0	0	0	0	0	0	0
0	7	0	12	47	0	1	0	0	2	0	0	0	0	0	0	0
0	2	0	9	70	0	0	1	0	1	0	0	0	0	0	0	0
0	4	0	3	48	0	0	0	0	2	0	0	0	0	0	0	0
0	0	0	8	25	0	0	0	0	27	0	0	0	0	0	0	0
0	14	0	13	7	0	0	0	0	0	0	0	1	0	0	0	0
0	2	0	7	108	0	0	0	0	7	0	0	0	0	0	0	0
0	5	0	1	22	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	10	50	0	0	0	0	3	0	0	0	0	0	0	0
0	16	0	15	12	0	0	0	0	0	0	0	0	0	0	0	0
0	3	0	29	43	0	2	0	0	1	0	0	0	0	0	0	0
1	5	0	26	73	0	0	0	0	2	0	0	0	0	0	0	0
0	3	0	17	8	0	0	0	0	0	0	0	0	0	0	0	1

CRH-94, Old Crow
Locality 94, Little Timber tephra from C. E, Schewger, Sept 7, 94

Sample	Depth	Picea	Pinus	Abies	Larix	Populus	Alder	Birch	Salix	Shepherdi	Coryloid	Cyperace	Gramine	Artemisia	Ericacea	Ledum	Vacciniu	Rosacea	Potentilla	Dryas
0	0	22	1	0	2	0	21	103	6	0	0	20	27	22	19	8	0	3	3	0
10	10	56	0	3	0	0	33	158	2	0	0	32	22	24	17	21	0	3	0	0
20	20	41	1	9	1	0	28	141	7	0	0	37	29	37	54	5	5	3	2	0
30	30	24	4	4	0	0	32	178	5	2	0	22	11	41	37	11	11	4	1	0
40	40	44	0	9	0	3	49	175	7	1	0	25	31	28	45	11	2	2	1	0
50	50	37	5	3	1	0	51	155	6	0	3	31	15	25	40	13	0	10	1	0
60	60	25	6	6	1	1	42	139	16	1	3	31	30	27	52	9	0	1	0	0
69	69	1	0	0	0	1	0	4	4	0	0	112	225	10	8	0	0	1	0	0
92	92	11	0	0	0	0	1	15	2	0	0	200	147	17	2	1	0	5	1	0
95	95	6	1	0	0	0	2	30	1	0	0	157	95	29	5	0	0	8	0	1
110	110	16	0	4	1	0	13	57	7	1	2	16	11	33	58	18	1	6	1	0
125	125	45	3	6	1	0	28	126	12	0	1	76	14	22	45	13	0	1	0	0
140	140	52	3	1	0	0	41	221	8	2	3	25	7	13	36	5	0	1	0	0
170	170	16	1	0	0	0	2	105	1	0	0	6	17	29	12	4	0	0	0	0

Note: Samples at depths 69, 92 and 95 cms were deleted from the dataset prior to percentage calculations due to notable vegetation influence of Little Timber tephra

Caryophyl	Ranuncul	Thalictru	Caltha	Crucifera	Epilobium	Tubuliflor	Liguliflor	Valeriana	Umbellifer	Cicuta	Polygonu	Polygonu	Polygonu	Plantago	Rubus ch	Polemoni	Oxyria	Claytonia	Legumino	Saxifraga
3	3	1	0	11	4	1	0	2	2	0	4	0	0	0	0	0	0	0	0	0
1	6	3	0	4	1	0	0	0	1	0	2	0	1	4	0	0	0	0	0	0
2	1	2	0	3	1	0	0	1	1	0	0	0	0	6	0	0	0	0	0	0
1	2	1	0	12	1	0	0	0	0	1	1	0	0	5	2	2	0	0	0	1
3	4	0	0	6	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0
2	2	1	0	10	1	0	0	1	1	0	0	0	0	1	1	0	0	0	2	0
2	1	0	0	6	0	1	0	0	0	0	0	0	0	0	1	0	0	2	0	0
1	0	0	43	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0
3	11	0	0	0	0	6	3	2	0	0	0	0	0	0	0	0	1	0	0	0
2	66	0	0	0	0	2	0	2	1	0	1	0	0	0	0	1	0	0	0	0
0	0	0	0	5	0	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0
0	4	2	0	7	1	3	0	1	2	0	2	0	1	0	1	2	0	0	0	0
1	4	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0
1	2	1	0	13	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0

Ambrosi	Sparganiu	Myriophyll	Nuphar	Sagittaria	Lycopodiu	Lycopodiu	Sphagnu	Unknow	Indetermin
0	0	0	0	0	1	0	57	2	36
2	0	0	1	0	0	1	78	5	28
0	1	0	0	0	1	1	76	14	33
0	4	2	0	0	0	1	72	0	26
0	0	5	0	1	0	1	55	0	18
0	0	0	0	0	0	0	51	0	17
0	1	0	0	0	0	0	34	1	66
0	0	0	0	0	0	1	8	0	28
0	0	0	0	0	0	0	2	0	21
0	0	0	0	0	0	2	13	0	42
0	0	0	0	0	0	0	65	4	47
0	0	0	0	0	0	1	79	0	83
0	0	0	0	0	0	0	86	0	44
0	0	0	0	0	0	0	11	0	41

Lost Chicken Data from D. Adam, July, 1994.

Sample Num	Total Pine	Total spruce	Abies	Tsuga	Larix	TCT	Arceuthobiu	Betula	Corylus	Myrica	Alnus/2	Alnus/3	Alnus/4	Alnus/5	Alnus/6	Total Alnus	Salix	Populus	Quercus	Ulmus
1	10	39			11	4		33	1			1	5	3		9	4			
2	5	47			2	1		29	3			1	4	5		10	5			1
4	17	66.5			11	4		22	2				6	13	1	20	2			
6	23	71	1		2			21	28				2	9		11	2	2	1	
7	4.5	92.5			3	1		23	7	3	1	2	9	17		29	4			
8	4	79			8	2		22	1			1	6	8	2	17	15			
9	1	17		1		5		8	1			4	5	4		13	6			
10	0	11.5			1			11						1		1	39			
11	0	28			6			10	4					3		3	11			
12	0.5	63			11	2		30	1				3	8		11	10			
13	4.5	17			8	2		11					1	2		3	4			
14	3	52			6			18	1			1	5	5	1	12	2			
15	4	152.5			7	3		77	4			2	14	15	2	33	7			
16	21.5	97.5			2			13	10				5	6		11	5	3		
17	23	42		3	4			49	5				6	7	1	14	3	2		
18	10.5	46			5	5		14	3			2	6	3		11	16			
19	8	68.5		1	11	5		24				1	2	6		9	4			
20	5	49			1	2		48	2				4	5	1	10	16			
21	6	51		2	8	3		38	1			1	3	6		10	8			
22	0.5	71		1	9	1		36		2			1	1	1	3	9	1		
23	3	54			4	1		49	3			1	3	4	2	10	3			
24	4	52		2	7	1		16					2	2		4	1			
25	5.5	29			9			12	1				3	3		6	2			
26	13.5	62			8	1		41		1			6	4		10	4			
27	19	54			5		1	21	7			2	3	5	1	11	3			
28	0	18.5			5			20						5		5	11			
34	22	70	1	4	3			20		1			6	6	2	14	2			
35	7.5	69			1			26				2	2	12		16	3			
36	35	41.5		1	2	1		9	1				3	1		4	2			
40	4	47			1			73			1	1	5	5		12	10			
41	1	62			1	1		52	7			1	6	4	1	12	3			
43	6.5	46			1	3		85	4				7	4		11	4			

Note: Deleted samples 3,5, 37,38,39,42 and Holocene 29-33 to ensure focus on Pliocene

Juglans	Cheno-Ams	Hi-Spines	Artemisia	Liguliflorae	Gramineae	Cyperaceae	Triglochin(?)	Cruciferae	Campanula	Caprifoliace	Caryophylla	Orchidaceae	Ericaceae	Umbelliferae	Rosaceae	Onagraceae	Ranunculus	Aconitum	Polemonium	P. persicaria
	1				9	60							7							1
1		2			9	72							6							
			1		2	21							6		1					
		1			16	6							11	1						
					4	7							10							
		1			34	11				1			21							
					12	26			3				7							
					36	95							3							
					14	10			2				5							
					15	23			1				29							
					14	28	2						7				1		1	
					4	10			1				8							
					25	49			2			1	49						1	
					9	40							23							
					4	34							13			1				
		1		1	20	45							14							
					13	31			1			1	12							
		1			23	22							18		1					
					30	17			1			3	21			1				
					28	17			2				25			3				
					17	35							27							
		1			9	7							8							
					8	9							6			1				
		12			25	27			1	1			11		39				1	
					17	37				1			24		1					
					18	23						1	7							
					9	30							19							
					14	31			1				22							
					2	3							15							
		3			5	13						1	26							
					7	14			1				30		1			1		
					1	29							16		2					

P. viviparum	Eriogonum	Rumex fen.	Liliaceae	Nuphar	Menyanthes	Myriophyllu	50	51	52	53	54	55	56	57	58	59	60	61	indet.
	1		1															1	12
1																			10
			3	1	1					1									9
																			7
			2																3
			1																4
			1		1														8
2			2												1			1	6
			1																5
1			1																2
							1												10
						1													2
								1				1	1	1	1				10
1									1										7
			1		1		1												6
			4							1									5
							1												8
		1																	7
			1																9
			1								1								3
3																	1		10
											1					2			11
			1						1										4
						3													5

unks.	tri/psi	tri/scab	tri/bump	tri/stri	Triletes	Lycopodium	Polypodium	Dryopteris	Selaginella	Equisetum	Cryptogamm	Geraniacea	Ranunculac	cf. Impatiens	Saxifragaceae
4	15	29	23		67	1		2	9						
	11	15	22	1	49	3	1	1	2						
8	13	11	25	3	52	7		2							
6	5	2			7	8									
13	17	27	23	1	68	8	2		1	1					
5	9	9	24	2	44	3		1	7	1			1		
2	19	6	11		36	3			9	2					
1	15	3	31	1	50	1									1
3	11	9	3		23	3		1					1		
3	13	14	27	2	56	9	2		11						
3	5	21	8		34	1		1	14	2					
4		12	8		20	1	3	1							
5	40	50	63	5	158	22	1	19	1						
3	55	42	48		145					3					
9	32	13	19		64	2		6			1				
6	17	16	15		48	5	1		5	2			1		
2	11	22	6		39	4		1	3						
5	19	24	23		66	2		4							
11	27	21	37	5	90	7		2	2					1	
6	21	11	26		58	15									
2	6	10	26		42								1		
2	9	12	11		32	2									
3	10	9	8		27	4		3							
	24	11		4	39	1					1				
3	52	9	59	11	131	3		1							
6	10	12			22	2		1		5					
1	28	13	57	5	103										
7	40	19	95	12	166			1							
	25	7	45	3	80										
12	70	22	115	12	219	2			2						
8	81	32	61	8	182	1		1	1						
3	13	9	10		32			2							

McCallum Creek pollen counts

Pollen and spores	C197833	C197838
Abies	1	1
Pinus sp.	25	41
Pinus, robust corpus	1	
Picea sp.	126	79
Bisaccate	53	23
cf. Cedrus	1	
T-C-T (small)		
Larix/Pseudotsuga	2	1
Alnus sp.	1	3
Betula sp. >20 um	1	5
Myrica-type		1
Triporopollenites sp.		4
Salix sp.		
Ericales	15	24
Poaceae	1	
Cheno-am		
Caryophyllaceae	0.1	
Laevigatosporites sp.	2	81
Osmunda sp.		
Trilete	1	15
Sphagnum sp.	2	13
Nuphar		1
Lonicera-type	4	0.1
Polypodiaceae	1	0.1
Jussiaea	1	
? Potamogeton		1
?Tetracolpate	1	
cf. Arceuthobium		1
;36 um, microret.,isodia		8
Tricolp., tectate, thick exine, 40/28		1
Unidentified/ Undeterminable	1	6

Lava Camp counts, from JMW-92-1, April 24/95; J.V. Matthews samples stored by T.A. Ager

	11190-b	11190-E
Pollen and spores		
Pinus spp. (sum)	28	34
Picea spp. (sum)	28	15
Pinus (robust corpus)	1	
Tsuga heterophylla-type	1	1
Tsuga canadensis-type		1
Larix-type (including Pseudotsuga)	2	5
Taxodiaceae-Cupressaceae-Taxaceae		
Betula (all sizes)	58	63
Alnus (4-7 pore)	35	44
Corylus-ty	5	
Ericales	40	26
Salix	1	2
Cyperaceae	4	
Onagraceae	2	
Caprifoliaceae	0.1	
Sphagnum	242	321
Triporopollenites	7	13
Pinaceae undiff.	32	15
Deltoidospora	2	
Lycopodium annotinum type	3	
Undeterminable	39	40
Undeterminable tetrads	12	3
Laevigatosporites sp.	2	5

Canyon Village, section 90-7, pollen counts by T.A. Ager

Taxon/Elevation	0.1	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	17	18	19
Pollen count data from Canyon Village Loc. 90-7, from T.A. Ager																			
Pinus	68	57	74	53	23	66	57	52	60	102	74	72	67	85	123	101	102	62	126
Picea	1	3	2	2	0.1	8	4	1	9	4	4	8	5	8	3	3	12	0	17
Larix/Pseudotsuga	0.1	0	0.1	0	0	1	0	0	0	0.1	0	0	0.1	3	0	0.1	1	0	0
Tsuga heterophylla-type	0	1	2	0	2	1	2	0	1	1	1	0	0.1	1	0	0	0.1	0.1	3
Tsuga mertensiana-type	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0.1
Tsuga sp.	2	2	5	0.1	2	9	5	1	1	1	2	0	2	4	0	0.1	1	0	12
Sciadopitys	0	0	0	0	0	0	1	0.1	0	0	0.1	0	0	0	0	1	0	0	1
T-C-T	0	3	0.1	0.1	0	3	0	0.1	0	1	1	0	0	0.1	1	0	0	0	0
Abies	0	0	0.1	0	1	0	0	0	0	0.1	0.1	0	1	0	1	1	0.1	0	0
Betula	172	184	152	155	193	166	172	208	172	157	164	168	158	148	135	139	174	169	112
Alnus (3-pore)	0	0	0	0	0.1	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Alnus (4-pore)	32	23	36	24	25	18	33	19	32	12	15	14	21	19	9	28	15	27	19
Alnus (5-pore)	16	14	24	11	11	4	12	18	14	12	25	23	25	22	21	22	14	24	8
Alnus (6-pore)	5	5	5	4	6	2	2	5	4	1	1	3	2	8	3	5	2	4	6
Alnus (7-pore)	0	0.1	0	0	0	0	0	1	3	0	0	0	0	0	11	1	0	1	0
Alnus (8-pore)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Myrica	0.1	3	2	0.1	8	7	3	7	2	3	1	4	5	5	0.1	0.1	7	2	6
Pterocarya	0	0	0.1	0	0	0	9	0	1	0	0	0	0	0	0	0	0	0	0
Carya	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Castanea-type	0	0	0	0.1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Ulmus-type	0	0	0	0.1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0
Corylus	6	4	0	2	1	6	1	5	0.1	1	4	0	1	0	1	0	0.1	0.1	2
Ostrya/Carpinus	0	0	0	0	0	0	3	0	0.1	0	0	0	0	0	0	0	0	0	0
Salix	0.1	5	4	6	6	2	3	3	2	5	3	7	9	2	3	1	4	0.1	0.1
Populus	0	0	0	0	1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0
Ericales	4	1	5	41	8	8	3	0	1	2	9	4	5	0.1	3	2	22	12	2
Diervilla-type	0	0	0	0	0	0	0		0	0	0	1	0	1	0	0	0.1	0	0
Poaceae	0.1	3	0.1	0	5	0	1	0	3	0.1	0	2	6	0	0	1	3	0	0
Cyperaceae	0	7	0	5	10	8	2	1	5	6	4	1	1	4	0	0.1	4	0	0
Onagraceae	0	0	0	1	0	0	0	0.1	0	0	0	0	0	0	0	0	1	0	0
Potentilla	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1	0
Sanguisorba	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Artemisia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sagittaria	0.1	0	0	0	0	0	0	0	0	0	0	0	5	0.1	0	2	0	0	0.1
Sparganium	0.1	1	0.1	0	0	0	0	0	0.1	0	0.1	1	0.1	0.1	0.1	0	3	0	0
Nuphar	0	0	0.1	0	0.1	0	0	0	0.1	0.1	0	0	0.1	1	0	0	0	0	0
Nymphaea	0	0	0.1	0	0.1	0	4	0	3	0	0	0	1	0	0	0	0	0	0
Utricularia	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Myriophyllum	0	0	0	0	0.1	0	1	0	0	0.1	0	0	0	0	0	0	0	0	1
Trapa	0	0	0	0	0	1	0	0	0	0.1	0	0	0	0	1	0	0	0	0.1
Unknown	0.1	0.1	2	0.1	3	3	0	4	0	0.1	0.1	1	2	0.1	1	0	6	4	1
Indeterminable	3	4	1	0.1	4	1	0.1	1	2	2	4	3	3	0	2	2	4	18	2
Equisetum	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0
Lycopodium annotinum-t	0	0	0	0	0	0	1	0	0	0	1	1	0.1	0	0	0	0	0	0
Lycopodium selago	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0
Lycopodium sp.	0	0	0	1	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0
Lycopodium clavatum-ty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Monolete, psilate	4	5	3	11	3	6	4	8	11	0.1	0	1	1	1	1	0.1	4	3	1
Cryptogramma-type	0	0	0	0	1	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0	0.1
Trilete spore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0
Sphagnum	0	9	0	67	0	0	3	16	8	5	26	21	12	10	30	4	73	41	1
Botryococcus	15	9	13	4	21	3	9	17	46	4	21	16	55	31	30	10	21	1	9
Pediastrum	102	175	33	63	60	0	13	220	102	75	356	133	252	122	410	203	581	177	25

Data entry,TAA &JMW, Nov. 10/94
Taxa found beyond sum entered as 0.1

20	21	36	38
49	147	105	62
5	13	23	13
1	1	0	1
0.1	0.1	4	0
0	0	0	0
1	3	9	2
0	0	0	0
0	1	0	0
0	0.1	1	1
196	124	137	164
0	0	0	0
21	13	10	10
19	17	15	29
0	2	5	2
1	0	3	0
0	1	0	0
1	3	4	6
0	0	0	0
1	0	0	0
0.1	0	0	0
0	0	0	0
1	1	0	3
10	0	0	0
2	3	1	7
0	0	0	0
18	4	2	15
0	0	0	0
0	2	0	0
0	1	1	2
0.1	0	0	0
0	0	0	0
0.1	0	0	0
0	0	0	1
0	0	0	0
0.1	0.1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
1	0.1	1	2
2	4	0	7
0	0	0	0
0	0	0	0
0	0	0	0
1	0.1	0	0
0	0	0	0
5	1	1	0
0	0	0	0
0	0	0	0.1
56	20	5	33
3	13	14	50
191	77	45	400

Coal Creek percentages from Leopold and Liu, 1994, Fig. 8

Pollen Zo	Sample	Picea	Pinus type 1	Pinus Type	Abies cf. gra	Larix/Pseud	Tsuga cf. ca	Tsuga cf. he	Tsuga sp.	Pinaceae un	T-C-T type	Alnus	Alnus 3 pora	Alnus cf. fir	Betula	Betula cf. na	Elaeagnus	Rhododendr	Thick-walled	Salix	Ilex	Corylus	Ostrya-Carp
G	D3469F	26	10	0	0	3	0	0	0	2	0	18	0	0	8	0	0	0	0	0	0	0	0
	D3469E	23	20	0	3	1	5	1	0.2	10	0	12	1	0	6	2	0	2	0	0.2	0	0	0
	D3469D	14	16	0	2	1	4	1	0	9	0	24	1	0	6	4	0	2	0	0.2	0	0	0
	D3469C	25	20	0	1	0.2	2	0	0	7	0	26	2	0.2	7	4	0	0	0	0	0	0	0
	D3469B	18	13	0	3	1	1	0.2	0	6	0	30	2	0	16	10	0	0.2	0	1	0	0	0
	D3469A	2	3	0	0.2	0.2	0	0	0	1	0	19	3	0.2	17	9	0	0.2	0	0	0	0.2	0
L-2	D3468U; D3469F in Fig. 8	3	2	0	0.2	0.2	0	0	0	2	0	68	3	0	6	0	0	0.2	0	0.2	0	0.2	0
	D3468T; D3469T	10	4	0	2	2	2	0	0	4	0	28	1	0.2	30	0.2	0	0.2	0	0.2	0	0.2	0
	D3468S;D3469S	14	8	0	3	0.2	3	0.2	0	4	0.2	24	1	0.2	32	2	0	0.2	0	0	0	0	0
	D3468R;D3469R	15	10	0	4	1	7	0	0	8	0	14	1	0.2	31	2	0	0	0	0	0	0	0
	D3468Q;D3469Q	2	3	0	0.2	0.2	0.2	0	0	0.2	0	30	1	1	48	1	0	0.2	0	0.2	0	0.2	0
	D3468P;D3469P	13	10	0	4	0.2	10	0	0	7	0	15	2	0.2	25	2	0	0.2	0	0.2	0	0.2	0
	D3468O;D3469O	5	8	0	2	0.2	3	2	0	2	1	29	2	0.2	26	2	0	0.2	0	0.2	0	0	0
L-1	D3468N;D3469N	26	29	0	3	0.2	3	0.2	0	10	0	16	0	0	8	0.2	0	2	0.2	0	0	0	0
	D3468M;D3469M	16	19	0	2	1	1	0	0	9	0	35	1	0	11	1	0	1	0	0.2	0	0	0
	D3468L;D3469L	20	19	0	0.2	1	1	1	0	8	0	27	1	0.2	8	0.2	0	2	1	0.2	0	0	0
	D3468K;D3469K	17	16	0	1	0.2	1	1	0	8	0	35	2	1	12	1	0	1	0	0.2	0	0	0
	D3468J;D3469J	14	19	0	2	1	1	1	0	12	0.2	28	1	0	13	1	0	1	0.2	0.2	0	0	0
	D3468I;D3469I	2	4	0	0	0	0.2	0	0	2	0	47	5	0.2	27	2	0	0.2	0	0.2	0	0.2	0
	D3467HH	4	2	0.2	0.2	0	0	0	0	2	3	28	4	0.2	16	0	0	0	0	0	0	1	0
S-3B	D3467F	6	17	0.2	0.2	0.2	1	1	0	3	1	14	2	1	17	0	0	2	0	0.2	1	2	2
	D3467E	7	12	1	1	0.2	0.2	0	0	9	2	32	2	0.2	18	0	0.2	0.2	0	0	0	1	1
	D3467D	7	13	0.2	0.2	0.2	1	1	0	8	1	24	4	1	16	0.2	0	3	0.2	0.2	1	4	2
	D3467B	6	4	1	0.2	1	2	1	1	3	2	51	4	0.2	10	1	0	0	0	0.2	0.2	3	4
	D3467A	4	6	2	0.2	0.2	1	0	0	4	1	48	3	0.2	15	0.2	0	0	0	0	0	2	0.2
	D3466S	11	8	0.2	0.2	0.2	1	0	0	6	0	4	13	4	46	1	0	1	0	0	0	4	6
S-3A	D3466R	34	9	0.2	0	0.2	2	1	0	18	0	12	2	0	19	1	0	2	0	0	0	0	0
	D3466P	23	8	0.2	2	2	14	1	2	13	0.2	18	2	0	10	1	0	0	0	0	0	0	0.2
	D3466O	26	17	0	0.2	3	10	3	2	11	0	12	2	0	15	2	0	0.2	0	0	0	0	0.2
	D3466N	16	27	0	2	0.2	6	2	2	6	0.2	14	0.2	0	13	0	0	1	0.2	0	0	1	0
	D3466M	9	9	0	0.2	0.2	3	1	0.2	5	1	60	4	0.2	7	0	0	0.2	0	0	0.2	2	0
	D3466L	4	4	0.2	0.2	0.2	1	2	0.2	5	2	42	6	1	26	0	0	0.2	0	0	1	7	1
S-2	D3466K	5	7	0.2	0	0.2	0.2	1	0.2	5	4	44	4	0.2	10	0	0	1	0	0.2	2	2	0.2
	D3466J	10	10	0	2	1	5	3	0	5	2	18	1	0.2	17	0	0	0.2	0	0	0	6	0
	D3466I	11	11	0	0.2	2	10	3	0.2	8	2	24	0.2	0	6	0	0	0	0	0	0.2	2	0
	D3466H	11	5	0	0	0.2	1	1	0	3	2	56	4	0	5	0	0	1	0	0	0	2	0.2
	D3466F	39	10	0	0.2	8	26	2	2	10	0.2	4	1	0	1	0	0	0	0	0	0	1	0
	D3466E	8	11	0	0	0	2	1	0.2	8	2	18	3	0	18	0	0	6	0	0.2	2	5	2
	D3466D	12	13	2	0	1	1	2	0.2	14	2	10	3	0.2	12	0	0.2	4	0.2	0.2	3	5	3
	D3466B	7	4	0	0.2	4	4	1	0	6	2	35	2	0	15	0	0	0	0	0	0.2	3	0
	D3466A	6	7	1	0.2	0.2	1	1	0.2	4	1	30	5	1	8	0	0	0.2	0.2	2	1	4	2
	D3465J	13	15	0	0.2	1	2	0.2	0	4	8	18	2	0	11	0	0	1	0.2	0.2	1	4	4
	D3465I	5	2	0	0	0.2	1	0.2	0	4	22	17	2	0.2	20	0	0	0	0	2	4	8	0
	D3465H	4	14	0	0	1	2	1	1	7	12	9	2	0	3	0	0.2	1	1	0	1	2	1
S-1	D3465E	12	6	0	0	0	0.2	0	0	7	4	6	0.2	0	2	0	0	0.2	0	1	0.2	1	0
	D3465D	10	9	0	0	1	4	1	0	7	8	24	0.2	0	5	0	0	1	0	1	1	2	0
	D3465A	11	4	0	0	0	2	0.2	0	4	5	25	0.2	0	11	0	0	4	0.2	0.2	0.2	5	0
	Data Check	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y

Notes:
1. The percentage data are scaled off of a photoenlargement of Fig. 8 of Leopold and Liu (1994), so there are inherent inaccuracies. The error in the scaled value is inversely proportional to the nominal percentage.
2. Errors in sums can not be prorated to the percentages because it is not proportional to the nominal percentage. Greater adjustments to the high percentages would take them out of the range of their plotted values.
3. Input and checked March 6-8/95 by JMW and BJD.
4. E. Leopold (pers. comm., Jan. 17/95) has indicated that Sphagnum and other spores were calculated within the sum.
5. Other rare taxa have been added to composite data from Leopld and Liu (1994, Table 1, Appendix 1)

Castanea ty	Fagus	Quercus	Liquidambar	Carya	Cyclocarya	Juglans cf. r	Juglans type	Pterocarya	Nyssa	Tilia	Ulmus 3-por	Ulmus	Ulmus/Zelko	?Celtis	Rhamnacea	Caprifoliace	Diervilla/Wei	Compositae	Gramineae	Polygonum	Myriophyllu	Sparganium	Typha	Other angio
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0.2	0	0.2	0	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0.2	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0.2
0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0	0.2
0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0.2	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0	1
0	0	0	0	0	0	0	0	0.2	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0.2
0	0	0	0	0	0	0	0	1	0	0.2	0	1	0	0	0	0	0	0	0.2	0	0	0.2	0	1
0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.2	0.2	3	0	0.2	0	2	0	0	0	0.2	0.2	0	0.2	0	0	0	0	1
0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2	0	0	0	0	0
0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
0	0	0	0	0	0	0	0	0.2	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0.2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.2	0	1	0	0	0	0	1
0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0.2	0	0.2	0	0	0	1	1	0	0	0.2	0	0	0	0	0	0.2	0	1
0	0	0.2	0.2	0	0	0.2	0.2	0	0	0	0	1	0	0	0	0	0	0	2	0.2	0.2	3	0	1
0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0
0.2	0	0.2	0	0.2	0	0.2	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0.2	0	0	0.2
0	0.2	1	0	0	0	0.2	0	1	0	0.2	0	7	0.2	0.2	0	0	0	0	2	0	0	0.2	0	1
0	0	0	0	0.2	0	1	0	1	0	0.2	0	8	2	0	0	0	0	0	0	0	0	0	0	0.2
0	0	0.2	0	0	0	0.2	0	0	0.2	0	0	0	0	0.2	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0.2	0	0	0	1	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0.2
0	0	0	0	0	0	0.2	0	1	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0.2
0	0.2	0	0	3	0.2	0	0	3	0	1	0	2	0	0	0	0	0	0.2	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0.2	0	2	0	0	0	0	0	0	0	0	0	0	0	0.2
0	0.2	1	0	0.2	0	2	0.2	0.2	0	0.2	0	2	0.2	0	0	0	0	0	0	0	0.2	0	0.2	0
1	0.2	5	0.2	4	2	0	1	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0.2	0.2	0.2
0	0	0	0.2	10	0.2	2	2	6	1	0.2	0	3	1	0	0	0	0.2	0	0	0	0	0.2	0	0.2
0	0	0	0	7	0	4	0.2	7	0.2	0	0.2	4	0	0	0	0	0	0	0.2	0	0	0	2	0
0	0	0.2	1	4	0.2	4	0	2	1	0	0	2	1	0	0	0	0	0	0.2	0	0	0.2	0.2	0
0	0	0	0	1	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0
0	0.2	1	1	3	0	4	0	2	1	0.2	0	1	0.2	0	0	0	0	0	0.2	0	0.2	0	0.2	0
0	0.2	2	0.2	2	0	0.2	1	0.2	1	1	0.2	2	1	0.2	0.2	0	0	0	0.2	0	0	0	1	1
0	0	0	0	2	0	2	0	4	0	0	0	4	0	0	0	0	0.2	0	0	0	0.2	0	0.2	0.2
0.2	2	1	0.2	4	0	2	0.2	0.2	3	1	0	10	1	0	0.2	0	0	0	0	0	0.2	0	0.2	1
0	3	1	1	2	0	2	0	2	2	0	0	6	2	0	0	0	0	0	0.2	0	0	0.2	0	1
0	1	1	0	2	0	2	0.2	2	1	0.2	0	3	0	0	0	0	0	0	0.2	0	1	0	2	5
0	0.2	2	0	5	4	5	3	2	0	2	0	4	0	0	0	0	0	0	0	0	0	1	0	16
0	2	0.2	0	0.2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.2	0.2	2
0	0.2	0.2	0	2	0	0	0	1	0	0.2	0	1	0	0	0	0	0	0	0.2	0	0	0	0	5
0.2	0.2	1	0	0	0	0.2	0.2	2	0.2	0	0	4	0	0	0	0	0	0	0.2	0	0	0	0	0.2
y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y

Monosulcate	Lycopodium	Lycopodium	Lycopodium	Lycopodium	Osmunda		% check	Polypodiace	% check	Selaginella	Sphagnum	Indet. trilete	Moss spores	Unknowns	Total Count;	Total counts{mm}	
						0	67	25	92	0	2	8	0	5	46.2	1.5	
0	0	0															
0	1	0			0.2		88.2	15	103.2	0	2	3	0	2	538.5	17.5	
0	2	0.2	0.2		0.2		87.2	16	103.2	0	2	2	0	1	584.6	19	
0	0	0				0	96.8	7	103.8	0	0	1	0	1	661.5	21.5	
0	0	0				0	106.4	2	108.4	0	0	1	0	2	600.0	19.5	
0	0.2	0				0	60.4	40	100.4	0	4	2	0	2	600.0	19.5	
0	0	0			0.2		88.2	14	102.2	0	1	1	0	1	615.4	20	
0	0	0			0.2		87.4	14	101.4	0.2	1	3	0	3	553.8	18	
0	0.2	0			0.2		95.8	6	101.8	0	0.2	1	0	1	538.5	17.5	
0	0.2	0				0	97.4	7	104.4	0	0.2	0	0	2	569.2	18.5	
0	0	0				0	87.8	16	103.8	0	0.2	0.2	0	2	538.5	17.5	
0	1	0			0.2		97.2	12	109.2	0	1	0.2	0	2	553.8	18	
0	0.2	0			0.2		85	8	93	0	0	0.2	0	2	476.9	15.5	
0	1	0			0.2		99.2	3	102.2	0	2	0.2	0	1	523.1	17	
0	0.2	0			0.2		97.8	5	102.8	0.2	2	0.2	0	1	507.7	16.5	
0	2	0.2			0.2		92.4	11	103.4	0	2	0.2	0	1	707.7	23	
0	1	0			0.2		98	10	108	0	3	1	0	2	615.4	20	
0	2	0			0.2		99	9	108	0	2	0.2	0	1	507.7	16.5	
0	0.2	0				0	92.4	8	100.4	0	7	0	0	2	600.0	19.5	
0	0.2	0				0	64.6	18	82.6	0	6	19	0	6	492.3	16	
2	0	0				0	81	27	108	0	4	2	0	0	615.4	20	
0	0.2	0			0.2		91.2	14	105.2	0	4	2	0	1	415.4	13.5	
1	0	0			0.2		92.4	10	102.4	0	7	2	0	0	553.8	18	
0	0	0				0	108	4	112	0	0	0	0.2	1	600.0	19.5	
0	0	0.2			0.2		99.8	9	108.8	0	2	0.2	0	2	630.8	20.5	
0	0	0				0	107.4	0	107.4	0	0.2	0	0	0	446.2	14.5	
0	0.2	0				0	100.8	1	101.8	0	6	0.2	0	4	584.6	19	
0	1	0	0.2			1	105	6	111	0	0	2	0	5	400.0	13	
0.2	0.2	0				0	105.8	2	107.8	0	1	0.2	0	3	584.6	19	
4	0.2	0				0	106.6	7	113.6	0	0.2	5	0	2	615.4	20	
0	0.2	0			0.2		104.8	1	105.8	0	0	0.2	0	2	707.7	23	
0.2	0	0	0.2			2	111.8	0	111.8	0	0	0	0	0.2	553.8	18	
0	0	0				4	109.4	0	109.4	0.2	0	0	1	20	646.2	21	
0	4	0				0	110.6	3	113.6	0	0	0	0.2	3	584.6	19	
0	2	0				0	106.6	4	110.6	0	0	0	0	6	538.5	17.5	
0	0	0				0	107.4	0.2	107.4	0	0	0	0.2	2	584.6	19	
0	0.2	0				0	105.8	0	105.8	0	0.2	0	0	2	430.8	14	
0	0.2	0			0.2		100.8	0	100.8	0	10	0	1	2	584.6	19	
0	1	1				2	105.6	0.2	105.6	0	5	0	2	2	507.7	16.5	
0	2	0				0	98.2	6	104.2	0	7	0	0	12	430.8	14	
0.2	0	0			0.2		101.6	10	111.6	0	0	2	0.2	0.2	707.7	23	
0.2	0	0			0.2		107.4	2	109.4	0	2	0.2	0	2	538.5	17.5	
0.2	0	0				4	112.4	6	118.4	0	0	0	0	5	646.2	21	
4	0	0			0.2		110.4	16	126.4	0	0.2	9	0	5	446.2	14.5	
0	0	0				5	50.6	58	108.6	0	0.2	0.2	0	2	923.1	30	
0	1	0				1	86	28	114	0	0	2	0	14	476.9	15.5	
0.2	4	0.2				2	86.8	7	93.8	0	6	4	0	8	538.5	17.5	
					MEAN		95.79574		105.7319						26123.1	Pollen and	Spore Sum
y	y	y	y	y	STD		13.5598		6.941369		y	y	y	y		y	
					y			y		y							

Upper Rampart Canyon Count Data, from Rampart.til, March 15/95; fungi and algae removed from taxa utilized

	Sample (m)	Pinus spp	Sum Pice	Pinus kor	Pinus sp.,	Abies sp.	Tsuga het	Tsuga ca	Tsuga me	Tsuga sp.	Larix-type	Taxodiac	Taxodiac	cf. Sciad	Acer spp.	Total Betu	Carya sp.	Castanea/	Cercidaph	Rhus sp.
Organic	16.2	79	46	6	2	0	9	5	0	2	0.1	41	4	1	0	13	2	0	1	0
bed 4	16.5	0	19	12	0	1	5	13	0.1	0	4	114	25	0.1	1	24	1	0	0	0
	16.7	22	25	18	3	1	5	2	0	0	1	61	1	3	0	16	6	1	0	0
	16.8	27	18	7	3	0	1	1	0	0	0	69	2	2	0	41	11	3	0	0
Organic	17.2	33	12	10	0	0.1	1	2	0	0	1	122	21	-2	0	13	0.1	4	0	0.1
bed 3	17.4	29	14	16	1	0.1	1	1	0	0	0	100	33	0.1	0.1	14	1	5	0	0.1
	17.6	30	2	3	0	0	1	2	0	0	0	152	55	0	0.1	21	6	5	2	0
	17.7	14	6	0	0	1	2	1	1	0	0.1	145	59	0.1	4	20	3	5	0	0
	17.8	10	6	0.1	0	1	0	0.1	0.1	0	0	163	43	0.1	4	13	6	1	0	2
	17.9	6	1	2	0	0	0.1	4	0	0	1	160	31	1	2	11	9	2	1	0
	18.0	8	0	1	0	0	1	1	2	0	0	173	20	0	1	19	6	6	0.1	0
Organic	28.1	1	1	0	0	0.1	0	0	0	0	0	206	0	0	0	0	0	0	0	0
bed 2	28.3	10	6	0	0	0	2	3	0	1	0	166	0	1	0	10	2	0	0	0
	28.4	1	12	0	0	0	0.1	2	0	0	0	16	0	0.1	0	15	2	0	0	0
Organic	33.4	7	34	0	1	0	0	3	0	1	0	17	0	1	0	3	0	0	0	1
bed 1	33.9	10	116	0	1	0	1	4	0	2	0	11	0	0	0	34	0	0	0	0
	34.0	14	68	0	0	5	1	4	0	4	0	36	0	0	0	15	1	0	0	0
	34.1	43	104	0	4	2	1	4	0	4	0	11	0	1	0	49	0	0	0	0
	34.3	23	106	0	2	0	0	3	0	5	0	18	0	0.1	0	31	0.1	0	0	0
	34.5	14	113	0	3	0	1	2	0	6	0	7	0	0.1	0	25	0.1	0	0	0
	34.7	39	76	0	1	2	0	5	0	4	0	15	0	2	0	34	0	0	0	0
	35.0	32	92	0	4	4	0.1	5	0	13	0	8	0	4	0	17	1	0	0	0
	35.6	31	76	0	1	0	0	3	0	3	0	9	0	0	1	37	0	0	0	0
	35.8	43	107	0	1	0	0	2	0	3	0	12	0	0.1	0	31	0	0	0	0
	36.0	15	65	0	0	0	0	4	0	3	0	8	0	0	0	13	0	0	0	0

Notes:
1. Fungi and algae removed from spreadsheet
2. Sample depths are from surface, as in White and Ager (1994, fig. 11) due to TILIA format requirements.

Fagus sp.	Ilex sp.	Juglans s	Liquidamb	Nyssa cf.	Carpinus?	Pterocary	Quercus	Tilia sp.	Ulmus/Zel	Total Alnu	Corylus-ty	Ericaceae	Salix cf.	Jussiaeae	Nymphae	Sphagnu	Cornus sp	Labiatae c	Monolete	Tricolpop
6	0	0	1	1	0	0	2	0	0	7	2	0	1	0	0	0	0	0	0	0
5	1	1	2	0	0	0	4	0	0	15	7	0	0	0	1	0	0	0	0	0
38	0	1	0.1	3	0	2	17	1	5	15	3	0	0	0	0	0	0	0	0	0
27	0	4	2	1	0	1	44	2	10	9	11	0	0	0	0	0	0	0	0	0
27	0	0.1	0.1	0	0	0.1	5	0	0.1	9	4	0	1	0	0	0	0	0	0	1
30	0	0	2	1	0	1	17	0	0.1	20	0.1	0	0	0	0	0	0.1	0	0	0
14	0	1	3	4	0	2	40	1	4	8	3	0	1	0	0	0	1	0	0	0
21	0.1	1	1	0.1	0	1	29	0.1	2	7	6	0	1	0	0	0	0	0	0	0
34	1	2	1	0	0	0.1	38	0.1	14	6	1	1	0	0	0	0	0	0	0	0
15	0	0.1	1	0	1	0	27	0.1	6	11	6	0	1	0	0	0	0	0	0.1	0
21	0	0	0.1	0.1	0.1	1	28	2	11	9	0	0	0	0	0	0	0	0	0.1	0
0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	4	0	0	2	35	0	1	1	0	0	0	0	1	0	2
0	0	1	0	0	0	2	1	0	0	48	0	0	2	0	0	0	0	0	0	1
0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	47	1	3	0	0	0	2	0	0	0	0
0	0	0	0	0	0	0	0	0	0	23	5	0	0	0	0	0	0	0	0	0
0	1	1	0	0	0	0	0	0	0	101	4	2	0	0	0	12	0	0	0	0
0	2	0	0	0	0	0	0	0	0	65	4	3	1	1	0	4	0	0	0	2
0	4	0	0	0	0	0	0	0	0	61	3	1	1	0	0	8	0	0	0	1
0	0	0	0	0	0	0	0	0	0	33	0	2	0	0	0	0.1	0	0	0	0
0	0	0	0	0	0	0	2	0	0	65	4	2	1	0	0	12	0	0	0	0
0	3	0	0	0	0	0	0	0	0	37	3	6	2	0	0	6	0	0	0	1
0	1	0	0	0	0	1	0	0	0	38	6	9	3	0	0	22	0	0	0	0
0	0	0	0	0	0	1	0	0	0	19	1	5	1	0	0	5	0	0	0	1

Liliaceae	Triporopol	Vitaceae	Ceratopte	Deltoidos	Osmunda	Laevigato	Lycopodiu	Polypodia	Juncus/Br	Undetermi	Pinaceae un	Sum Pollen, Filicale and Bryophytes Spores
0	6	0	0	0	0	11	0	0	0	25	23	296.1
0	5	0	0	0	0	1	0	0	0	10	14	285.2
0	6	1	0	1	0	1	0	0	1	12	2	274.1
0	5	0	0	0	0	0	0	0	0	14	1	316
0	0	0	0	0	0.1	13	0	0	0	8	15	300.8
0	0	0	0	0	0	0	0	0	0	10	19	315.7
0	7	0	0	0	0	0	0	0	0	10	0	378.1
0	0	0	0	0	0	0	0	0	0	16	4	350.5
0	0	0	0	0	0	1	0	0	0	23	3	374.6
0	1	0	0	0	0	1	0	0	0	8	2	311.4
0	4	1	0	0	0	1	0	0	0	15	2	333.5
0	2	0	0	0	0	2	0	0	0	21	7	244.1
0	4	0	0	2	0	6	1	0	0	22	9	292
0	19	0	0	0	0	116	13	1	0	65	9	326.2
0	3	0	0	0	0	0	0	0	0	6	6	87
1	5	0	0	1	0	7	0	0	0	2	7	256
0	6	0	0	0	0	8	1	2	0	19	15	227
5	11	0	0	0	0	7	0	0	0	26	34	427
2	24	0	0	0	0	5	0	0	0.1	5	15	321.3
0	9	0	0	0	1	7	0	0	0	22	16	305.2
5	9	0	0	0	0	8	0	1	0	20	27	283.1
0	12	0	1	0	1	24	1	0	0	22	27	354.1
1	19	0	0	0	0	7	5	0	0	9	33	293
0	20	0	1	1	0	5	0	0	0	24	26	356.1
0	6	0	0	1	0	5	0	0	0	27	18	198

Composite percentage means and standard deviations of selected pollen taxa from previous pages

Composite taxa list	Taglu 5.0 - 70.7 m		Taglu 75.7 - 119.9 m		Taglu 169.9 - 263.4 m		CRH-94		Taglu Int. 332.8-349.8		Lost Chicken Mine		McCallum Cr.	
	MEAN	STD (N=5)	MEAN	STD (N=5)	MEAN	STD (N=6)	MEAN	STD (N=11)	AVG	STD (n=5)	MEAN	ST D (N=32)	MEAN	STD (N=2)
Abies	0.45	0.618	0.64	0.832	1.37	0.952	0.80	0.569	0.36	0.429	0.02	0.093	0.37	0.047
Acer	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Alnus (4-7 pore)	15.09	8.211	5.98	2.774	4.63	2.814	6.16	2.596	9.89	5.696	4.08	2.058	0.69	0.277
Ambrosia	0.05	0.104	0.05	0.102	0.09	0.122	0.04	0.113	0.08	0.165	0.00	0.000	0.00	0.000
Apiaceae (Umbelliferae)	0.00	0.000	0.00	0.000	0.00	0.000	0.17	0.157	0.00	0.000	0.01	0.077	0.00	0.000
Artemisia	2.06	3.430	3.20	3.603	1.30	0.860	6.08	2.309	0.37	0.308	0.01	0.067	0.00	0.000
Asteraceae (i.e., Compositae) Liguliflorae	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.01	0.065	0.00	0.000
Asteraceae (i.e., Compositae) Tubuliflorae	0.67	0.777	0.13	0.250	0.24	0.141	0.16	0.172	0.12	0.238	0.24	0.709	0.00	0.000
Betula (all sizes)	4.35	1.709	5.70	2.866	5.83	1.043	29.71	6.969	27.18	5.292	10.75	5.698	1.02	0.600
Brassicaceae (Cruciferae)	0.06	0.118	0.00	0.000	0.00	0.000	1.67	1.283	0.12	0.233	0.22	0.430	0.00	0.000
Caprifoliaceae	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.85	0.817
Carya	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.45	0.438	0.00	0.000	0.00	0.000
Caryophyllaceae	0.44	0.889	0.06	0.125	0.17	0.285	0.32	0.223	0.81	0.193	0.06	0.197	0.02	0.020
Castanea-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Cedrus	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.21	0.208
Cercidiphyllum	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Chenopodiineae	0.10	0.208	6.52	12.522	0.32	0.275	0.00	0.000	0.24	0.476	0.01	0.061	0.00	0.000
Corylus-ty	0.06	0.118	0.06	0.118	0.05	0.121	0.22	0.269	0.16	0.228	1.16	2.186	0.00	0.000
Cyperaceae	5.56	1.580	13.80	5.819	14.25	7.921	5.81	2.608	7.06	2.227	10.44	7.367	0.00	0.000
Diervilla/Weigela	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Englehardtia/Alfaroa	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Epilobium	0.00	0.000	0.00	0.000	0.00	0.000	0.22	0.286	0.00	0.000	0.00	0.000	0.00	0.000
Ericales	0.77	0.768	0.17	0.232	0.99	0.462	10.52	3.832	2.21	0.887	5.53	2.145	7.01	0.756
Eriogonum	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.01	0.061	0.00	0.000
Fabaceae (Leguminosae)	0.00	0.000	0.00	0.000	0.00	0.000	0.04	0.118	0.00	0.000	0.00	0.000	0.00	0.000
Fagus	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Ilex	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Juglans	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.01	0.067	0.00	0.000
Jussiaeae (Ludwigia)	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.21	0.208
Larix-type (including Pseudotsuga)	0.10	0.208	0.05	0.102	0.04	0.087	0.14	0.157	0.00	0.000	2.19	1.779	0.58	0.255
Liquidambar	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Menyanthes	0.00	0.000	0.34	0.678	0.00	0.000	0.00	0.000	0.00	0.000	0.04	0.137	0.00	0.000
Metasequoia-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Myrica-type (including Comptonia)	0.11	0.136	0.05	0.102	0.12	0.185	0.00	0.000	0.88	0.514	0.07	0.224	0.16	0.162
Myriophyllum	0.00	0.000	0.00	0.000	0.00	0.000	0.12	0.282	0.00	0.000	0.04	0.209	0.00	0.000
Nuphar	0.00	0.000	0.00	0.000	0.08	0.116	0.02	0.056	0.00	0.000	0.01	0.067	0.32	0.000
Nymphaea	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Nyssa	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Onagraceae	0.06	0.118	0.00	0.000	0.08	0.116	0.00	0.000	0.04	0.079	0.08	0.229	0.00	0.000
Osmunda sp.	0.18	0.246	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Ostrya/Carpinus	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Picea spp. (sum)	35.44	13.677	20.84	15.911	15.55	5.780	7.02	2.003	6.70	3.458	20.36	7.230	39.02	13.475
Pinus koraiensis-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Pinus (robust corpus)	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.21	0.208
Pinus spp. (sum)	9.95	4.008	6.99	5.363	18.39	12.205	0.44	0.394	7.67	3.391	3.26	3.628	11.84	1.422
Plantago	0.00	0.000	0.00	0.000	0.00	0.000	0.30	0.412	0.16	0.231	0.00	0.000	0.00	0.000
Poaceae (Gramineae)	2.74	2.407	7.00	6.070	4.22	2.821	4.25	1.882	6.94	0.948	5.57	3.617	0.21	0.208
Polemonium	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.164	0.00	0.000	0.03	0.119	0.00	0.000
Polygonaceae	0.06	0.125	0.00	0.000	0.00	0.000	0.00	0.000	0.08	0.165	0.00	0.000	0.00	0.000
Polygonum persicaria	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.01	0.061	0.00	0.000
Polygonum sp.	0.00	0.000	0.00	0.000	0.00	0.000	0.32	0.348	0.00	0.000	0.00	0.000	0.00	0.000
Polygonum viviparum	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.09	0.229	0.00	0.000
Populus sp.	0.57	0.514	0.06	0.118	0.11	0.173	0.07	0.167	0.00	0.000	0.08	0.234	0.00	0.000
Potamogeton	0.51	0.866	1.36	2.712	0.07	0.105	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Pterocarya	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Quercus	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.01	0.077	0.00	0.000
Ranunculaceae	0.00	0.000	0.05	0.102	0.00	0.000	0.76	0.457	0.00	0.000	0.05	0.141	0.00	0.000
Reevesia	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000

Rhus-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Rosaceae	0.61	0.833	0.74	1.481	0.00	0.000	0.95	0.734	0.09	0.183	0.47	2.245	0.00	0.000
Rumex	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.02	0.133	0.00	0.000
Sagittaria sp	0.00	0.000	0.00	0.000	0.00	0.000	0.02	0.054	0.00	0.000	0.00	0.000	0.00	0.000
Salix	1.40	1.564	1.38	1.276	1.96	1.535	1.43	0.746	0.79	0.985	2.75	2.956	0.00	0.000
Sciadopitys	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Shepherdia canadensis	0.12	0.153	0.00	0.000	0.37	0.561	0.13	0.150	0.00	0.000	0.00	0.000	0.00	0.000
Sparganium sp.	0.05	0.104	0.00	0.000	0.00	0.000	0.10	0.222	0.00	0.000	0.00	0.000	0.00	0.000
Sphagnum	6.44	3.891	5.24	3.884	13.77	2.590	12.39	3.861	11.13	6.193	23.65	10.636	2.52	1.686
Taxodiaceae-Cupressaceae-Taxaceae	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.59	0.726	0.00	0.000
Tilia-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.29	0.202	0.00	0.000	0.00	0.000
Trapa	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Tsuga canadensis-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Tsuga heterophylla-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Tsuga mertensiana	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Tsuga sp.	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.19	0.379	0.00	0.000
Typha	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
Ulmus-type	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.45	0.294	0.01	0.067	0.00	0.000
Valeriana	0.00	0.000	0.00	0.000	0.00	0.000	0.12	0.155	0.00	0.000	0.00	0.000	0.00	0.000
Pollen and Spore Sum	**1372.00**		**1139.00**		**2447.00**		**5252.00**		**1819.00**		**8783.00**		**549.20**	

Notes:
1. Section are arranged in estimated chronological order from youngest to oldest.
2. Zone S-2 is has values for the whole zone and for the upper and lower halves.

Lava Camp	Canyon Village (90-7)		G		L-2		L-1		S-3B		S-3A		S-2		S-2 (upper 1/2)	
MEAN (N=2)	MEAN	STD (N=23)	MEAN	STD (N=6)	MEAN	STD (N=7)	MEAN	STD (N=7)	MEAN	STD (N =6)	MEAN	STD (N=6)	MEAN	STD (N=12)	MEAN	STD (N=6)
0.00	0.08	0.129	1.53	1.220	2.20	1.4736	1.20	1.069	0.33	0.298	0.77	0.875	0.25	0.536	0.40	0.72
0.00	0.00	0.000	0.00	0.000	0.10	0.0000	0.00	0.000	0.10	0.000	0.10	0.000	0.00	0.000	0.00	0.00
6.96	12.58	3.343	23.07	6.294	31.57	17.2201	33.09	10.221	34.60	14.295	29.23	19.953	26.17	15.427	29.60	18.65
0.00	0.00	0.000	0.00	0.000	0.10	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.01	0.057	0.00	0.000	0.00	0.0000	0.10	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.1	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.1	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.03	0.070	0.10	0.000	0.00	0.000	0.10	0.000	0.00	0.00
10.69	47.37	6.993	14.83	7.967	29.60	11.7954	14.34	6.552	20.73	11.953	15.67	6.209	10.50	5.881	9.50	6.24
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.01	0.00	0.000	0.03	0.075	0.03	0.0700	0.06	0.090	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.01	0.052	0.00	0.000	0.00	0.0000	0.00	0.000	0.07	0.094	0.57	1.092	3.83	2.444	4.83	2.91
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.02	0.062	0.00	0.000	0.00	0.0000	0.00	0.000	0.03	0.075	0.10	0.000	0.10	0.277	0.17	0.37
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.10	0.000	0.10	0.000	0.1	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.10	0.000	0.10	0.0000	0.00	0.000	0.00	0.000	0.10	0.000	0.10	0.000	0.1	0.00
0.46	0.51	0.591	0.03	0.075	0.11	0.0990	0.17	0.345	2.67	1.106	1.67	2.494	3.67	1.972	3.00	1.83
0.37	0.80	0.894	0.10	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.03	0.085	0.00	0.000	0.03	0.0700	0.03	0.070	0.00	0.000	0.03	0.075	0.03	0.075	0.03	0.07
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.1	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
5.89	2.04	2.318	0.73	0.899	0.17	0.0700	1.23	0.982	1.07	1.187	0.63	0.725	1.33	1.825	1.37	2.11
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.03	0.075	0.07	0.094	0.57	0.927	0.07	0.09
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.37	0.453	0.20	0.365	1.20	1.252	0.70	0.92
0.00	0.00	0.000	0.00	0.000	0.06	0.1400	0.03	0.070	0.33	0.320	0.40	0.808	2.90	2.017	2.87	1.70
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.61	0.11	0.205	1.07	0.936	0.57	0.6452	0.49	0.452	0.33	0.298	0.97	1.122	1.57	2.212	1.90	2.81
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.03	0.075	0.00	0.000	0.32	0.404	0.40	0.43
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	1.01	0.731	0.10	0.000	0.00	0.0000	0.00	0.000	0.10	0.000	0.00	0.000	0.10	0.000	0.1	0.00
0.00	0.04	0.103	0.00	0.000	0.00	0.0000	0.00	0.000	0.23	0.354	0.03	0.075	0.13	0.275	0.03	0.07
0.00	0.02	0.063	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.11	0.304	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.03	0.075	0.00	0.000	0.85	0.884	0.53	0.47
0.18	0.02	0.068	0.10	0.000	0.10	0.0000	0.10	0.000	0.00	0.000	0.10	0.000	0.10	0.000	0.1	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.50	0.764	0.83	1.518	0.67	1.49
0.00	0.15	0.545	0.00	0.000	0.00	0.0000	0.00	0.000	2.53	1.938	0.23	0.354	1.03	1.331	0.40	0.72
3.85	1.88	1.696	18.00	8.266	8.86	5.0548	14.14	7.900	6.83	2.115	18.67	10.193	10.92	8.949	14.00	11.37
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.09	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
5.46	22.79	8.528	13.67	5.963	6.43	3.1102	15.46	8.688	10.77	4.078	12.43	7.539	9.35	4.080	9.03	2.21
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.34	0.515	0.10	0.000	0.06	0.0904	0.20	0.338	0.67	0.943	0.10	0.000	0.10	0.100	0.10	0.10
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000 *****	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.10	0.000	0.10	0.0000	0.00	0.000	0.10	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.03	0.075	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.02	0.065	0.00	0.000	0.10	0.0000	0.10	0.000	0.10	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.00	0.000 *****	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.13	0.561	0.73	0.690	1.34	1.0992	0.11	0.099	0.33	0.471	0.90	1.112	2.82	2.330	3.23	2.50
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.27	0.340	0.17	0.373	1.10	1.370	1.03	1.81
0.00	0.00	0.000	0.10	0.000	0.10	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.1	0.00
0.00	0.00	0.000	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00

0.00	0.00	0.000		0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.10	0.00
0.00	0.03	0.075		0.00	0.000	0.10	0.0000	0.10	0.000	0.10	0.000	0.10	0.000	0.10	0.000	0.1	0.00
0.00	0.00	0.000		0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.10	0.326		0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.26	0.99	0.702		0.23	0.354	0.14	0.0904	0.14	0.090	0.10	0.100	0.00	0.000	0.40	0.721	0.07	0.09
0.00	0.04	0.104		0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.1	0.00
0.00	0.00	0.000	*****	0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.00	0.07	0.151		0.03	0.075	0.06	0.0904	0.06	0.090	0.53	1.106	0.10	0.000	0.15	0.272	0.10	0.10
49.53	5.14	5.258		1.67	1.374	0.43	0.4949	3.43	1.990	2.83	2.478	1.17	2.192	2.00	3.291	1.67	3.73
0.00	0.14	0.264		0.00	0.000	0.17	0.3452	0.46	1.040	1.17	0.687	0.57	0.725	4.93	6.062	2.03	1.10
0.00	0.00	0.000		0.40	0.721	0.37	0.6713	0.00	0.000	0.07	0.094	0.93	1.408	0.38	0.603	0.07	0.09
0.00	0.03	0.084		0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
0.09	0.00	0.000		2.00	1.915	3.60	3.3874	1.03	0.897	1.03	0.522	6.00	4.655	4.60	6.947	7.37	8.95
0.18	0.26	0.332		0.37	0.453	0.31	0.6916	0.46	0.475	0.50	0.500	1.67	0.745	1.37	0.898	1.83	0.90
0.00	0.03	0.088		0.10	0.000	0.10	0.0000	0.00	0.000	0.10	0.000	0.10	0.000	0.10	0.000	0.1	0.00
0.00	0.85	0.987		0.03	0.075	0.00	0.0000	0.00	0.000	0.17	0.373	1.07	0.936	0.33	0.568	0.43	0.71
0.00	0.00	0.000		0.10	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.03	0.075	0.50	0.719	0.43	0.71
0.00	0.00	0.008		0.60	0.712	1.00	0.5345	0.31	0.692	4.20	3.464	1.27	0.846	4.23	2.743	2.93	1.71
0.00	0.00	0.000		0.00	0.000	0.00	0.0000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.00
1132.10	**7891.90**			**3030.77**		**3846.15**		**3953.85**		**3261.54**		**3446.15**		**6646.15**		**3369.2**	

S-2 (lower 1/2)		Organic bed 4		Organic bed 3		Organic bed 2		S-1		Organic bed 1	
MEAN	STD (N=6)	MEAN	STD (N=4)	MEAN	STD (N=7)	MEAN	STD (N=3)	Mean	STD (N=3)	MEAN	STD (N=11)
0.10	0.100	0.18	0.179	0.09	0.120	0.01	0.019	0.00	0.000	0.41	0.674
0.00	0.000	0.09	0.152	0.46	0.459	0.00	0.000	0.10	0.000	0.03	0.098
22.73	10.231	3.99	1.393	3.04	1.475	9.45	5.632	18.53	8.731	14.43	5.784
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
11.50	5.315	7.90	3.263	4.67	0.912	2.67	1.951	6.00	3.742	8.85	3.129
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
2.83	1.213	1.67	1.253	1.30	0.904	0.43	0.307	0.73	0.899	0.07	0.141
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.03	0.075	0.33	0.388	1.20	0.503	0.00	0.000	0.07	0.094	0.00	0.000
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
0.00	0.000	0.08	0.146	0.13	0.198	0.00	0.000	0.00	0.000	0.00	0.000
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
4.33	1.886	1.93	1.113	0.87	0.743	0.00	0.000	2.67	1.700	0.92	0.642
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.03	0.075	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
1.30	1.478	0.00	0.000	0.04	0.093	0.11	0.161	1.80	1.728	1.02	0.894
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
1.07	1.099	6.55	5.023	6.91	2.124	0.00	0.000	0.80	0.849	0.00	0.000
1.70	1.335	0.09	0.152	0.04	0.092	0.00	0.000	0.47	0.377	0.35	0.435
2.93	2.291	0.50	0.468	0.16	0.189	0.22	0.154	0.13	0.189	0.02	0.067
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.03	0.089
1.23	1.288	0.45	0.568	0.10	0.145	0.00	0.000	0.33	0.471	0.00	0.000
0.23	0.354	0.43	0.264	0.34	0.265	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	2.78	3.475	10.89	3.572	0.00	0.000	0.00	0.000	0.00	0.000
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
0.23	0.354	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.09	0.152	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
1.17	1.067	0.44	0.402	0.20	0.364	0.00	0.000	0.07	0.094	0.00	0.000
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
1.00	1.528	0.00	0.000	0.00	0.012	0.00	0.000	2.67	1.700	0.06	0.118
1.67	1.491	0.00	0.000	0.05	0.111	0.00	0.000	0.00	0.000	0.00	0.000
7.83	3.436	9.25	3.836	1.80	1.640	2.05	1.335	11.00	0.816	31.85	6.179
0.00	0.000	3.75	1.835	1.45	1.818	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.68	0.420	0.05	0.111	0.00	0.000	0.00	0.000	0.56	0.407
9.67	5.312	10.81	9.767	5.58	3.424	1.38	1.446	6.33	2.055	8.45	2.898
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.10	0.100	0.00	0.000	0.00	0.000	0.00	0.000	0.13	0.094	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
2.40	2.062	0.26	0.300	0.21	0.184	0.66	0.560	1.00	0.816	0.07	0.159
1.17	0.687	5.55	5.280	7.59	2.872	0.10	0.145	0.47	0.377	0.16	0.353
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000

0.10	0.000	0.00	0.000	0.09	0.184	0.00	0.000	0.10	0.000	0.10	0.330
0.1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.10	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.73	0.899	0.08	0.146	0.17	0.150	0.32	0.251	0.73	0.377	0.27	0.290
0.1	0.000	0.53	0.391	0.04	0.277	0.12	0.155	0.10	0.000	0.30	0.443
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
0.20	0.365	0.00	0.000	0.00	0.000	0.00	0.000	0.07	0.094	0.00	0.000
2.33	2.749	0.00	0.000	0.00	0.000	0.00	0.000	2.00	2.828	1.97	1.774
7.83	7.448	24.48	9.553	42.94	6.480	48.72	32.956	5.67	1.700	6.20	5.579
0.70	0.719	0.25	0.267	0.14	0.208	0.00	0.000	0.07	0.094	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
1.83	1.067	1.82	1.656	0.49	0.375	0.55	0.422	2.07	1.552	1.46	0.778
0.90	0.608	1.73	0.965	0.26	0.180	0.24	0.316	0.40	0.432	0.13	0.172
0.1	0.000	0.01	0.015	0.13	0.215	0.00	0.000	0.00	0.000	0.00	0.000
0.23	0.354	0.17	0.292	0.00	0.000	0.11	0.161	0.00	0.000	1.51	0.776
0.57	0.725	0.00	0.000	0.00	0.000	0.00	0.000	0.07	0.094	0.00	0.000
5.53	2.959	1.25	1.334	1.52	1.403	0.23	0.323	2.00	1.414	0.00	0.000
0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000
3276.9		**1171.40**		**2364.60**		**862.30**		**1938.46**		**3107.80**	

	Sample	Sample	Picea	Pinus t	Pinus ty	Abies cf	Larix/P	Tsuga	Tsuga	Tsuga	Pinace	Juniper	T-C-T t	Monosul	Alnus	Alnus 3	Alnus cf.	Betula	Betula c	Viburnu	Elaeagn	Rhodode
D3469f	6	1	10	4	0	0	1	0	0	0	1	0	0	0	7	0	0	3	0	0	0	0
D3469e	5	2	117	104	0	9	6	28	3	1	49	0	0	0	59	3	0	28	8	0	0	6
D3469d	4	3	77	86	0	7	5	27	3	0	47	0	0	0	135	5	0	32	21	0	0	6
D3469c	3	4	168	129	0	3	2	12	0	0	40	0	0	0	165	8	2	43	26	0	0	0
D3469b	2	5	102	71	0	10	3	8	1	0	29	0	0	0	170	8	0	89	53	0	0	2
D3469a	1	6	13	19	0	1	1	3	0	0	6	0	0	0	110	14	2	95	48	0	0	1
D3468u	14	7	16	12	0	1	2	4	0	0	8	0	0	0	402	16	0	34	0	0	0	1
D3468t	13	8	52	23	0	4	8	11	0	0	18	0	0	0	153	3	2	160	2	0	0	2
D3468s	12	9	68	41	0	11	2	18	2	0	18	0	1	0	129	2	2	173	8	0	0	1
D3468r	11	10	76	58	0	18	6	36	0	0	41	0	0	0	72	2	1	174	11	0	0	3
D3468q	10	11	7	16	0	1	1	1	0	0	2	0	0	0	154	3	5	254	6	0	0	1
D3468p	9	12	64	52	0	18	2	51	0	0	37	0	0	0	76	4	1	131	12	0	0	2
D3468o	8	13	21	39	0	7	2	14	8	0	8	0	3	0	186	7	1	119	8	0	0	1
D3468n	7	14	128	145	0	12	2	12	2	0	54	0	0	0	77	0	0	38	2	0	0	12
D3468m	6	15	72	94	0	6	4	3	0	0	43	0	0	0	180	2	0	51	6	0	0	3
D3468l	5	16	128	126	0	3	5	9	6	0	55	0	0	0	187	2	3	50	3	0	0	17
D3468k	4	17	99	91	0	3	2	3	5	0	42	0	0	0	205	8	3	68	4	0	0	4
D3468j	3	18	62	92	0	4	3	3	5	0	55	0	1	0	135	3	0	62	4	0	0	5
D3468i	2	19	7	22	0	0	0	1	0	0	12	0	0	0	270	22	1	145	13	0	0	1
D3467hh	1	20	15	10	1	1	0	0	0	0	8	0	10	0	127	15	1	68	0	0	0	0
D3467f	26	21	33	97	1	1	2	4	5	0	18	0	4	13	85	11	5	93	0	0	0	9
D3467e	25	22	25	46	3	2	1	1	0	0	32	0	5	0	126	4	1	72	0	0	1	1
D3467d	24	23	34	66	2	1	2	6	4	0	36	0	4	4	131	20	6	84	2	1	0	14
D3467b	23	24	35	24	3	1	6	9	5	3	13	0	8	0	307	18	1	55	5	0	0	0
D3467a	22	25	23	33	8	1	1	7	0	0	22	0	3	0	302	18	1	88	1	0	0	0
D3466s	21	26	45	33	1	1	1	5	0	0	24	0	0	0	11	52	18	197	5	0	0	2
D3466r	20	27	191	46	1	0	2	11	5	0	95	0	0	0	63	4	0	100	3	0	0	7
D3466p	19	28	81	28	1	4	6	54	4	5	48	0	1	0	70	4	0	35	3	1	0	0
D3466o	18	29	143	94	0	2	16	53	15	7	56	0	0	1	72	4	0	79	15	0	0	2
D3466n	17	30	82	148	0	5	1	30	11	6	32	0	2	22	79	2	0	73	0	0	0	5
D3466m	16	31	57	59	0	1	1	13	5	1	31	0	5	0	427	21	2	47	0	2	0	2
D3466l	15	32	19	18	1	2	2	4	5	1	22	0	6	2	226	27	4	133	0	0	0	2
D3466k	14	33	23	33	1	0	2	2	4	1	25	0	19	2	237	16	2	50	0	0	0	3
D3466j	13	34	50	54	0	4	3	26	14	0	27	0	8	0	104	3	2	89	0	0	0	1
D3466i	12	35	50	54	0	1	8	48	14	2	36	0	10	0	122	2	0	31	0	0	0	0
D3466h	11	36	56	27	0	0	2	3	5	0	16	0	9	0	327	22	0	28	0	0	0	3
D3466f	10	37	165	41	0	1	34	113	6	5	43	0	1	0	12	2	0	4	0	0	0	0
D3466e	9	38	45	62	0	0	0	10	5	2	42	0	8	0	103	11	0	101	0	0	0	32
D3466d	8	39	55	61	10	0	3	6	10	2	66	0	6	0	42	11	1	52	0	0	1	17
D3466b	7	40	23	14	0	1	12	13	2	0	23	0	6	0	131	5	0	53	0	0	0	0
D3466a	6	41	35	44	7	1	2	4	7	2	28	0	4	2	208	28	6	51	0	0	0	1
D3465j	5	42	62	75	0	1	4	11	2	0	21	0	36	2	98	6	0	55	0	3	0	6
D3465i	4	43	28	7	0	0	2	8	1	0	21	3	126	2	91	6	2	113	0	0	0	0
D3465h	3	44	15	51	0	0	2	6	3	2	23	0	41	13	28	3	0	8	0	0	1	2
D3465e	2	45	95	52	0	0	0	4	0	0	59	0	35	0	42	3	0	15	0	0	0	1
D3465d	1	46	36	36	0	0	3	14	3	0	26	0	29	0	93	1	0	17	0	0	0	2

Thick-w	Salix	Ilex	Corylus	Ostrya-	Castan	Fagus	Quercu	Liquida	Carya	Cycloc	Juglans	Juglans	Pteroca	Nyssa	Tilia	Ulmus	Ulmus	Ulmus/Z	Celtis	Rhamna	Prunus	Caprifoli	Diervilla/
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	0	0	0	0	0
0	3	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	8	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	4	0	8	0	0	0	0	0	0	2	0
0	2	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	0	0	0	0	0
0	1	0	2	0	0	0	0	0	0	0	0	0	2	0	5	0	5	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	2	0	6	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	3	0	0	0	0	0	0
0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
0	2	0	1	0	0	0	0	0	0	0	1	1	13	0	1	0	11	0	0	0	0	1	1
0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	3	0	0	0	0	0	0	0	1	0	1	0	0	0	5	3	0	0	0	1	0
0	2	3	7	11	0	0	1	1	0	0	1	1	0	0	0	0	3	0	0	0	1	0	0
0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	11	3	0	0	0	0	0
1	2	3	19	9	1	0	1	0	1	0	2	0	0	0	0	0	8	5	0	0	0	0	0
0	2	2	12	18	0	1	3	0	0	0	2	0	3	0	2	0	38	1	1	0	2	0	0
0	0	0	8	1	0	0	0	0	1	0	3	0	3	0	1	0	44	10	0	0	0	0	0
0	0	0	16	24	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	14	0	2	0	0	0	0	0	0
0	0	0	0	2	0	0	0	0	0	0	1	0	4	0	1	0	2	0	0	0	0	0	0
2	0	0	3	0	0	2	0	0	12	2	0	0	15	0	3	0	8	0	0	0	0	0	1
0	0	1	11	0	0	0	0	0	0	0	0	0	0	0	2	0	5	0	0	0	0	0	0
0	0	3	36	4	0	1	3	0	1	0	4	1	1	0	1	0	10	2	0	0	0	0	0
0	2	10	10	2	3	1	25	2	20		6	0	4	0	0	0	12	4	0	0	0	0	0
0	0	0	32	0	0	0	0	1	53	2	5	11	31	3	1	0	12	4	0	0	0	0	1
0	0	1	10	0	0	0	0	0	33	0	14	2	33	2	0	2	22	0	0	0	0	0	0
0	0	0	6	2	0	0	2	3	21	2	20	0	12	3	0	0	12	4	0	0	0	0	0
0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	2	9	27	7	0	2	6	5	9	0	18	0	9	4	1	0	5	1	0	0	0	0	0
1	1	11	23	13	0	2	11	1	6	0	2	4	2	4	3	1	11	4	1	1	0	0	0
0	0	1	10	0	0	0	0	0	7	0	3	0	14	0	0	0	14	0	0	0	0	0	1
1	8	5	28	12	1	5	7	2	24	0	5	3	3	18	4	0	70	9	0	3	0	0	0
1	2	6	22	16	0	11	4	3	8	0	10	0	5	9	0	0	31	8	0	0	0	0	0
0	8	21	46	0	0	2	5	0	4	0	3	1	8	5	1	0	20	0	0	0	0	0	0
2	0	2	4	1	0	5	9	0	17	10	16	10	8	0	3	0	15	0	0	0	0	0	0
0	8	1	6	0	0	5	1	0	4	0	0	0	1	0	0	0	8	0	0	0	0	0	0
0	3	2	4	0	0	1	1	0	4	0	0	0	5	0	1	0	4	0	0	0	0	0	0

Caryoph	Artemisi	Compos	Polygo	Gramine	Myrioph	Spargni	Typha	Others	Lycopod	Lycopod	Lycopo	Lycopodi	Osmund	Polypodi	Selagin	Sphagn	Indet. tril	Moss sp	Unknow	Thermal	Total tally
0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	1	3	0	2	0	41
0	0	0	0	0	0	0	0	0	5	0	1	0	2	76	0	11	15	0	10	4	546
0	0	0	0	0	0	0	0	2	8	1	0	0	2	86	0	13	11	0	6	3	584
0	0	0	0	0	0	1	0	2	0	0	0	0	0	41	0	0	6	0	6	10	664
0	0	0	0	0	0	0	0	3	0	0	0	0	0	12	0	0	3	0	11	20	598
0	0	0	0	0	0	0	0	7	1	0	0	0	0	224	0	20	6	0	12	13	598
0	0	0	0	0	0	1	0	3	0	0	0	0	1	81	0	4	4	0	6	11	609
0	0	0	0	0	0	0	0	1	0	0	0	0	2	72	1	7	13	0	14	14	563
0	0	0	0	1	0	1	0	4	1	0	0	0	1	34	0	2	5	0	5	15	545
0	0	0	0	0	0	0	0	0	1	0	0	0	0	36	0	2	0	0	8	19	564
0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	0	1	1	0	6	4	541
0	0	0	0	1	0	0	0	3	3	0	0	0	2	63	0	4	1	0	8	28	567
0	0	0	0	0	0	0	0	0	1	0	0	0	1	39	0	0	1	0	6	8	482
0	0	2	0	1	0	0	0	0	6	0	0	0	2	15	0	9	1	0	5	0	526
0	0	0	0	0	0	0	0	1	1	0	0	0	2	24	1	7	1	0	5	1	509
0	0	0	0	0	0	0	0	0	7	3	0	0	1	72	0	11	1	0	5	4	706
0	0	0	0	1	0	1	0	1	4	0	0	0	1	52	0	15	3	0	13	0	629
0	0	0	0	3	0	0	0	3	5	0	0	0	0	41	0	6	1	0	5	0	502
0	0	0	0	0	0	0	0	10	1	0	0	0	0	41	0	35	0	0	10	3	595
0	0	0	0	0	0	2	0	3	1	0	0	0	0	80	0	26	91	0	25	13	498
0	0	0	1	10	1	18	0	4	0	0	0	0	0	153	0	19	5	0	0	28	623
0	0	0	0	0	0	0	0	0	1	0	0	0	1	54	0	11	4	0	2	20	413
0	0	0	0	0	1	0	0	1	0	0	0	0	1	51	0	35	7	0	0	49	565
0	0	0	0	7	0	1	0	3	0	0	0	0	0	17	0	0	0	1	3	83	612
0	0	0	0	0	0	0	0	2	0	1	0	0	1	48	0	8	1	0	4	71	644
0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	1	0	0	0	44	444
0	0	0	0	0	0	0	0	0	1	0	0	0	0	5	0	29	1	0	17	2	583
0	0	0	0	0	0	0	0	1	2	0	0	1	2	20	0	0	4	0	14	20	409
0	0	0	0	0	0	0	0	1	1	0	0	0	0	6	0	3	2	0	10	10	592
0	0	0	0	0	0	0	0	12	1	0	0	0	0	34	0	2	22	0	11	45	628
0	0	0	0	0	0	0	0	1	2	0	0	0	1	5	0	0	2	0	10	19	714
0	0	0	0	0	2	0	1	0	0	0	0	1	6	0	0	0	0	0	1	67	552
0	0	0	0	1	0	0	2	1	0	0	0	0	0	16	0	1	0	0	3	99	545
0	0	0	0	0	0	2	0	1	16	0	0	0	0	14	0	0	0	1	12	155	587
0	0	0	0	2	0	0	3	0	9	0	0	0	0	15	0	0	0	0	24	119	550
0	0	0	0	2	0	1	1	0	0	0	0	0	0	2	0	0	0	1	4	87	596
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	4	5	438
0	0	0	0	2	1	0	2	0	1	0	0	0	1	0	0	56	0	3	4	103	596
0	0	0	0	2	0	0	3	3	3	4	0	0	6	1	0	23	0	9	5	99	504
0	0	0	0	1	0	0	1	1	5	0	0	0	0	21	0	26	0	0	43	49	431
1	0	0	0	3	0	0	2	8	0	0	0	0	2	59	0	0	5	1	2	196	721
0	0	0	1	1	0	1	0	3	0	0	0	0	2	8	0	8	1	0	4	133	547
0	0	0	0	2	3	0	8	27	0	0	0	0	19	33	0	0	0	0	27	116	653
0	0	0	0	0	0	2	0	54	0	0	0	0	1	54	0	1	28	0	16	100	456
0	0	0	0	0	0	1	3	10	0	0	0	0	38	512	0	1	1	0	7	26	913
0	0	0	1	0	0	0	0	17	4	0	0	0	3	114	0	0	3	0	55	22	482

	Sample N	Abies cf.	Picea	Pinus	Larix/Pse	Tsuga cf.	Tsuga cf.	Pinaceae	Taxodium	Ilex	Alnus	Alnus 3p	Alnus cf j	Betula	Betula cf.	Corylus	Diervilla	Rhododе	Thick wall	Juglans
D3497z	1	0	79	34	1	8	0	29	2	2	190	8	1	115	4	3	0	0	0	0
D3497y	4	0	29	7	2	7	0	20	8	0	48	1	0	31	0	3	0	0	0	0
D3497w	8	1	44	21	4	9	1	29	2	0	108	4	0	117	12	7	0	0	0	1
D3497v	4	0	0	51	31	3	14	29	0	1	115	9	4	282	46	14	0	0	0	2
D3497u	5	6	76	33	1	2	7	12	0	0	1	0	0	3	0	0	0	0	0	0
D3497s	7	1	38	25	2	1	0	2	5	0	6	0	0	2	1	0	0	1	0	0
D3497r	7	0	18	24	0	2	0	23	0	0	55	1	2	63	5	0	0	0	0	0
D3497p	8	0	21	11	1	1	0	13	0	0	151	12	0	315	51	0	0	0	0	0
D3497n	10	2	63	46	1	2	0	30	0	0	218	30	11	187	19	0	5	0	0	0
D3497m	11	2	80	30	1	4	1	28	10	0	153	3	0	94	15	4	0	1	1	0
D3497l	12	0	103	27	0	4	0	51	0	0	200	11	0	73	18	4	0	1	1	0
D3497h	13	0	5	4	2	0	0	6	0	0	38	1	0	8	1	0	1	0	0	0
D3497d	16	0	169	66	4	2	0	62	0	0	211	6	0	49	11	2	0	1	0	0
D3497cc	17	0	36	20	9	2	0	15	0	0	175	11	5	111	10	0	1	0	0	0
D3497c	19	1	42	17	2	7	0	44	0	1	254	7	0	51	7	6	0	0	0	2
D3497b	20	0	190	56	0	3	1	64	0	0	78	4	0	81	12	4	0	0	0	0
D3497a	21	0	64	47	2	9	0	35	0	0	304	4	0	59	6	1	1	0	0	0

Pterocary	Salix	Tilia	Ulmus	Typha/Sp	OTHERS	Lycopodi	Polypodia	Sphagnu	Indet. trile	Unknown	Thermals	Total	Thermals
11	1	1	2	3	0	5	19	1	0	9	21	528	4.0
0	4	0	1	0	3	5	40	4	5	32	12	250	4.8
12	0	0	0	0	1	1	36	6	3	28	22	446	4.9
42	5	1	5	3	3	1	21	3	1	16	65	702	9.3
0	0	0	0	0	1	0	6	1	1	33	0	177	0.0
0	0	0	0	0	8	2	12	3	4	34	5	146	3.4
1	10	0	0	0	2	3	6	17	0	8	1	240	0.4
0	0	0	0	0	0	1	10	5	1	6	0	599	0.0
0	2	0	0	0	0	6	35	5	0	3	5	663	0.8
0	0	0	0	0	14	4	50	0	3	4	14	500	2.8
0	0	0	0	0	2	1	20	0	0	13	4	529	0.8
0	0	0	0	0	0	0	9	0	0	9	1	84	1.2
0	5	0	0	0	0	2	6	5	0	15	2	616	0.3
0	1	0	0	0	1	0	68	17	1	14	1	497	0.2
3	2	0	2	0	1	1	30	5	2	25	14	511	2.7
2	31	0	0	0	0	0	2	6	0	16	6	550	1.1
4	1	0	0	0	0	3	16	0	2	9	6	567	1.1

	Sample N	Picea		Abies cf g	Pinus		Pseudots	Tsuga cf.	Tsuga cf.	Pinaceae	Taxodium	Alnus		Alnus cf. j	Betula		Betula cf.	Salix		Rhododen	Ilex		Corylus		Juglans	Pterocary	Tilia	
D3557k	6	117	1	73	1	12	0	47	2	156	2	112	3	5	2	1	8	0	6	1							
D3557j	5	115	2	79	0	8	0	62	0	77	4	175	4	2	42	0	3	0	1	0							
D3557h	4	90	2	73	2	24	0	42	0	136	0	139	5	5	2	0	9	0	0	0							
D3557f	3	132	1	91	1	9	9	0	1	109	2	104	2	1	19	2	2	1	18	2							
D3557c	2	90	6	77	5	43	0	50	0	122	1	140	10	3	4	3	4	2	24	1							
D3557a	1	64	3	62	2	44	0	45	0	170	3	236	12	4	3	1	2	2	76	2							

Ulmus	Diervilla/	COMPOS	GRAMIN	Potamoge	Other ang	Lycopodiu	Osmunda	POLYPO	Sphagnu	Indet. trile	Unknown	Thermophils
9	0	0	2	3	1	2	2	19	18	2	5	25
2	0	0	1	0	0	1	0	7	187	0	9	6
0	2	0	1	0	1	5	0	41	52	1	8	9
6	1	0	2	5	1	0	1	20	69	1	13	31
7	3	0	0	0	0	8	0	136	16	4	8	41
21	2	1	0	0	1	2	3	71	37	1	8	104