VOLUME 2

of 2

Figure 1.1 Map of Scotland showing the location of the Inner Hebrides.

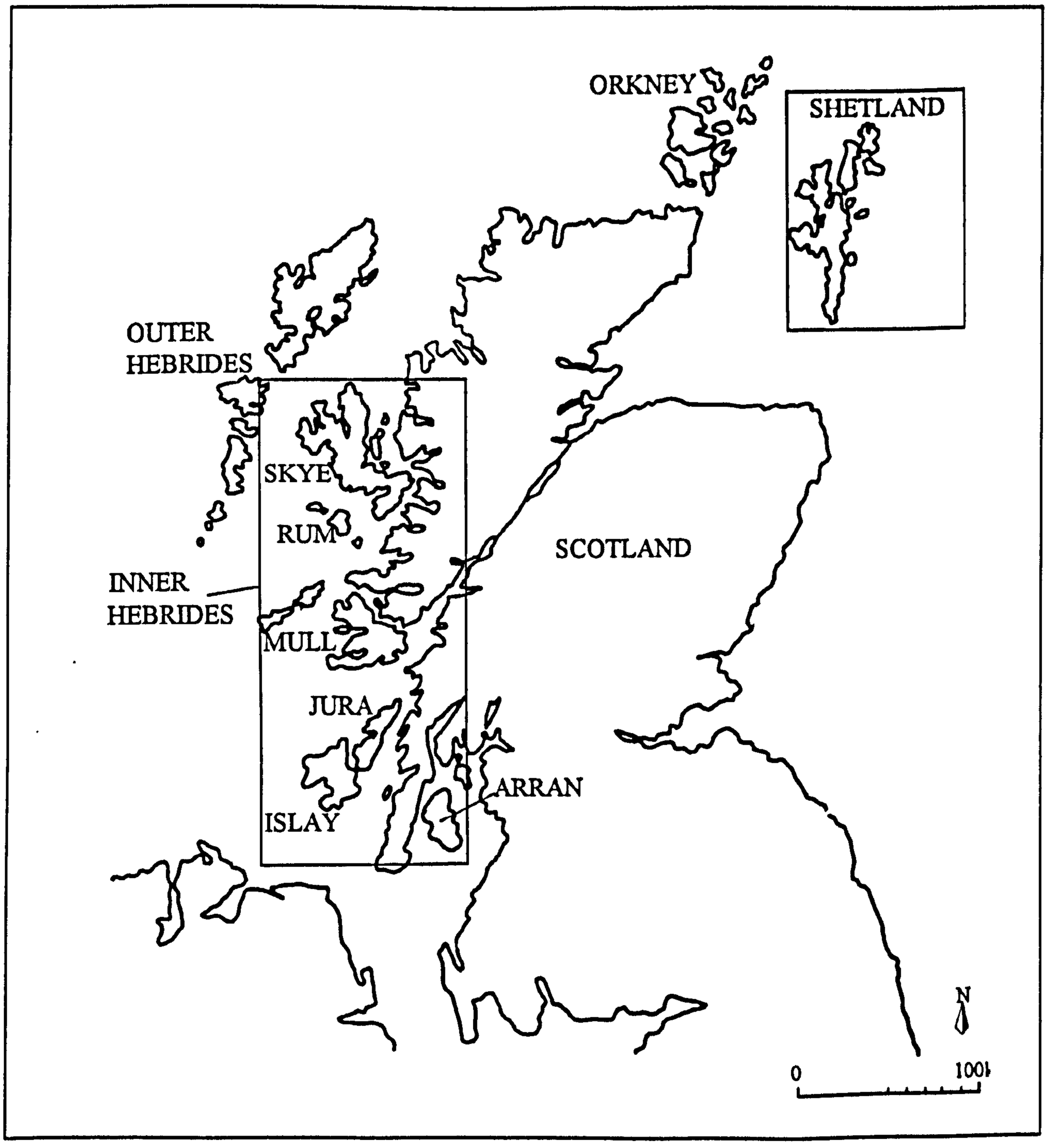


Figure 1.2 Map of Skye showing topographic features referred to in text (Walker and Lowe, 1991b)

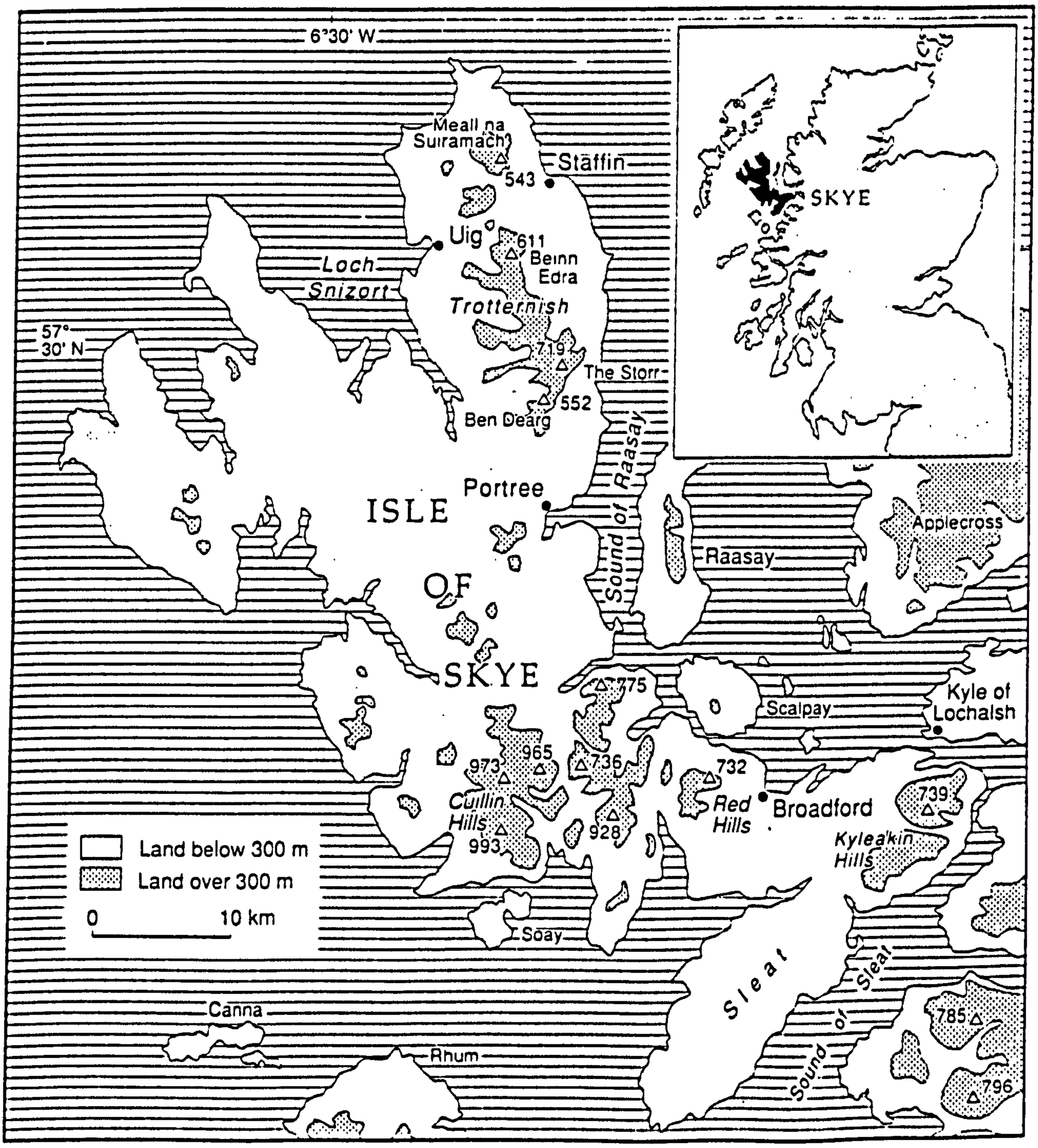


Figure 1.3 Map of Rum showing topographic features referred to in text

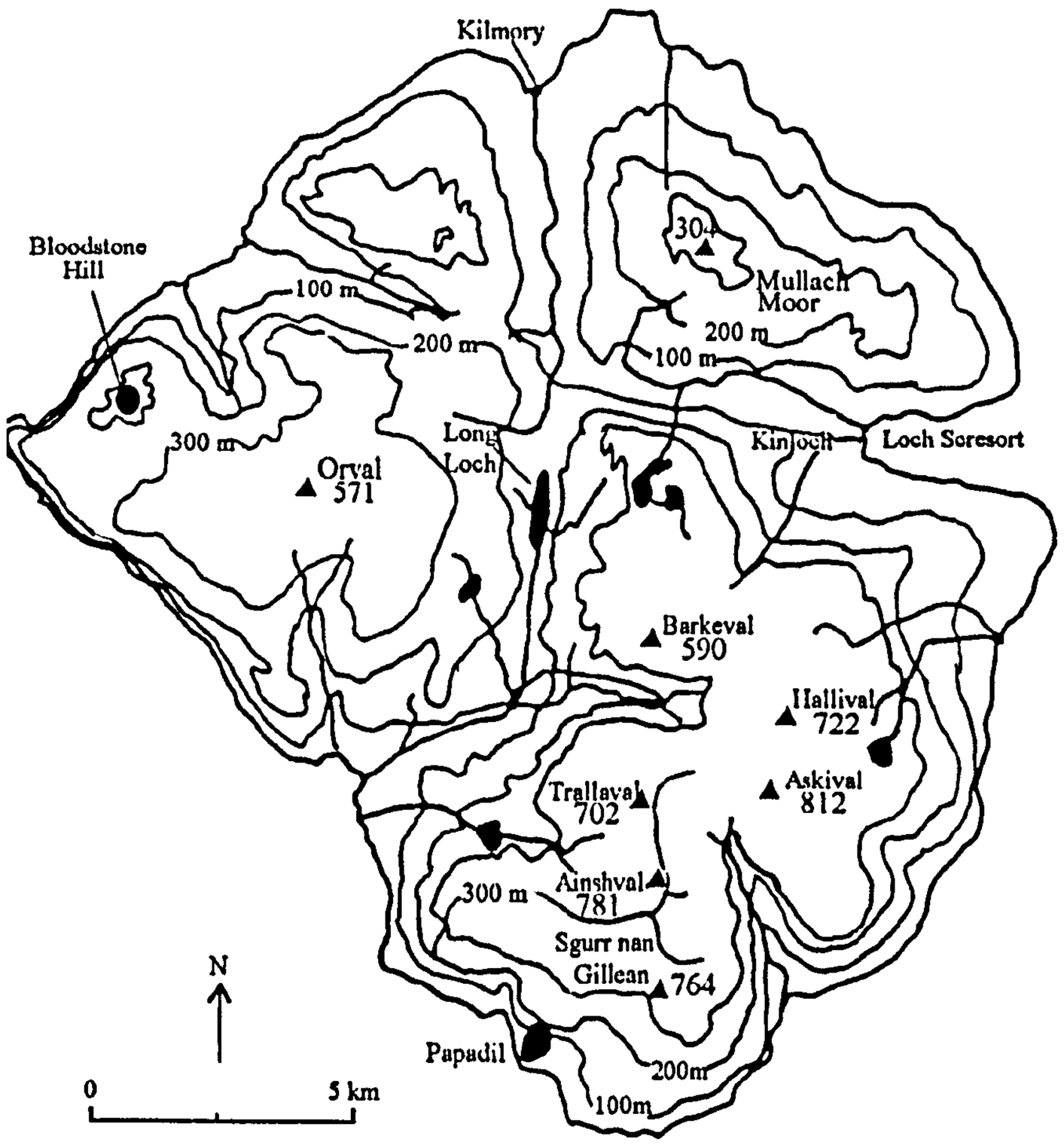


Figure 1.4 Map of Mull showing topographic features referred to in text

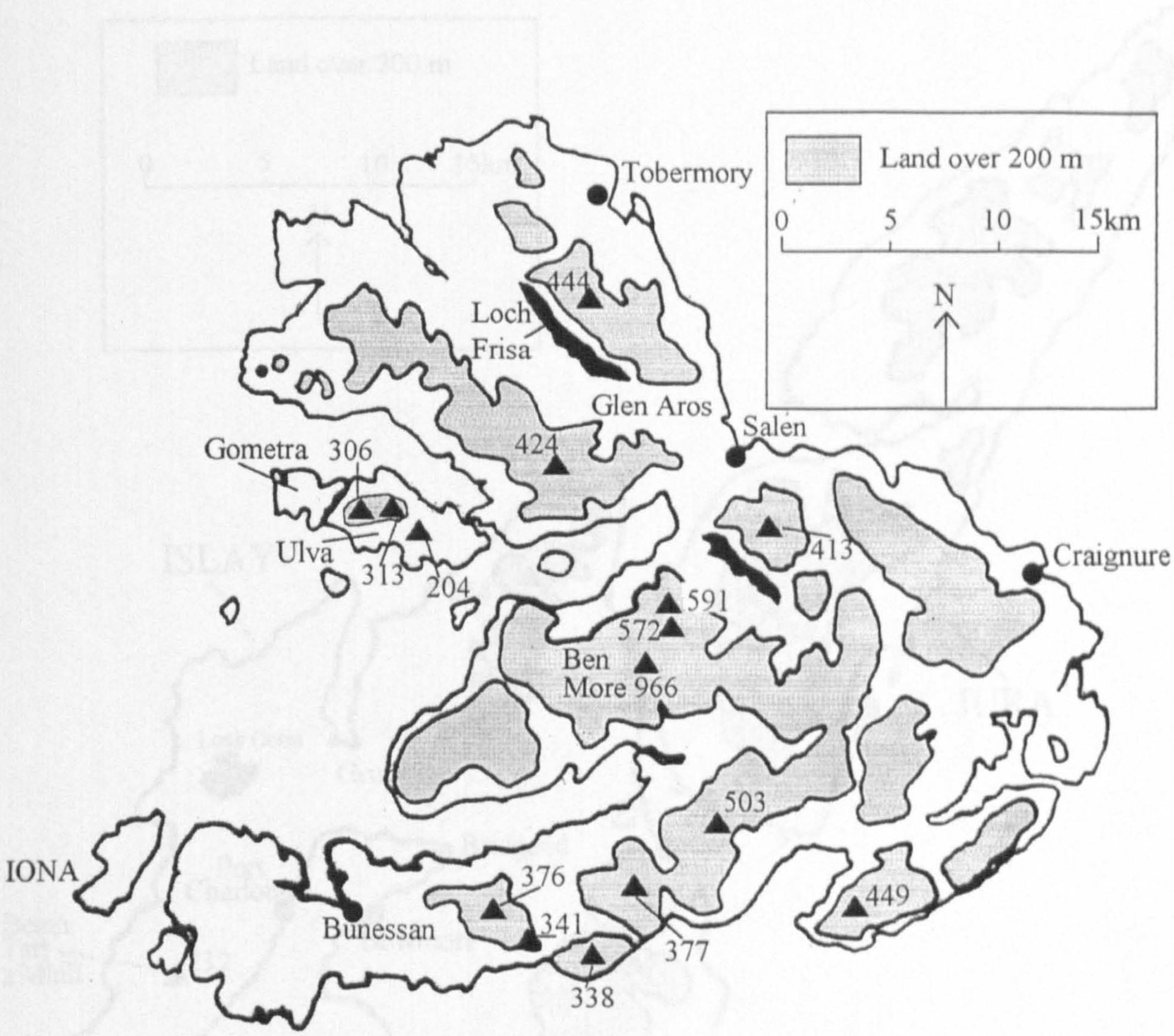


Figure 1.5 Map of Islay and Jura showing topographic features referred to in text

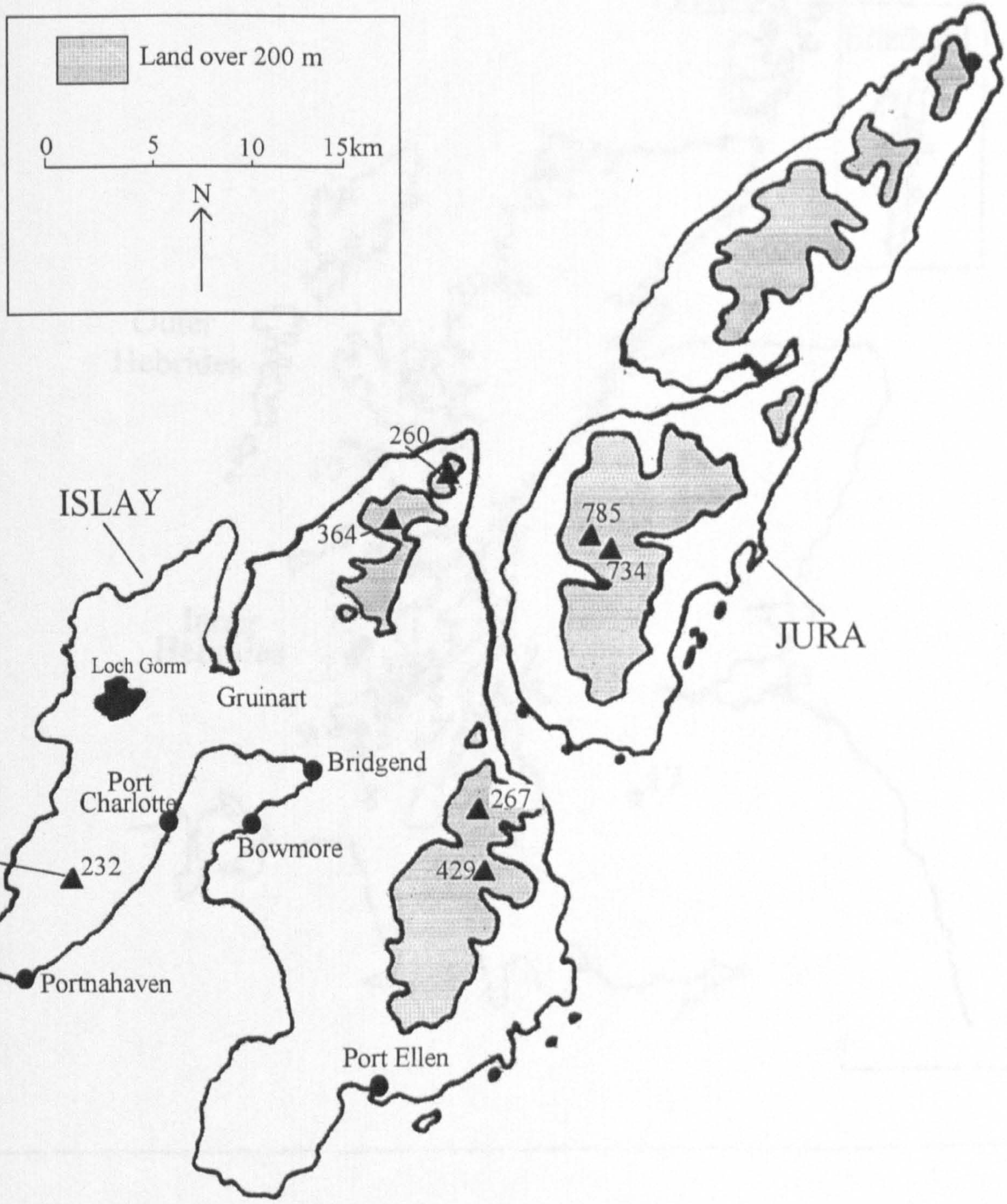
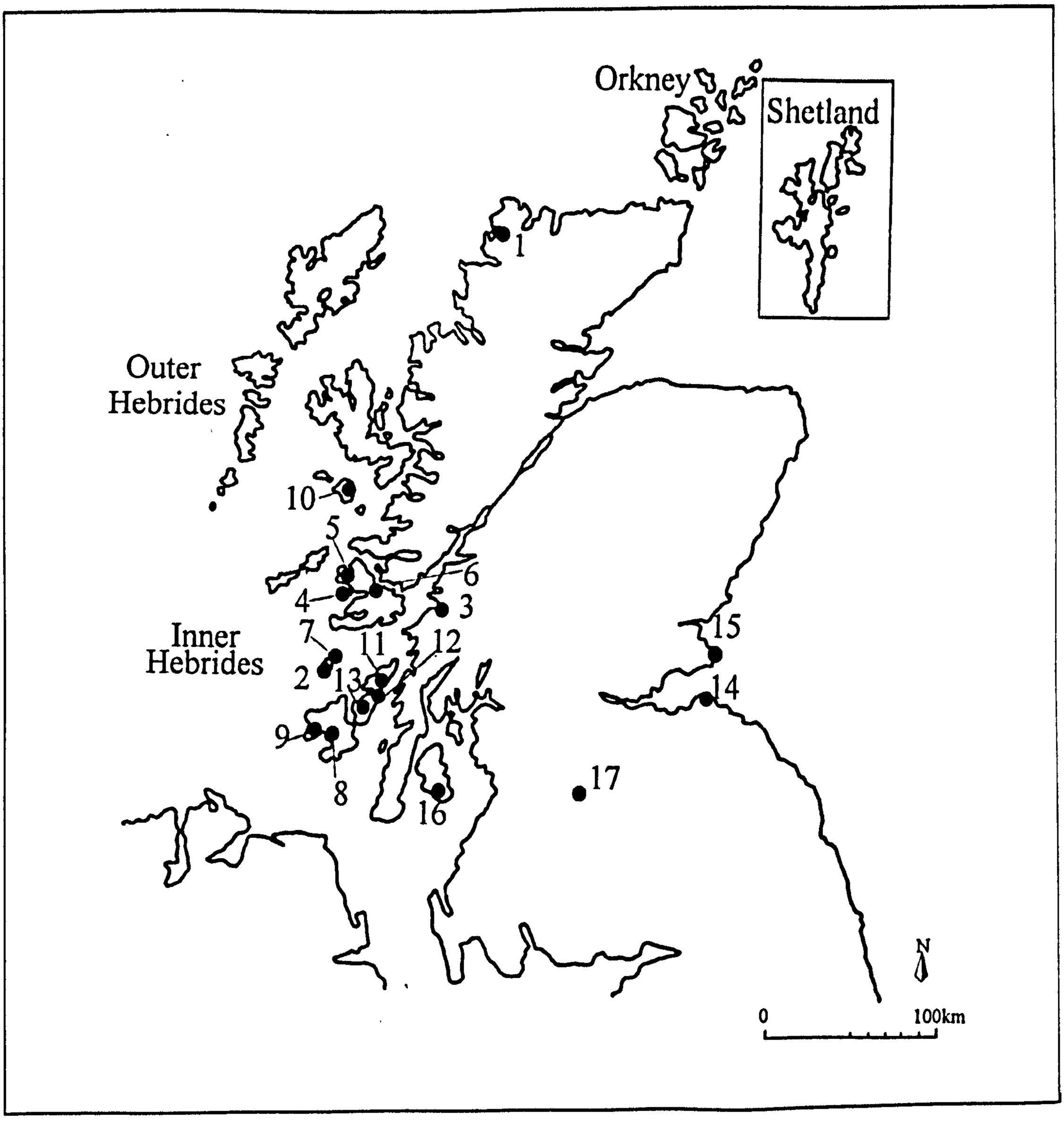


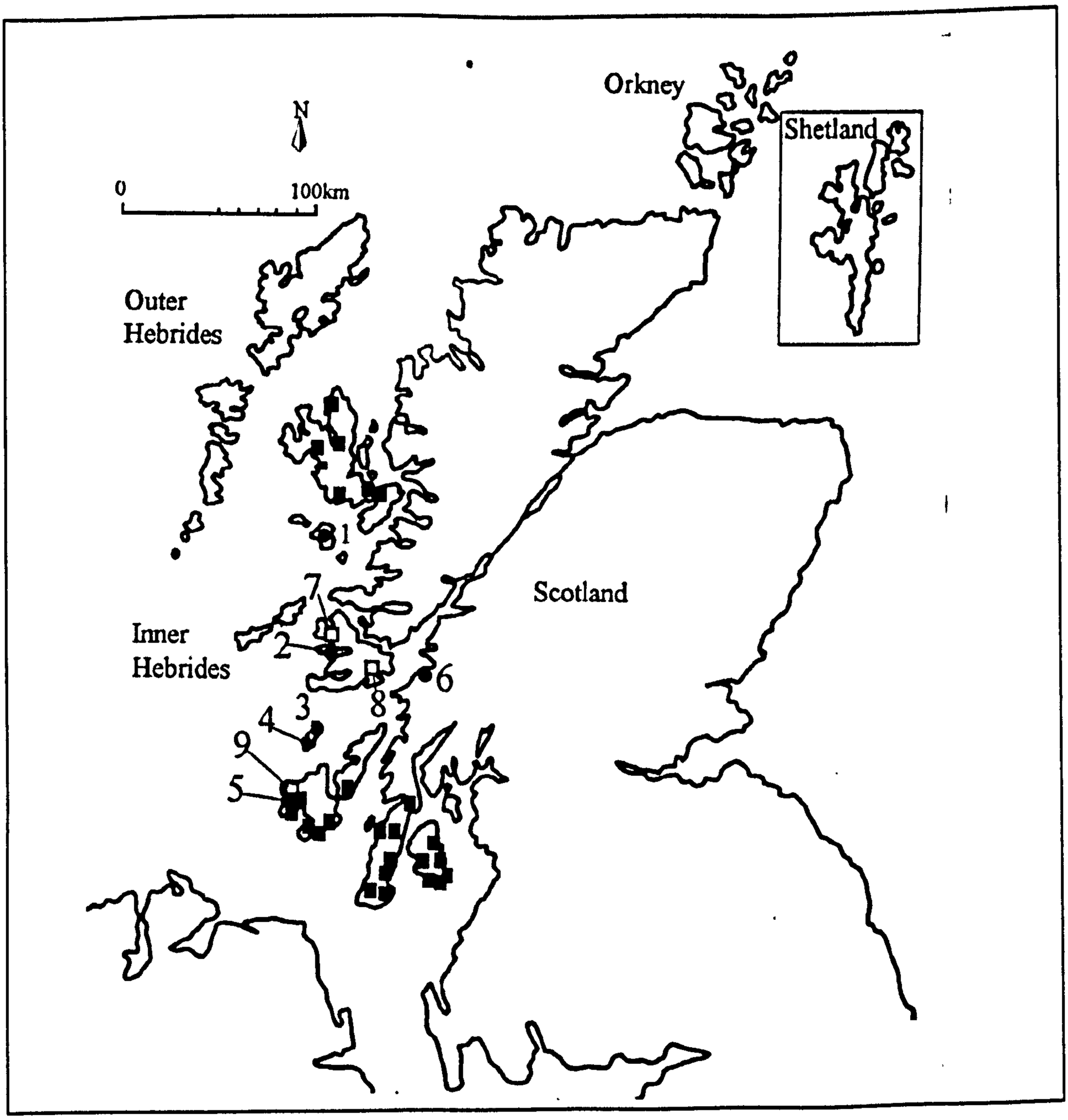
Figure 1.6 Map of Scotland showing locations of Mesolithic and earlier sites mentioned in the text



Key to sites

1. Inchnadamph Cave, Assynt. 2.Oronsay middens. 3. Oban caves. 4. Livingstone's Cave, Ulva. 5. Cnoc Dubh midden, Dervaig, Mull. 6. Aros Valley. 7. Staosnaig flint scatter, Colonsay. 8. Newton, Islay. 9. Bolsay and Gleann Mor, Rinns of Islay. 10. Kinloch, Rum. 11. Lealt Bay, Jura. 12. Lussa Wood, Jura. 13. Glenbatrick Waterhole, Jura. 14. Morton, Fife. 15. Fife Ness, Fife. 16. Auchareoch, Arran. 17. Southern uplands, Lanarkshire.

Figure 1.7 Map of Neolithic sites in the Inner Hebrides, Arran and western Scotland referred to in the text

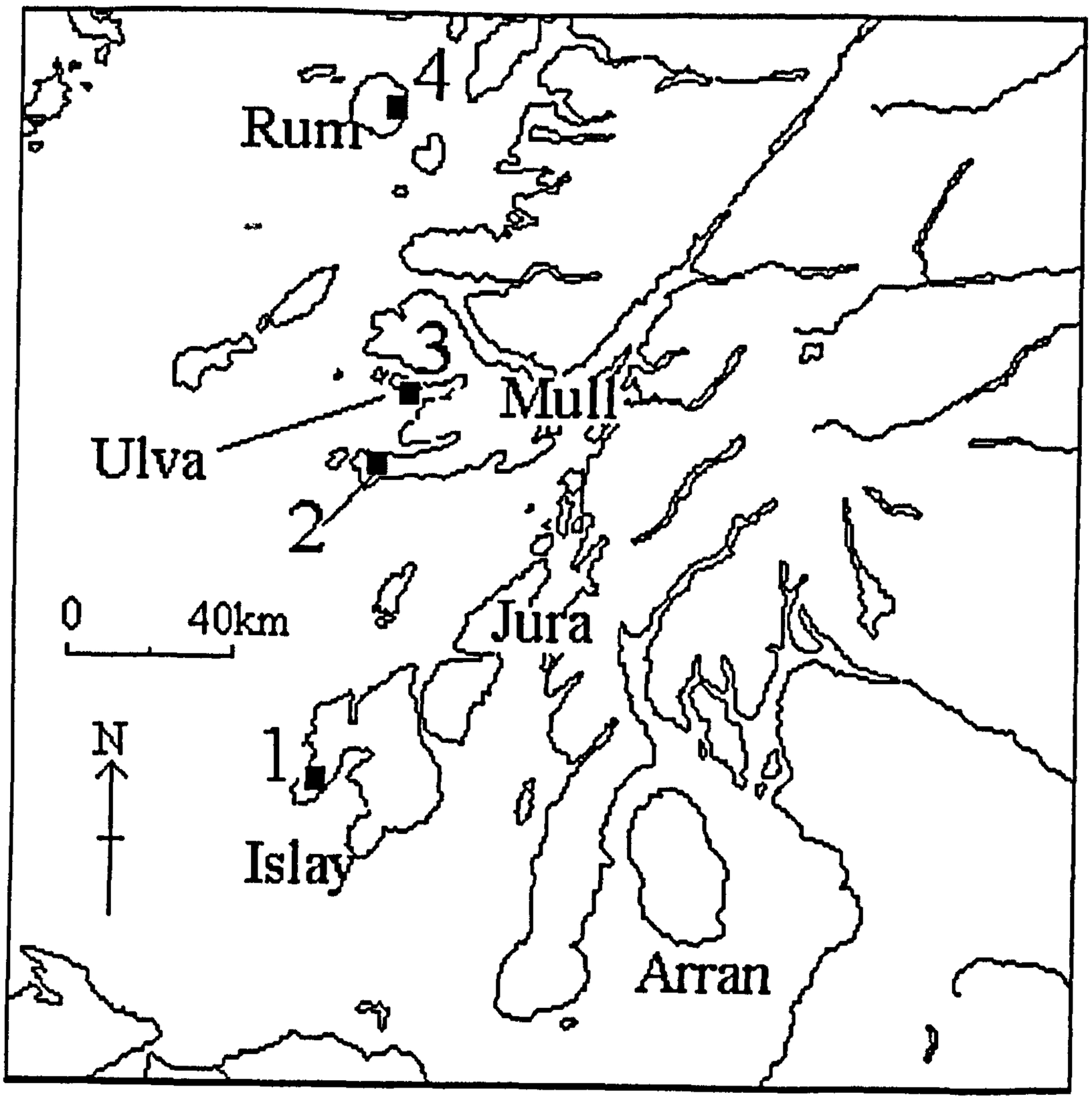


Key.

1 = Kinloch, Rum. 2 = Livingstone's Cave, Ulva. 3 = Colonsay middens. 4 = Oronsay middens. 5 = Bolsay, Rhinns of Islay. 6 = Oban Caves. 7 = Dervaig, Mull. 8 = Lochbuie, Mull. 9 = Ballinaby, Loch Gorm, Islay.

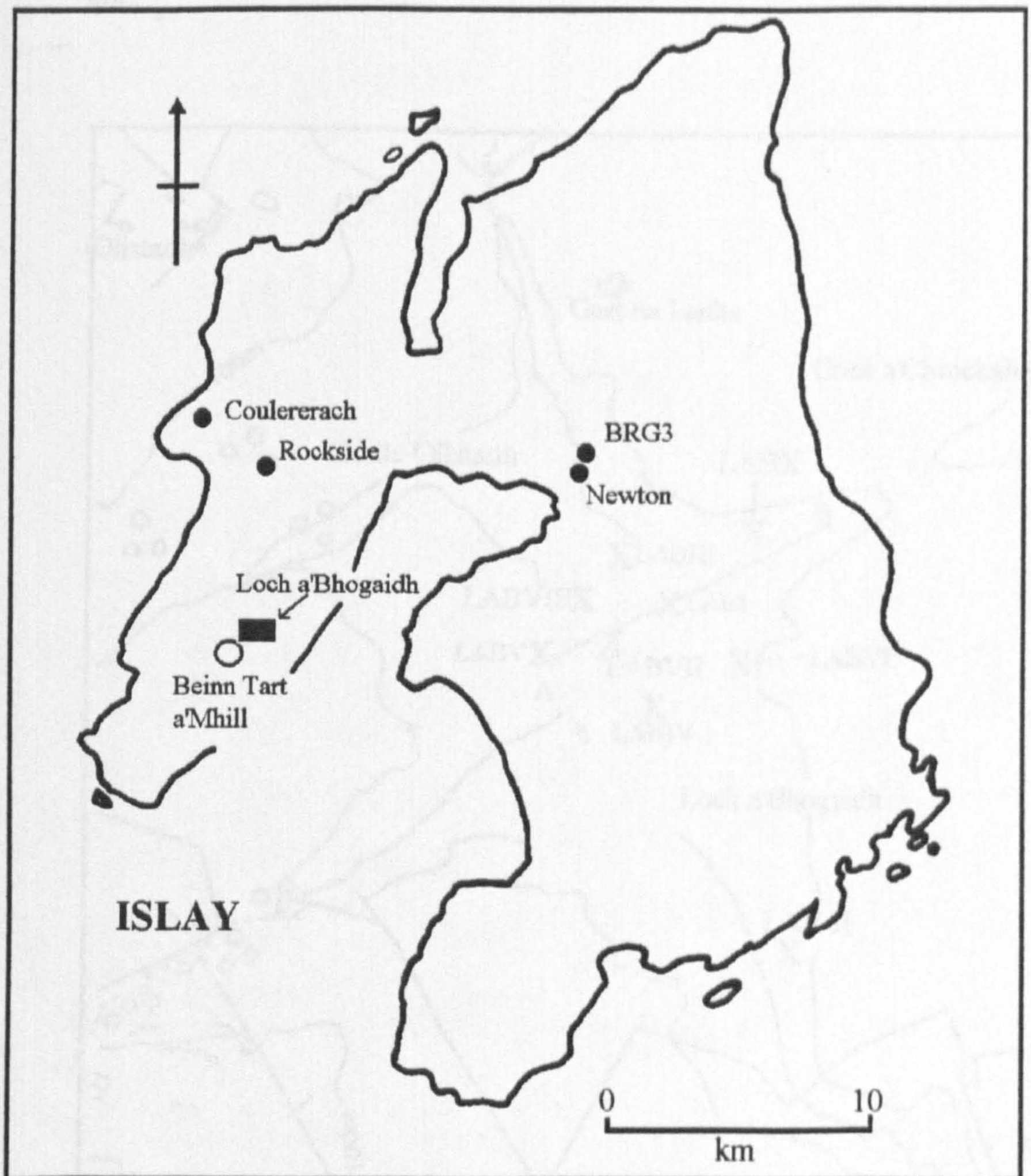
• = Excavated sites with Mesolithic and Neolithic contexts. = Stone circles.
■ = Chambered cairns.

Figure 2.1 Map of pollen sites cored for this study



Key: 1 = Loch a'Bhogaidh, Rinns of Islay. 2 = Loch an t'Suidhe, Bunessan, Ross of Mull. 3 = A'Chrannag bog and Livingstone's Cave bog, south-east Ulva. 4 = Kinloch, Rum.

Figure 3.1a Location map of Loch a'Bhogaidh, Islay.



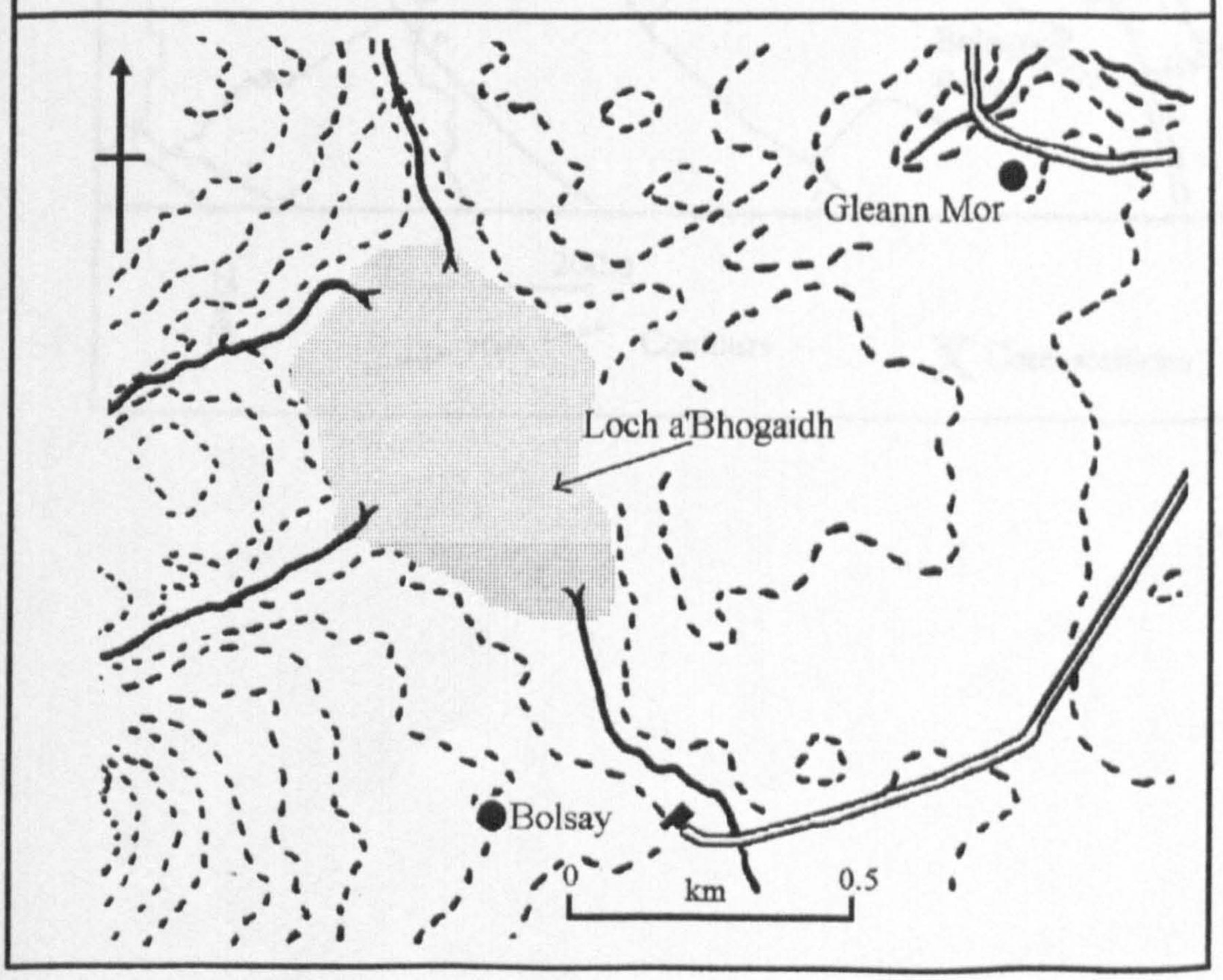


Figure 3.1b Map of Loch a'Bhogaidh showing core locations and east-west transect line.

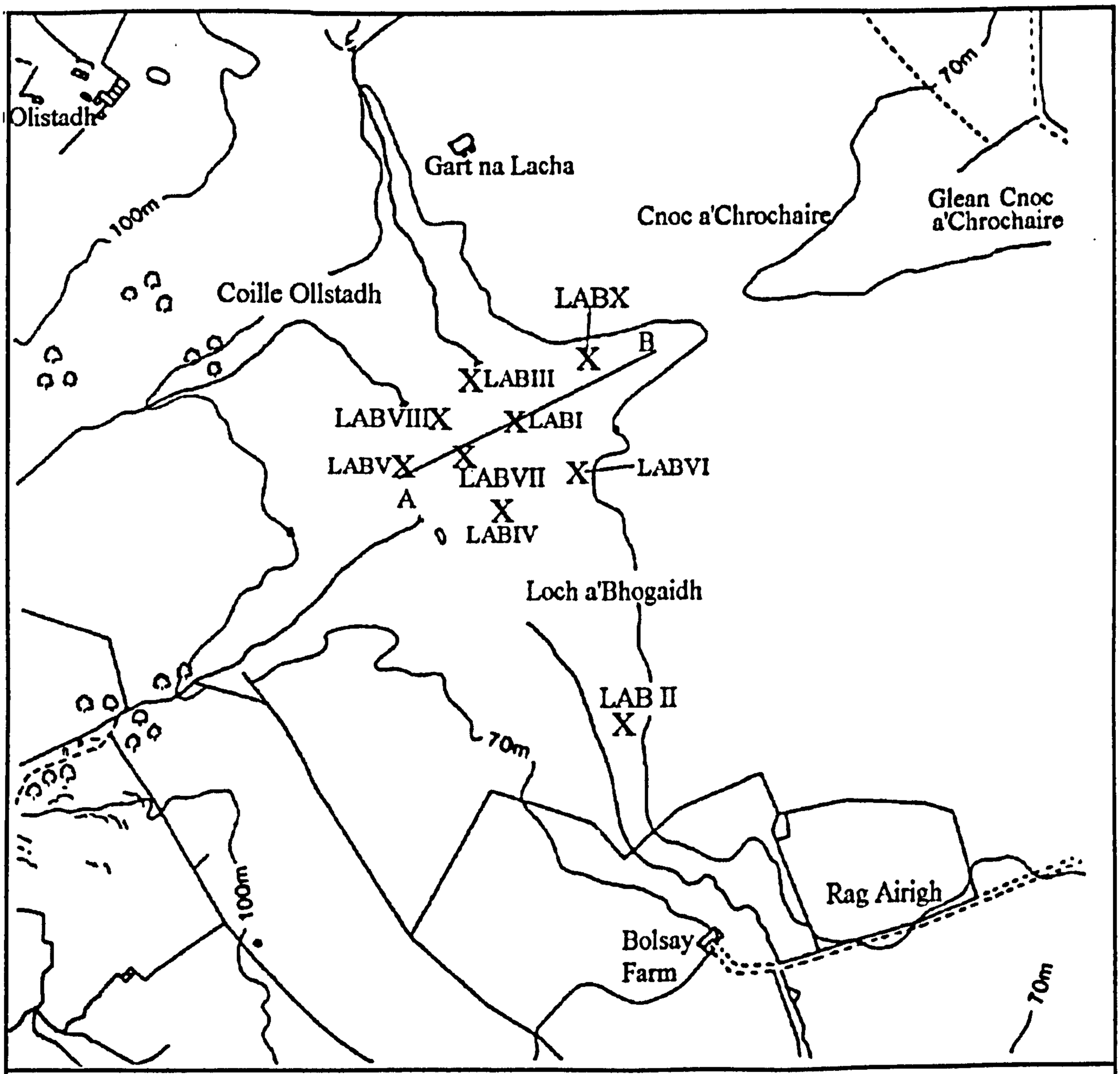
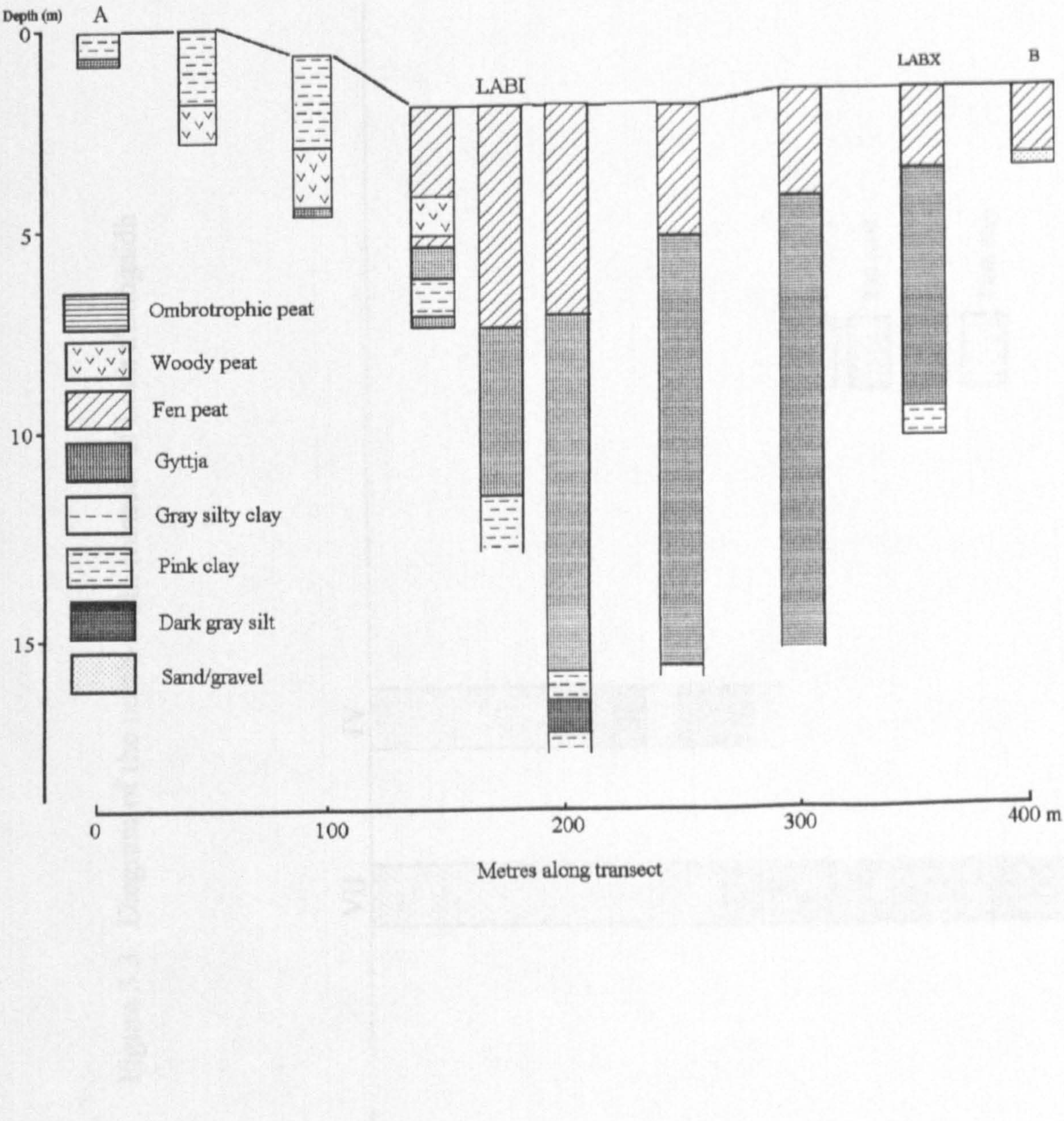


Figure 3.2 Diagram of the east-west transect of Loch a'Bhogaidh, Islay (after Agnew *et al.*, 1988)



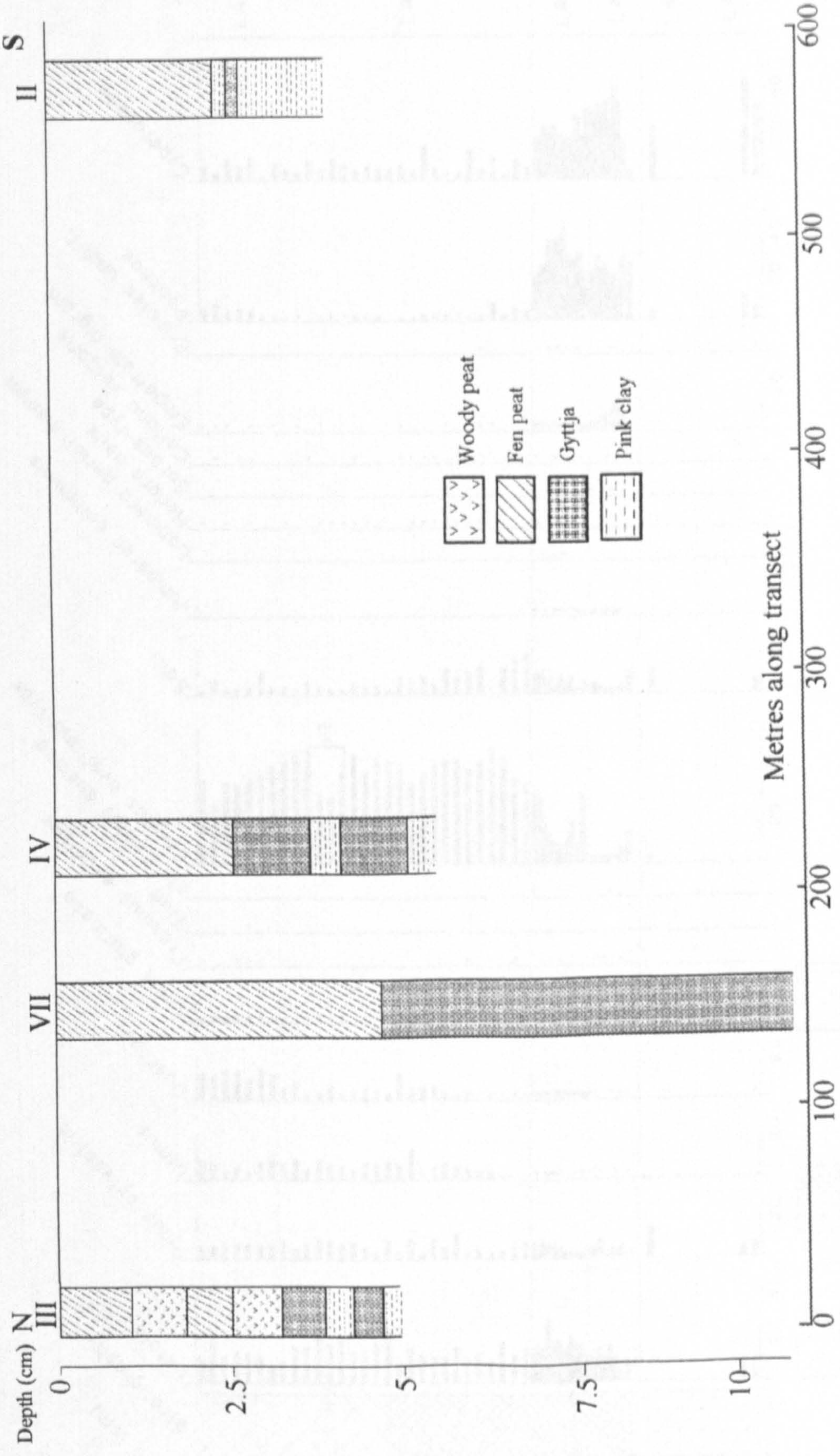


Figure 3.3 Diagram of the north-south transect of Loch a'Bhogaidh

Figure 3.4 Pollen and spore percentage diagram for LABI
(Circle symbol = < 2%)

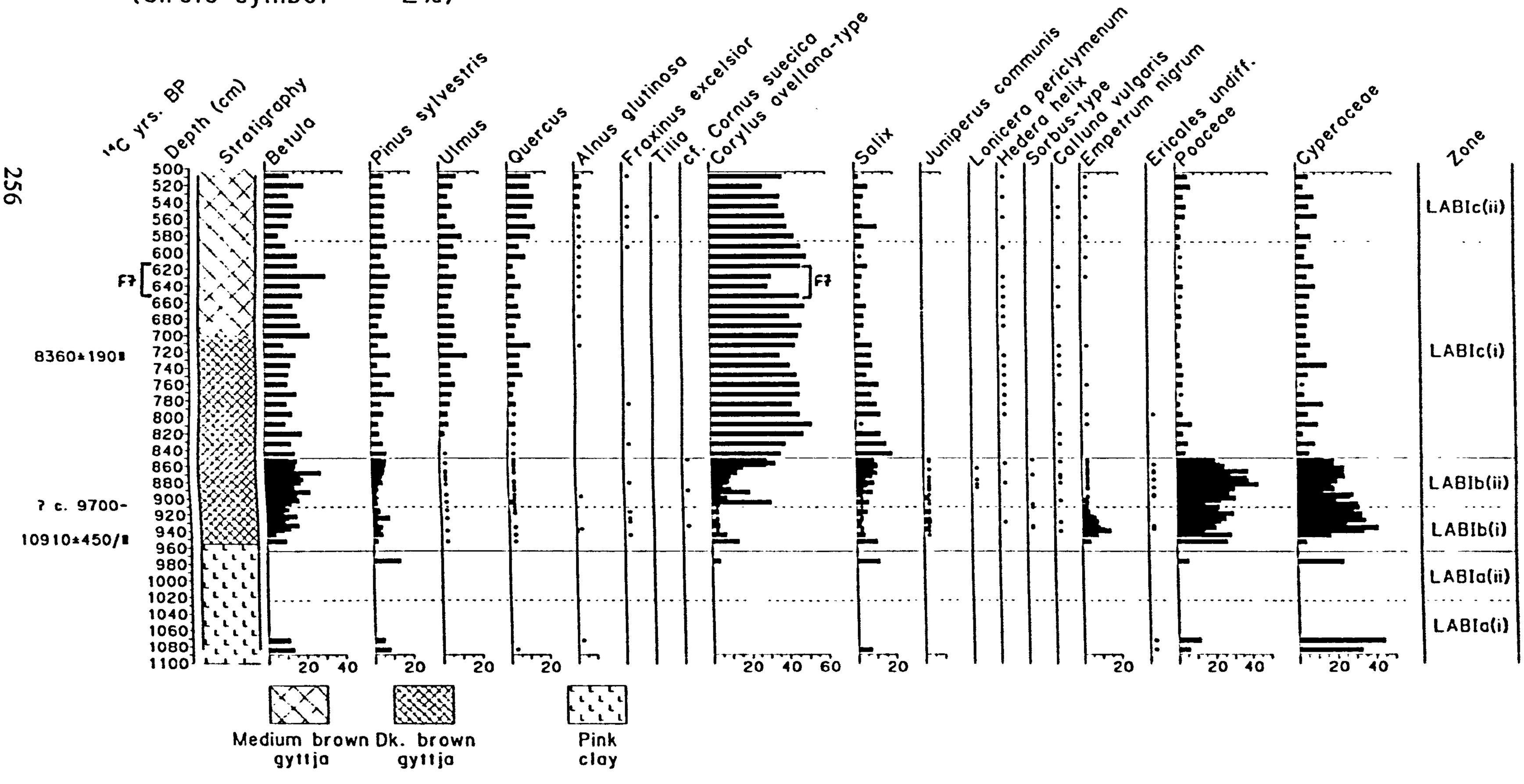


Figure 3.4 continued

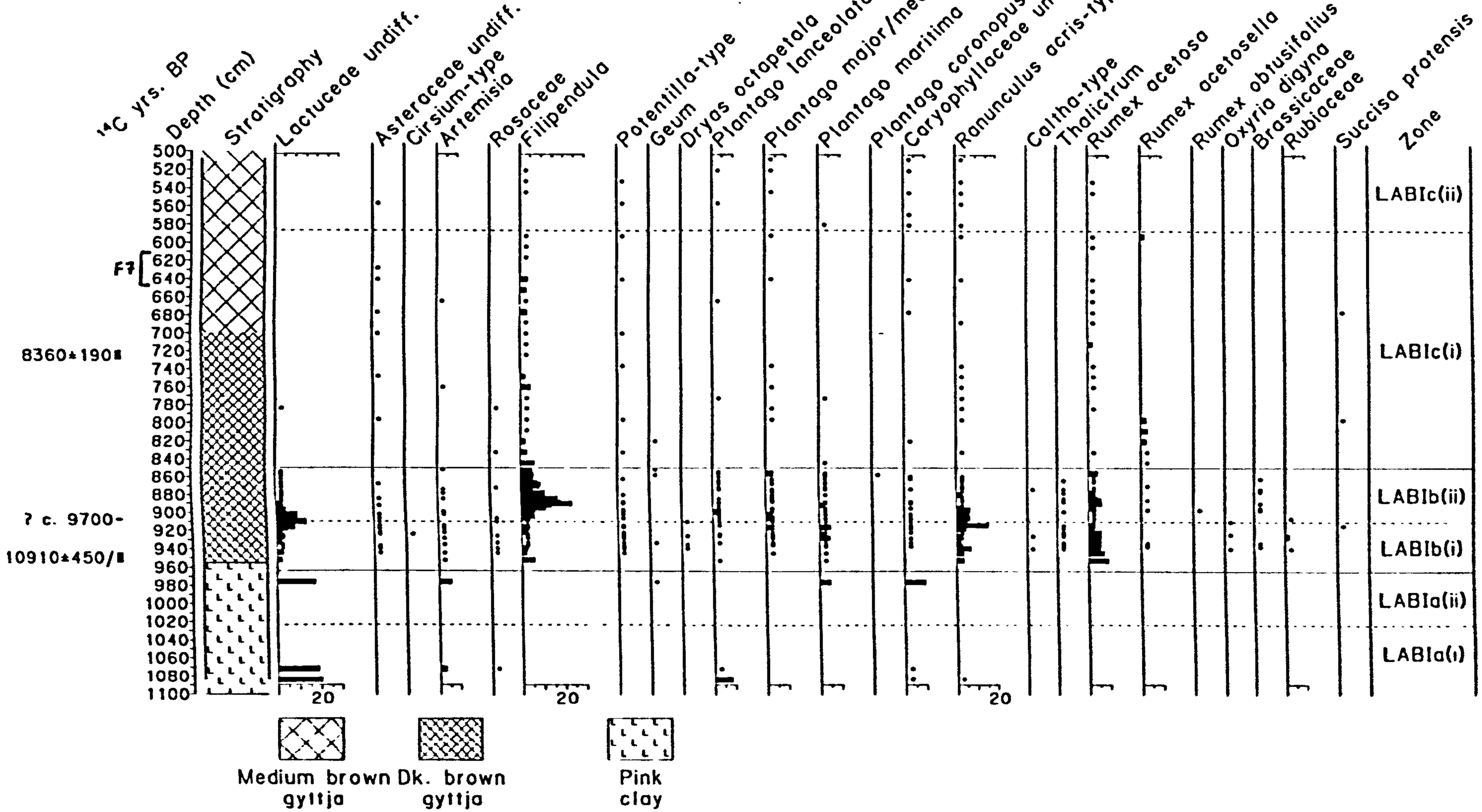


Figure 3.4 continued

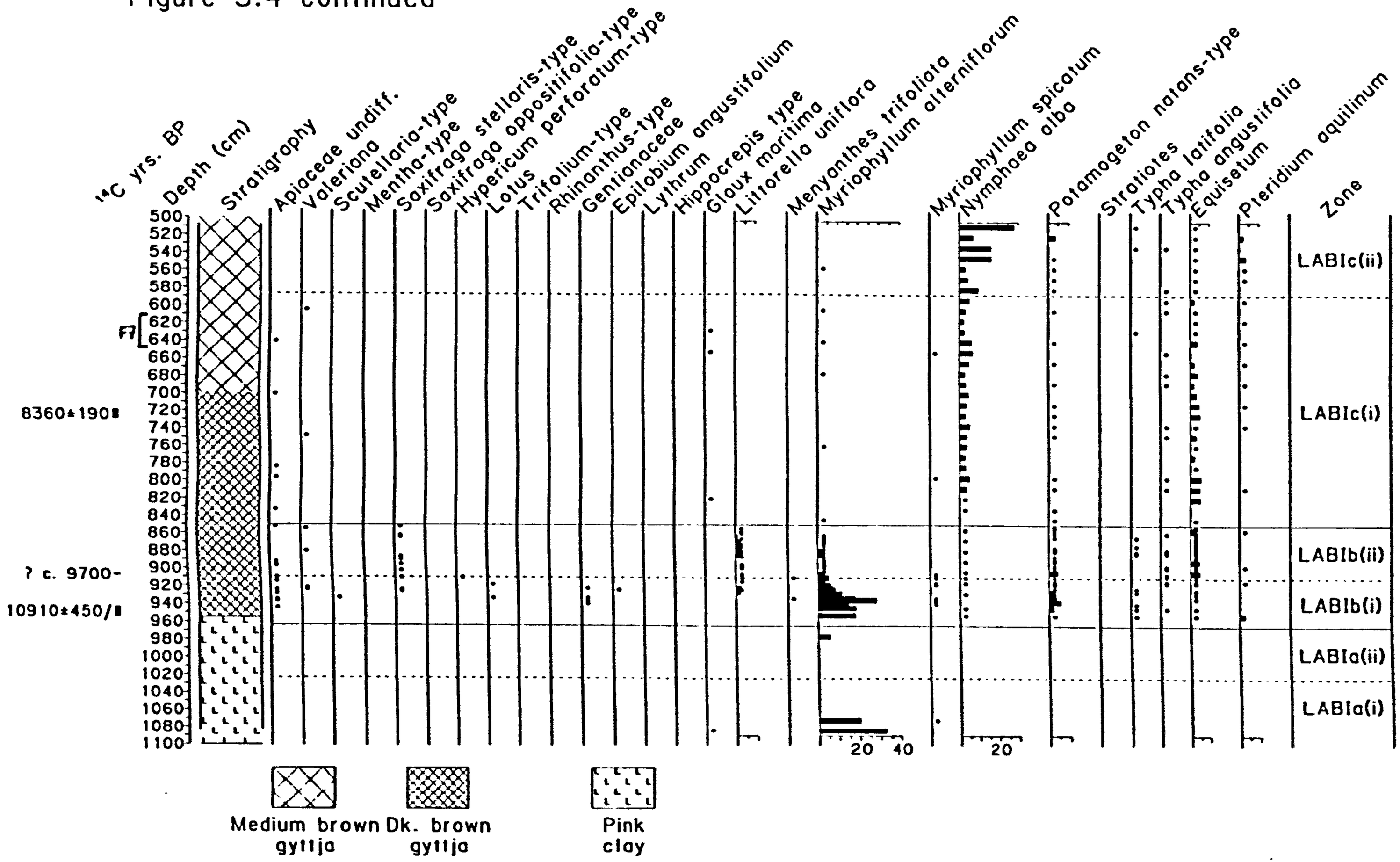


Figure 3.4 continued

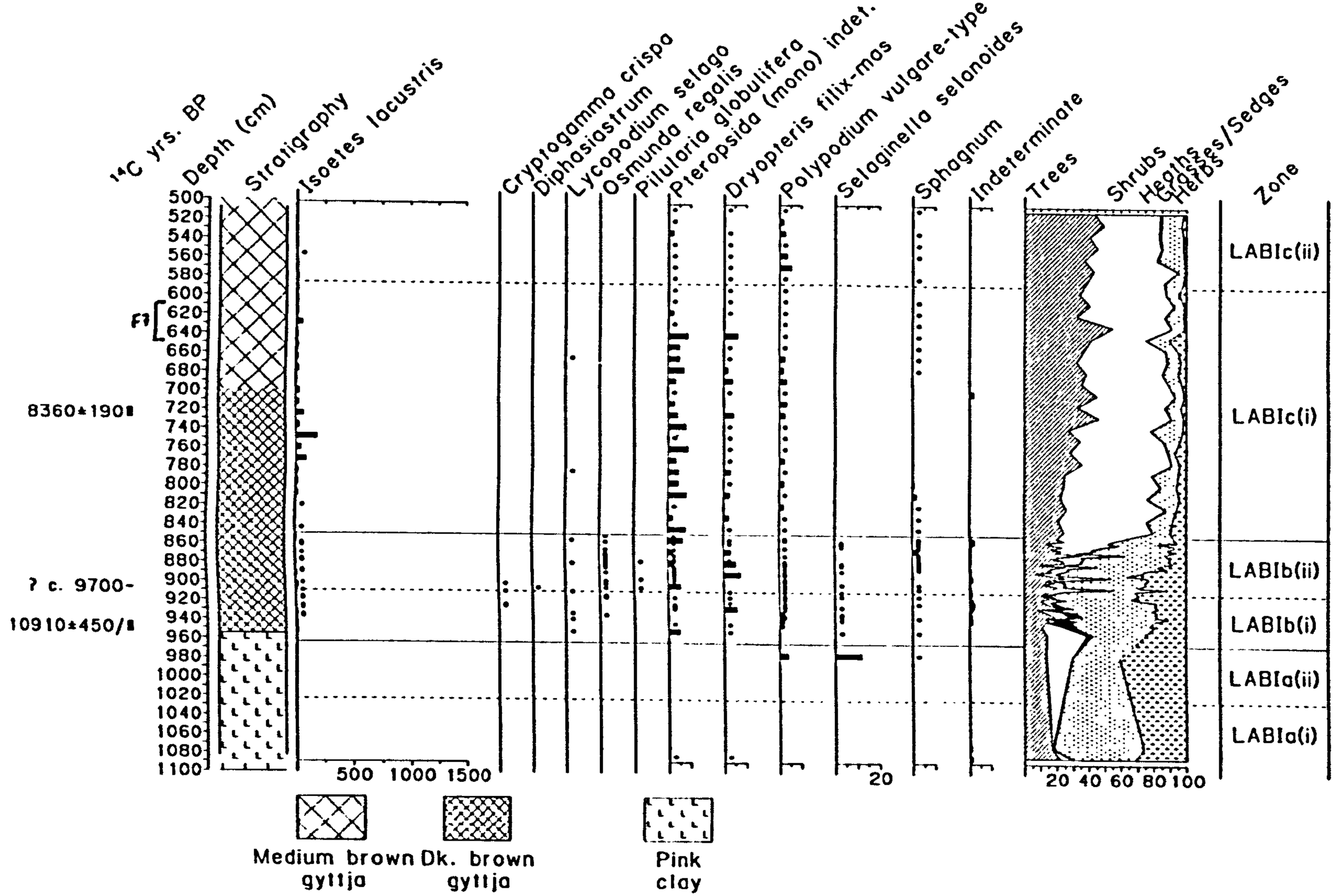


Figure 3.5 Pollen and spore percentage diagram for LABII
(Circle symbol = < 2% TLP)

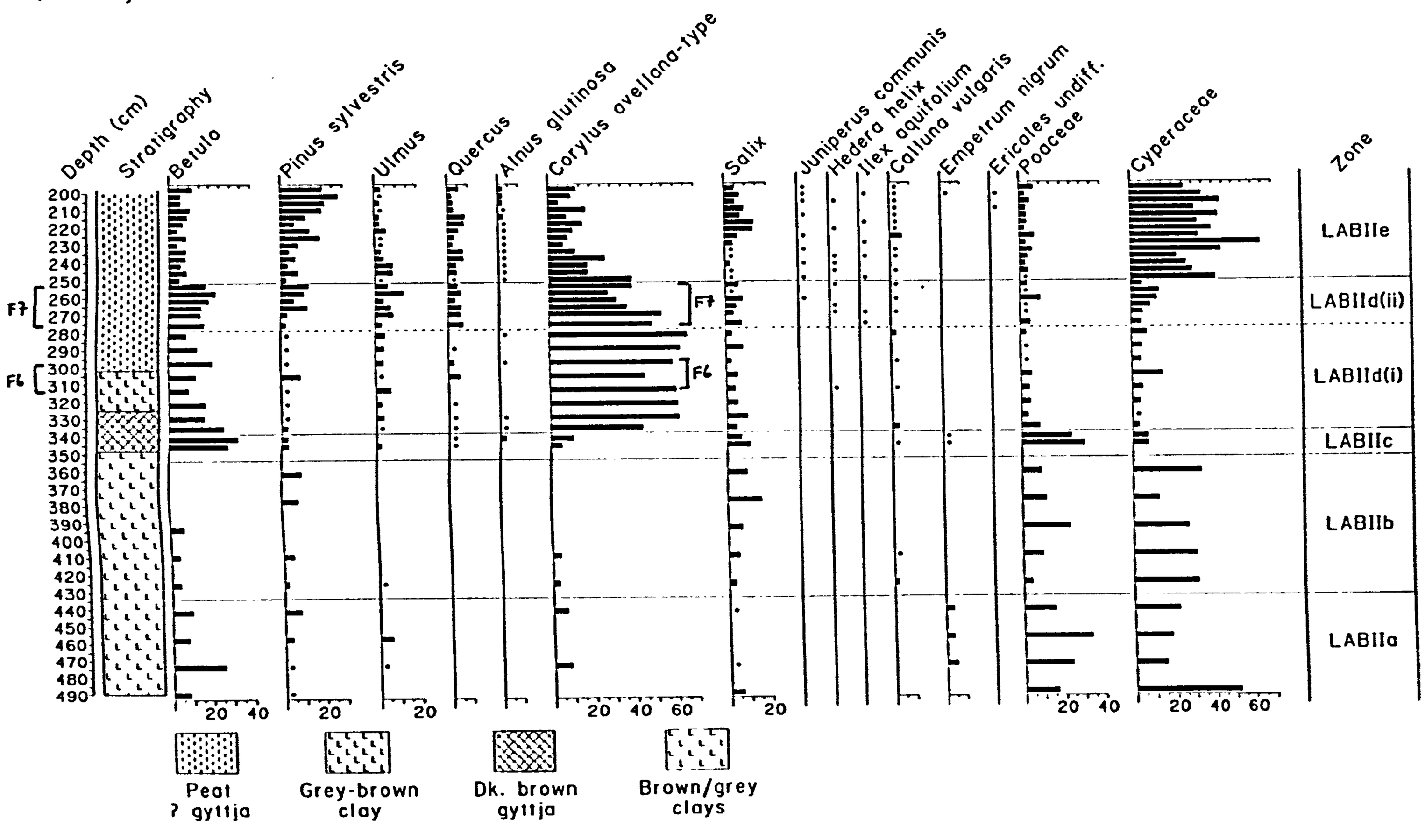


Figure 3.5 continued

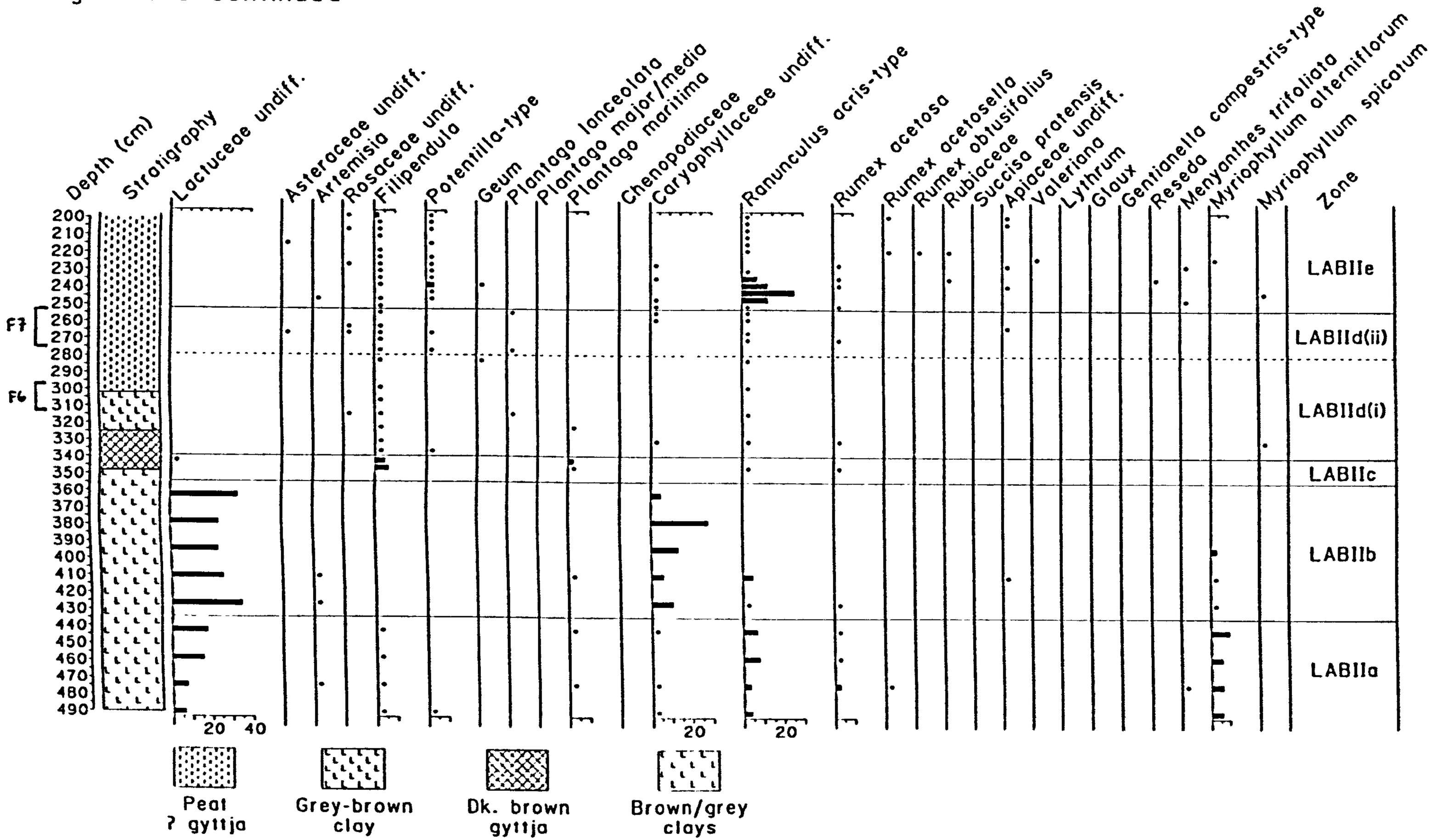


Figure 3.5 continued

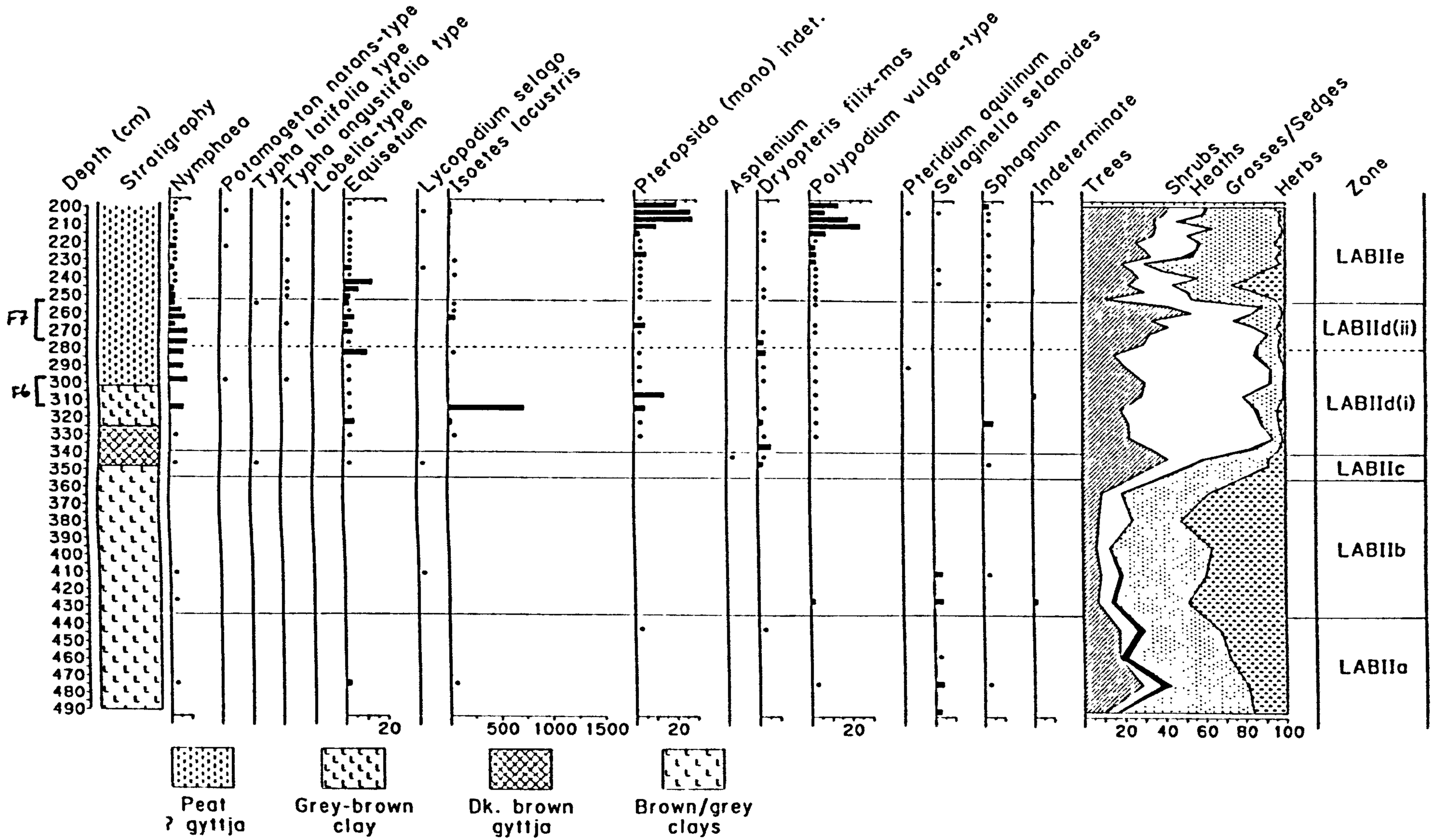


Figure 3.6 Pollen and spore percentage diagram for LABIII
(Circle symbol = < 2% TLP)

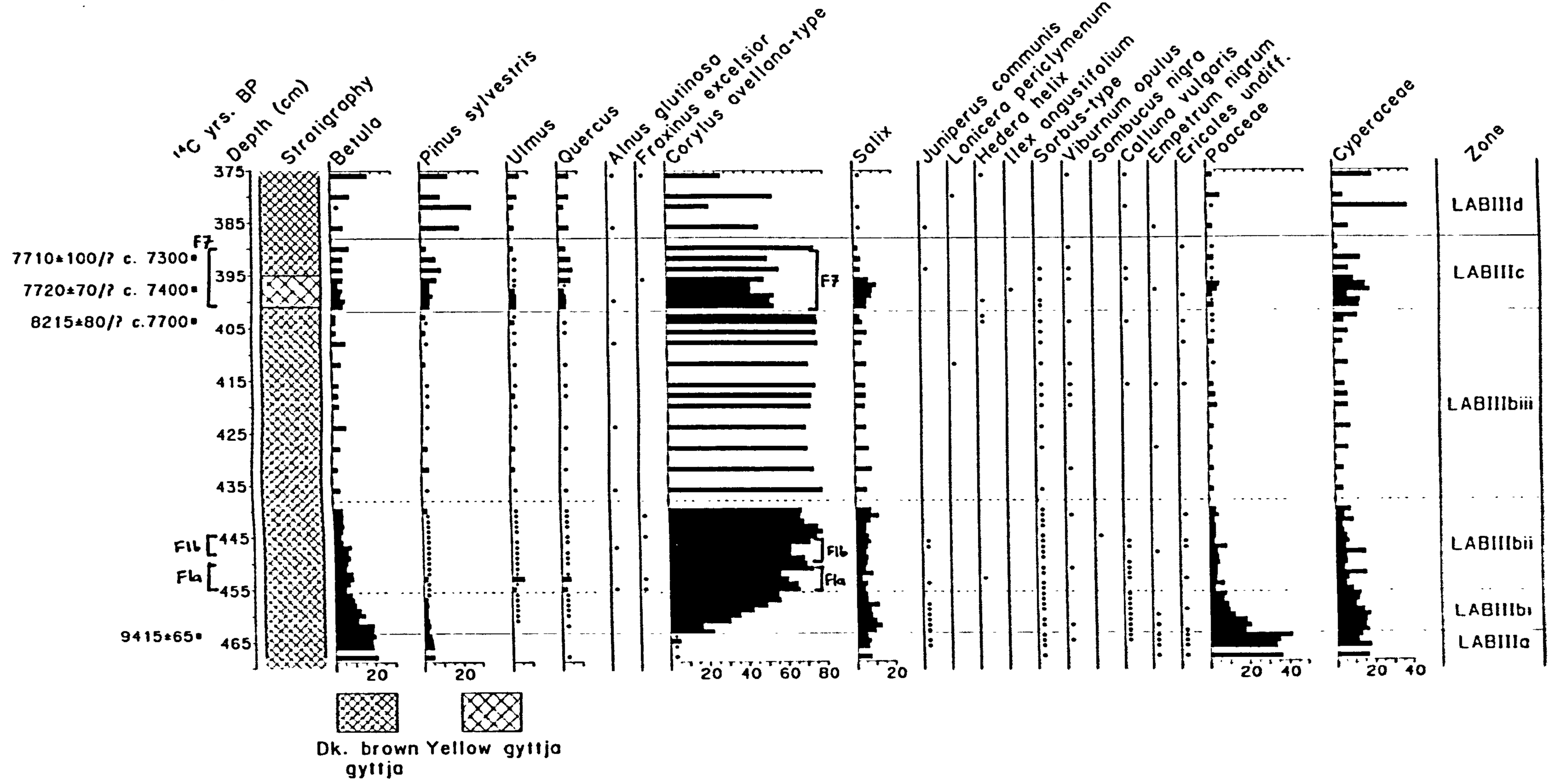
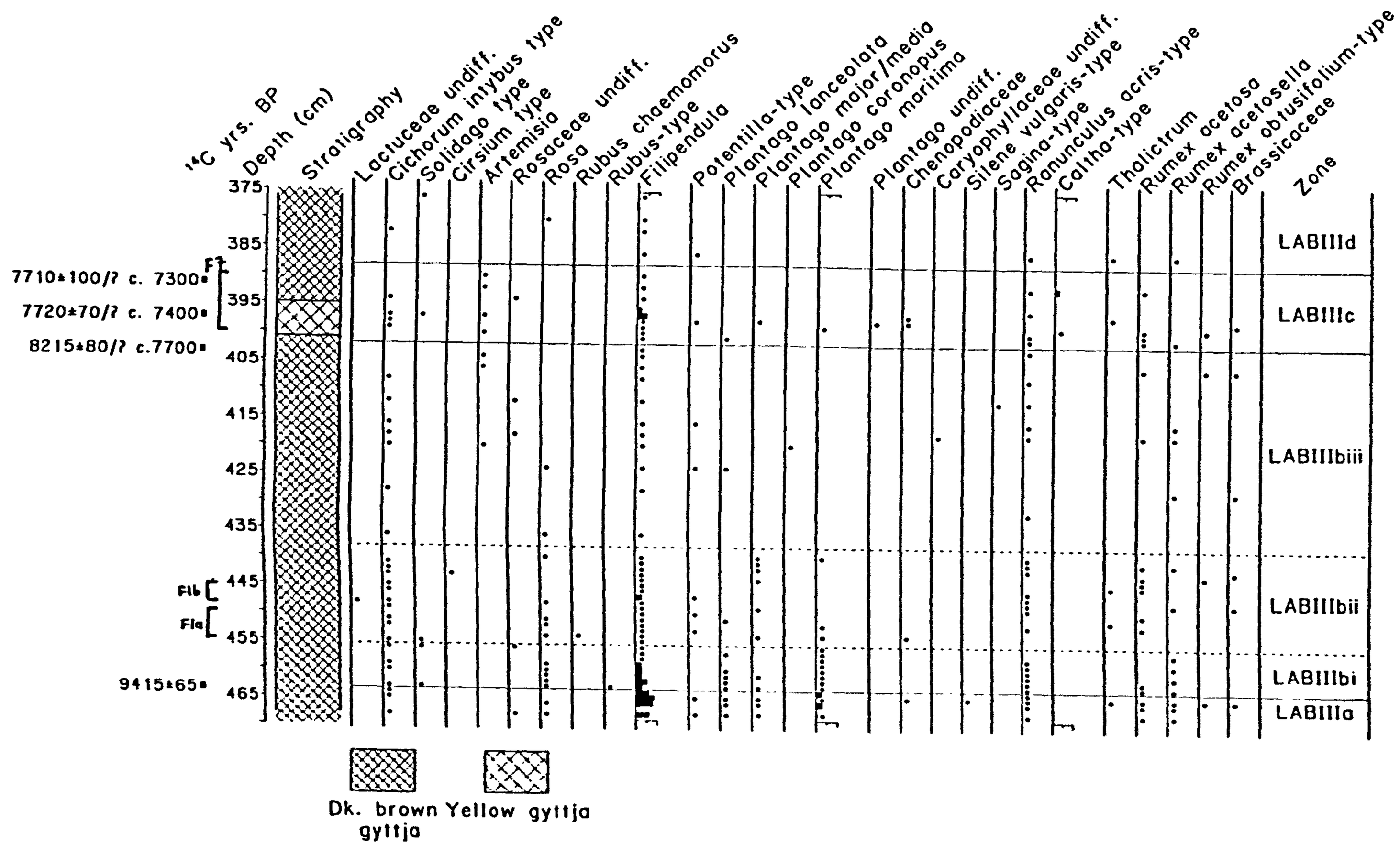


Figure 3.6 continued



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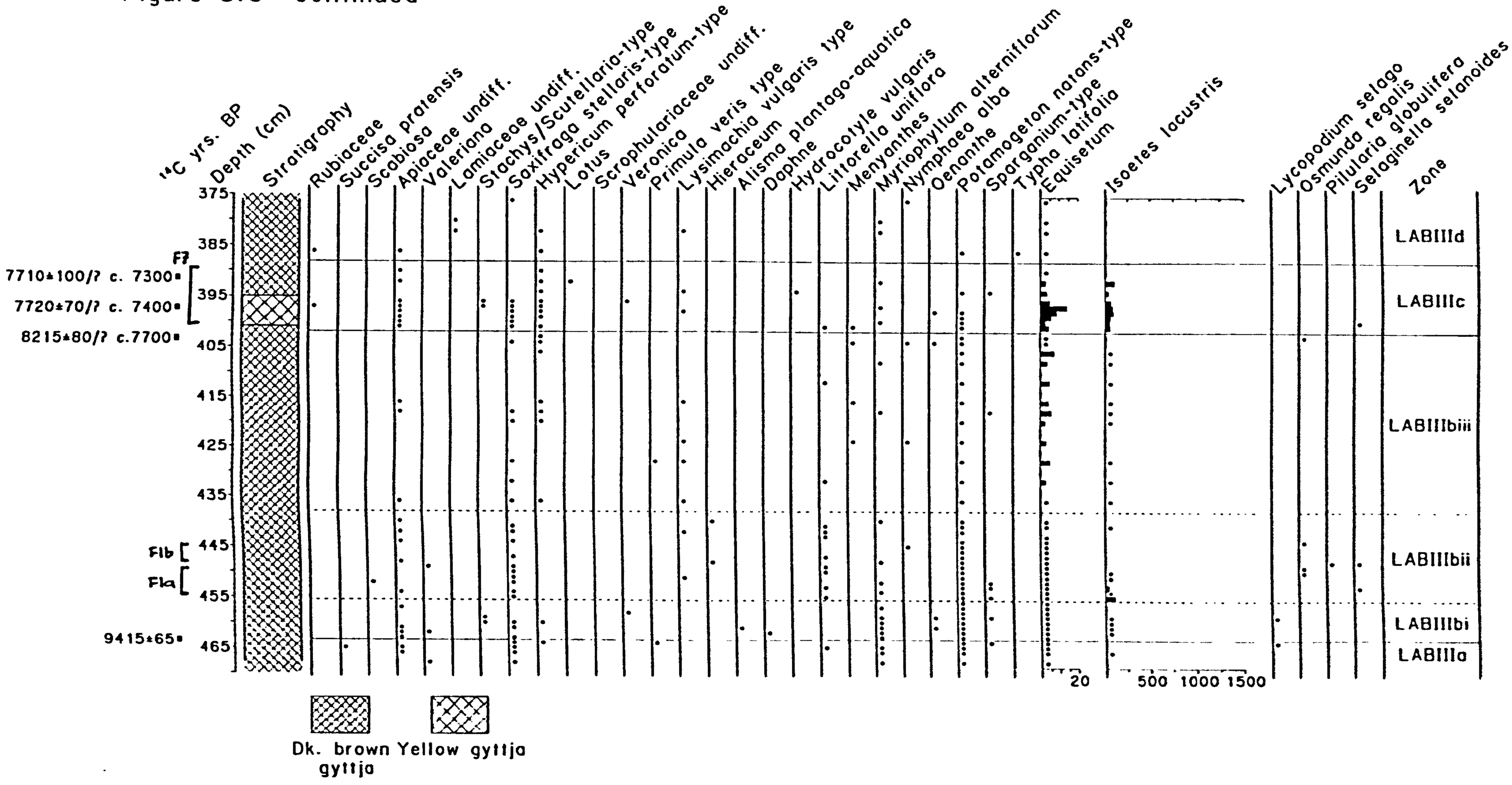


Figure 3.6 continued

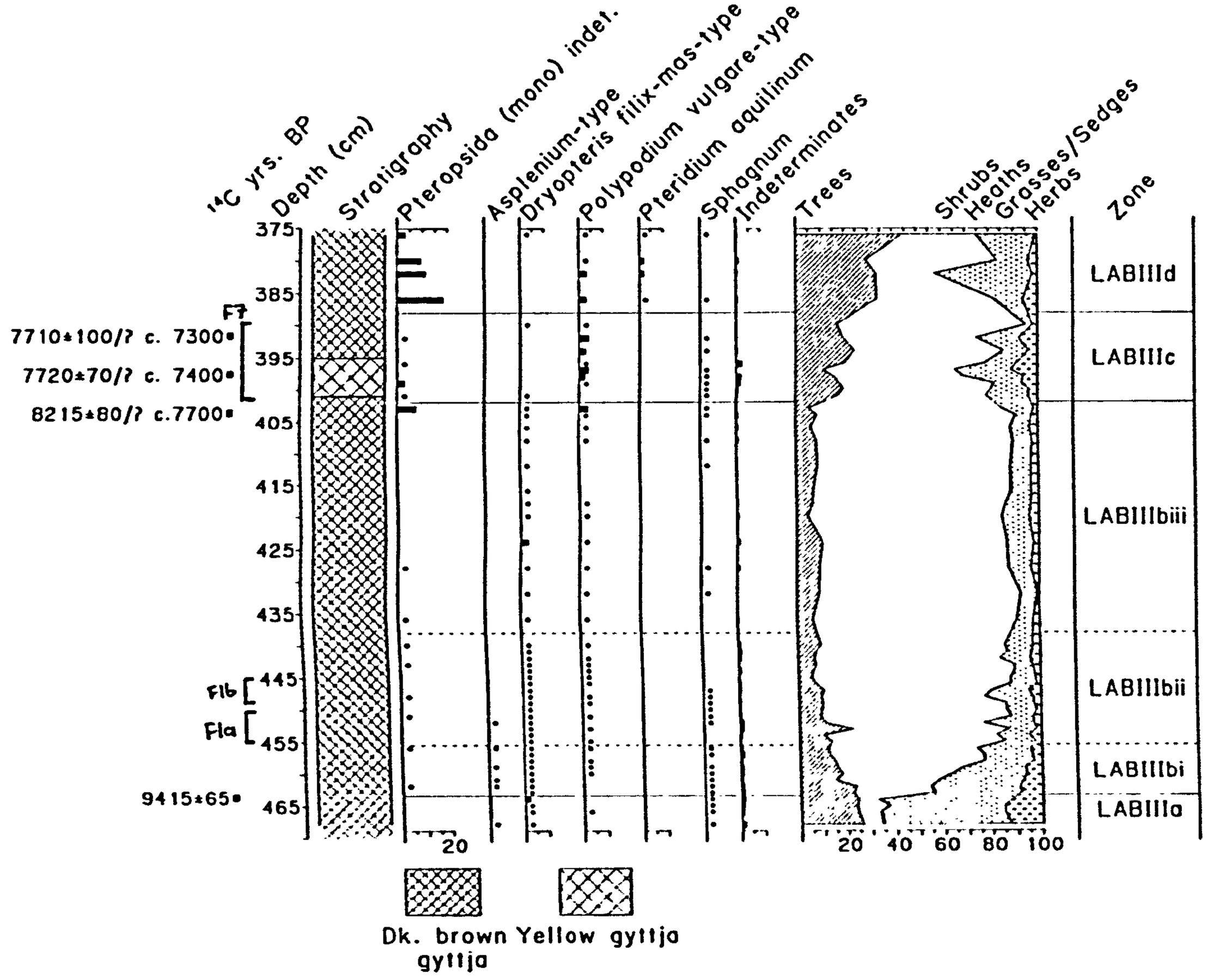


Figure 3.7 Pollen and spore percentage diagram for LABIV
(Circle symbol = < 2% TLP)

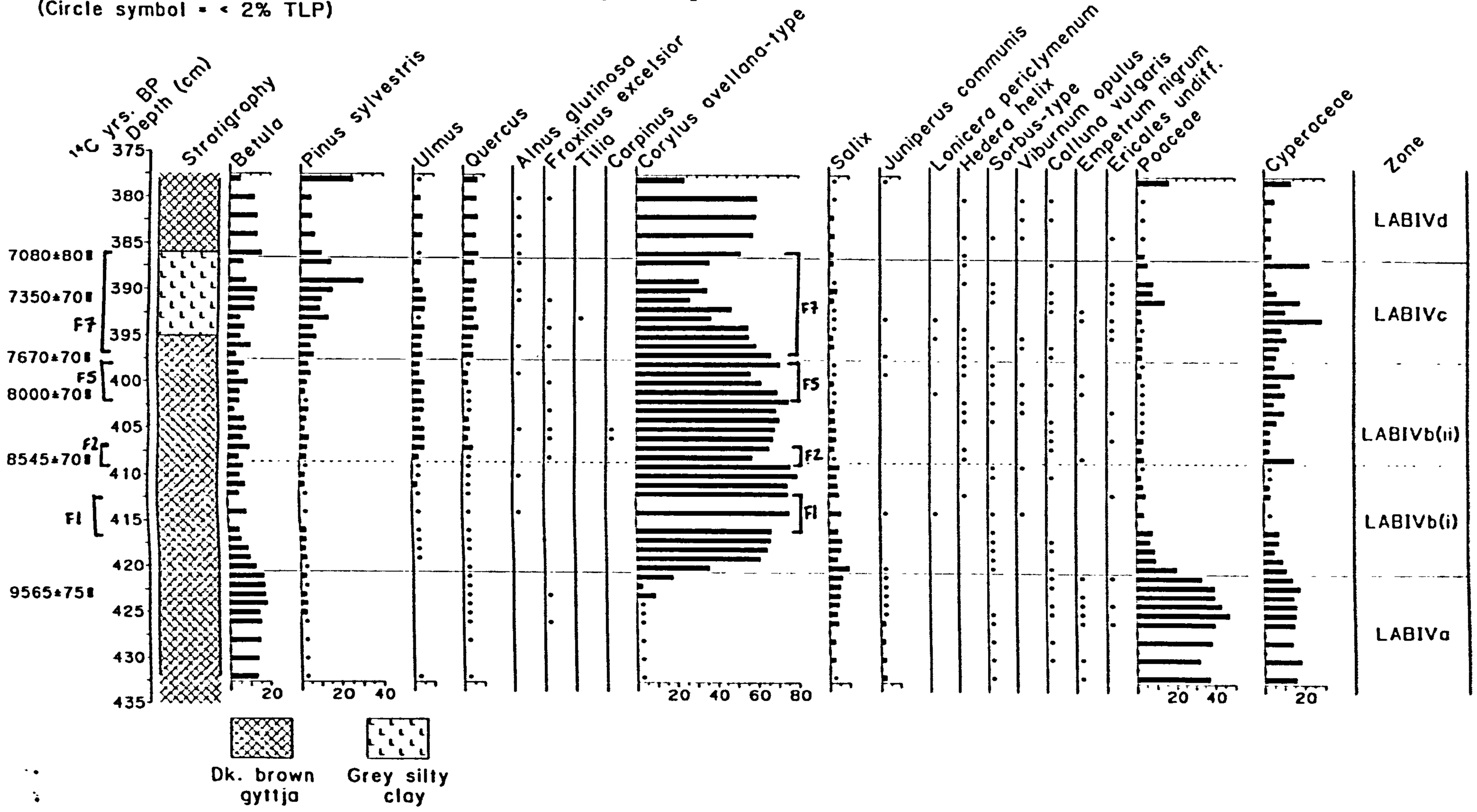


Figure 3.7 continued

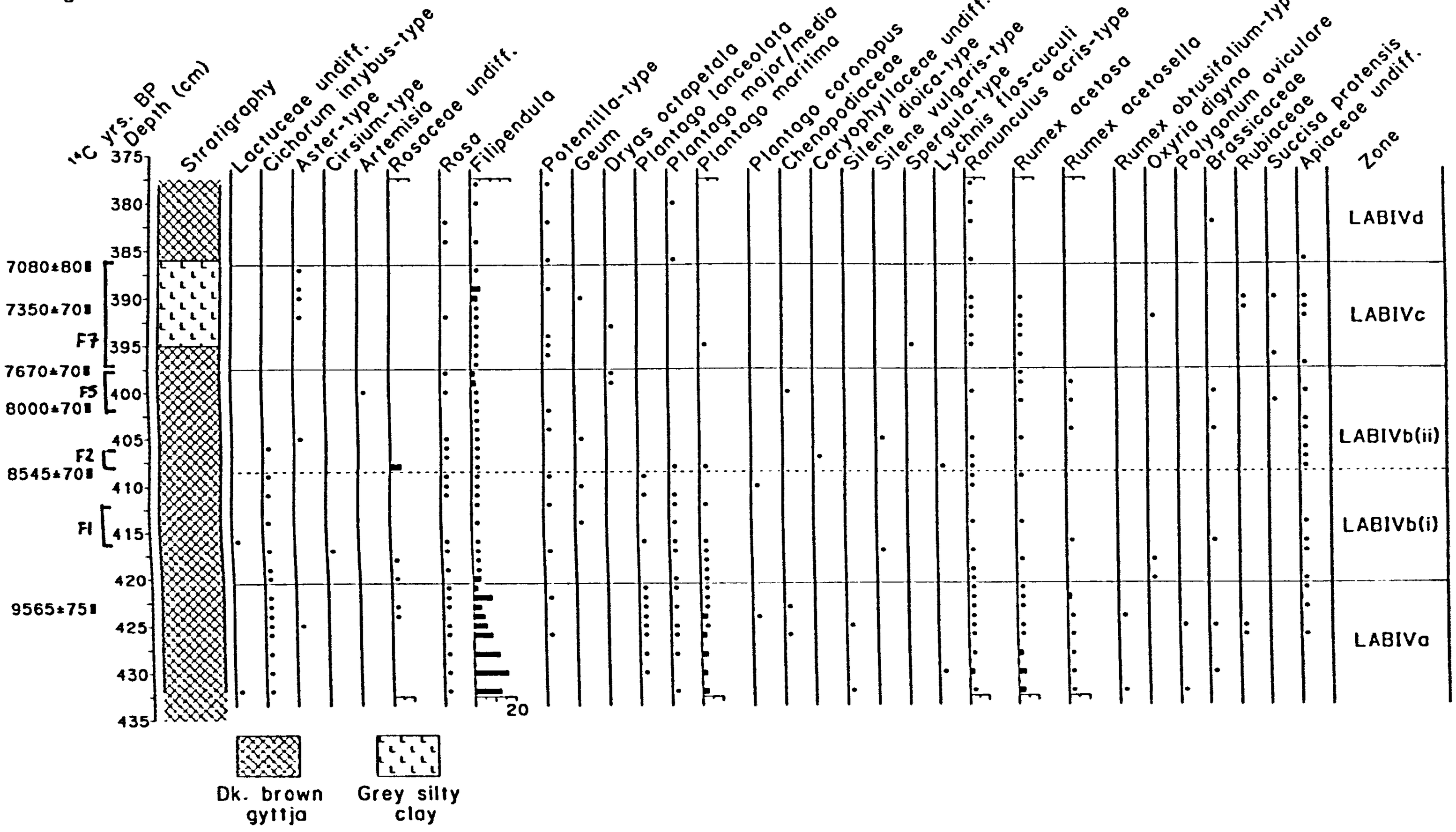


Figure 3.7 continued

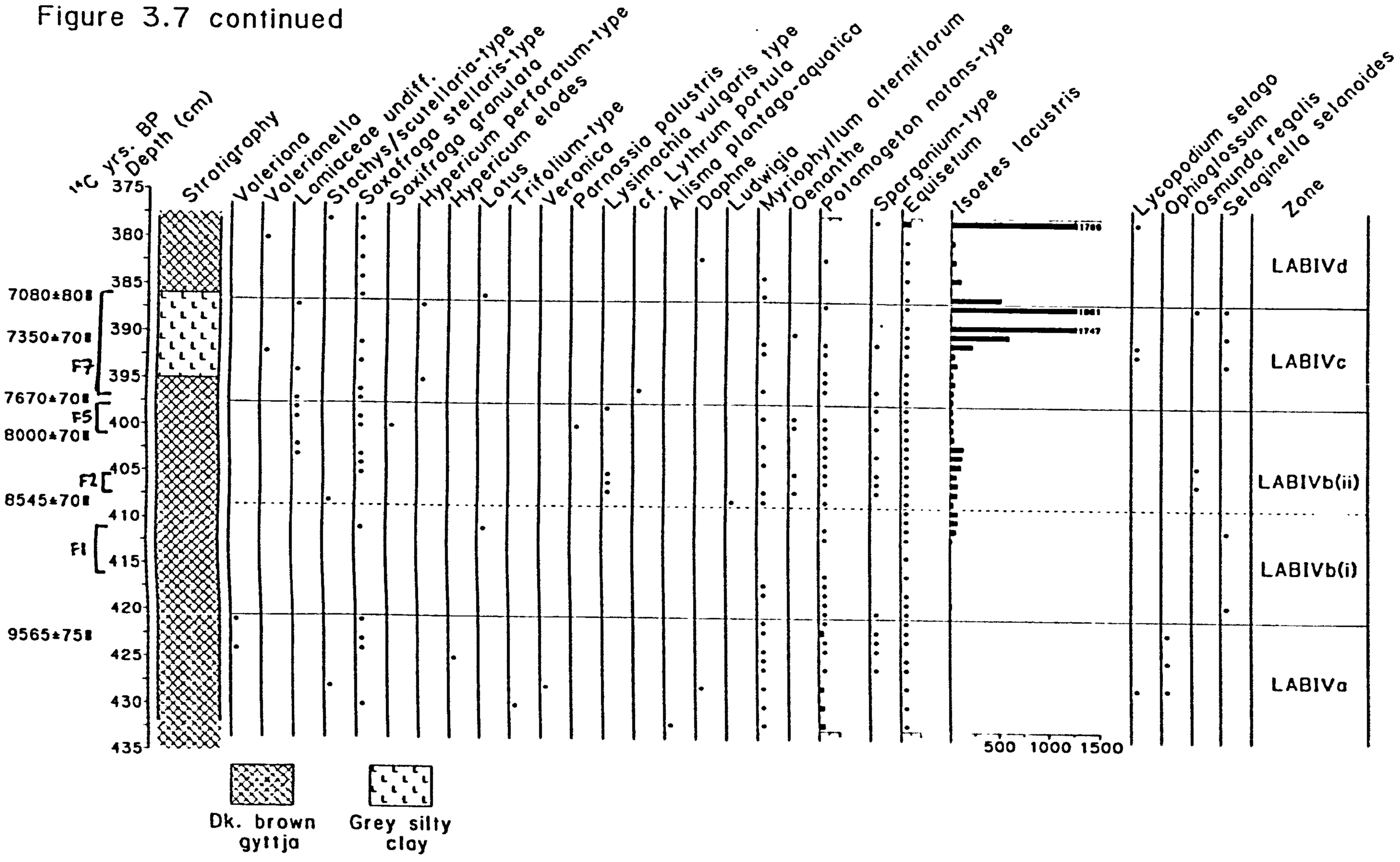


Figure 3.7 continued

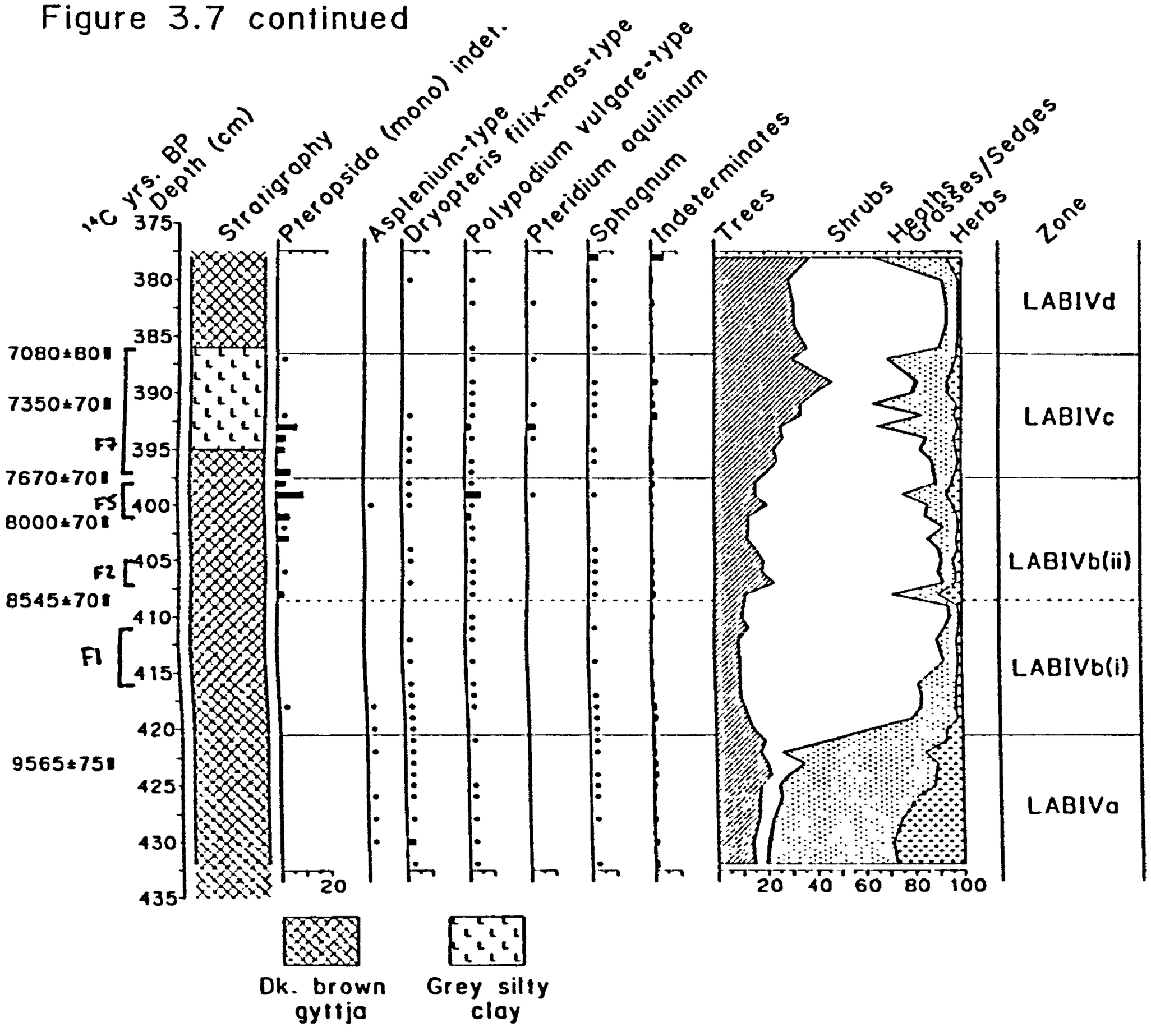


Figure 3.8 Pollen and spore percentage diagram for LABV
(Circle symbol = < 2% TLP)

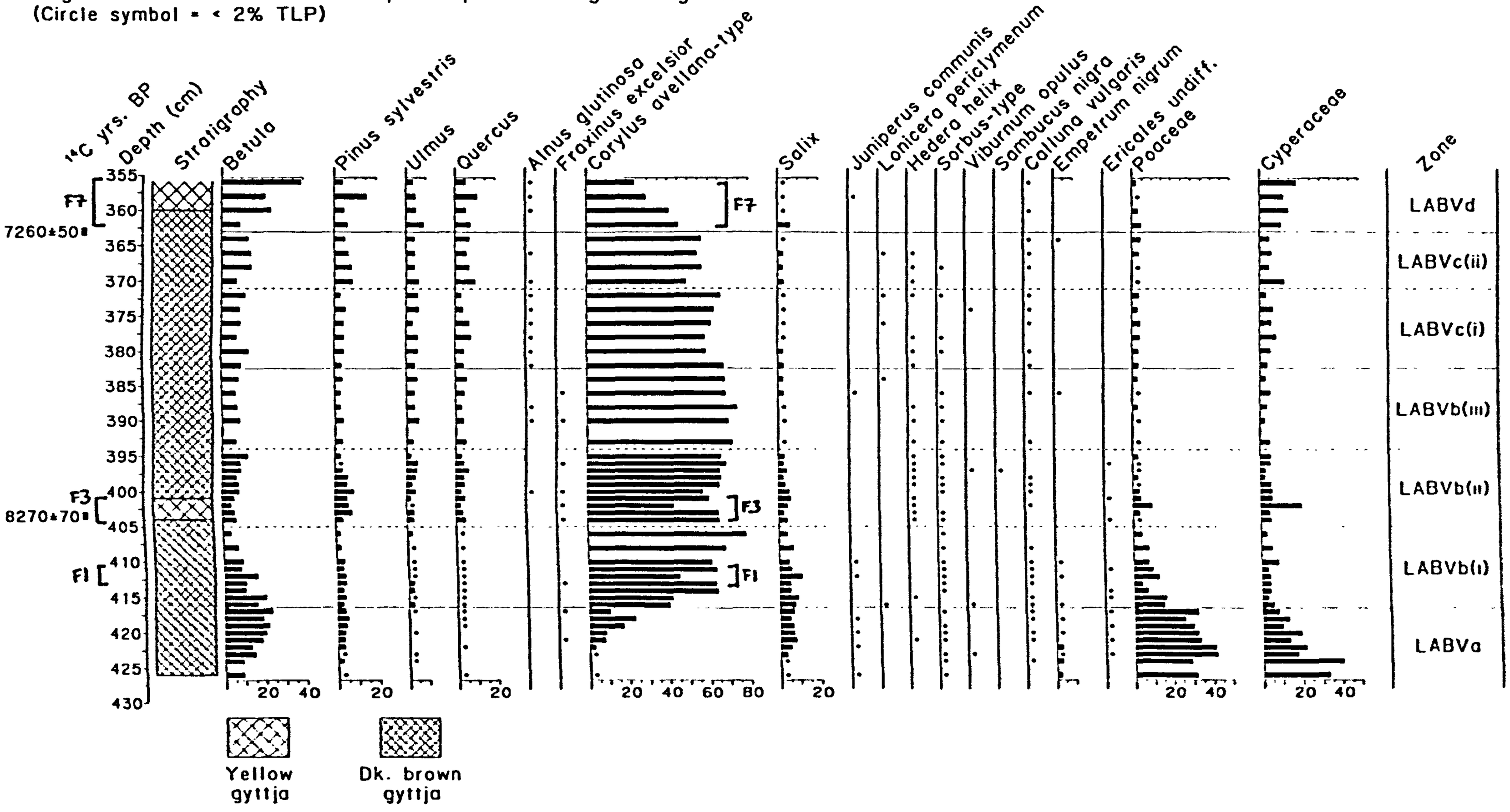


Figure 3.8 continued

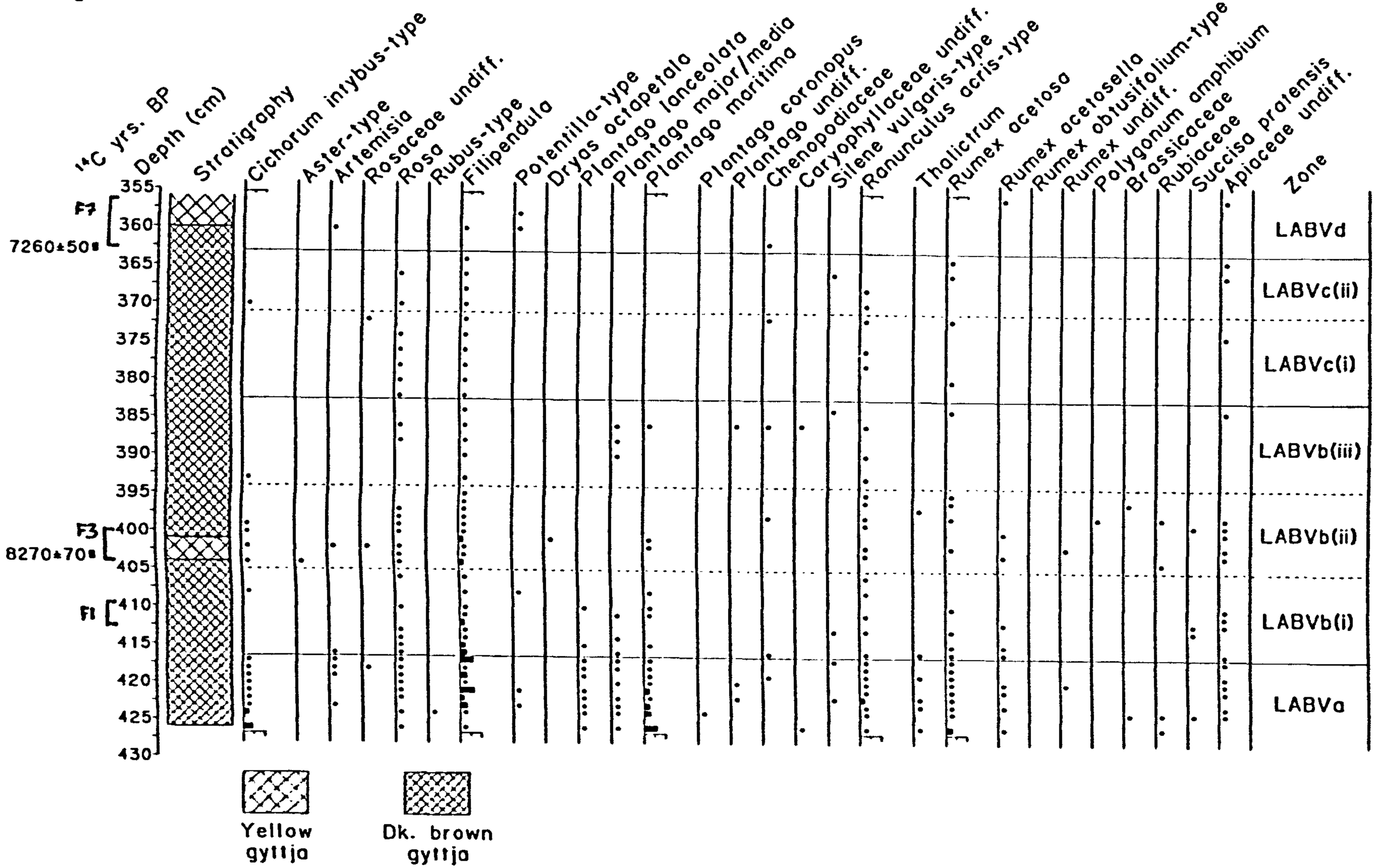


Figure 3.8 continued

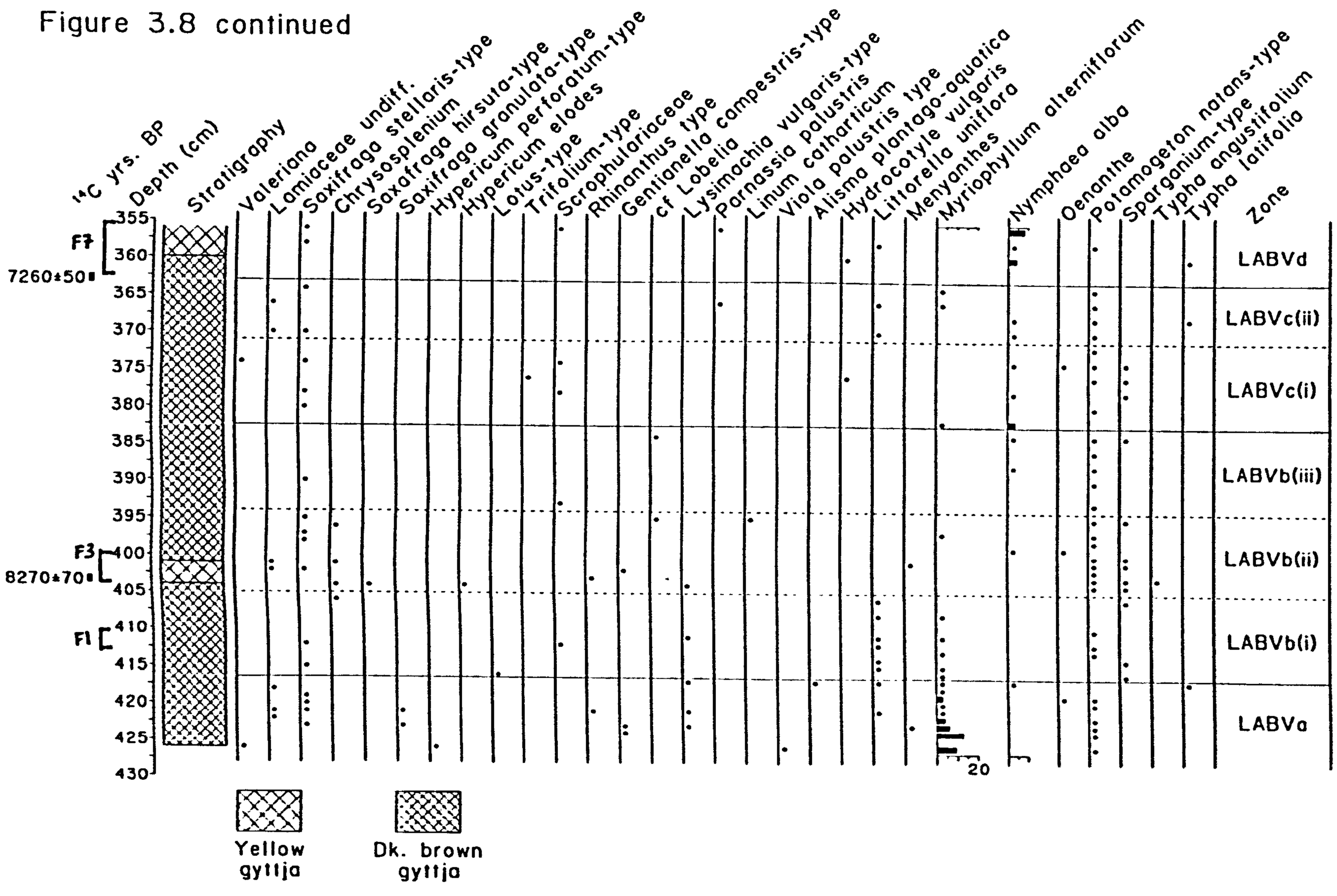


Figure 3.8 continued

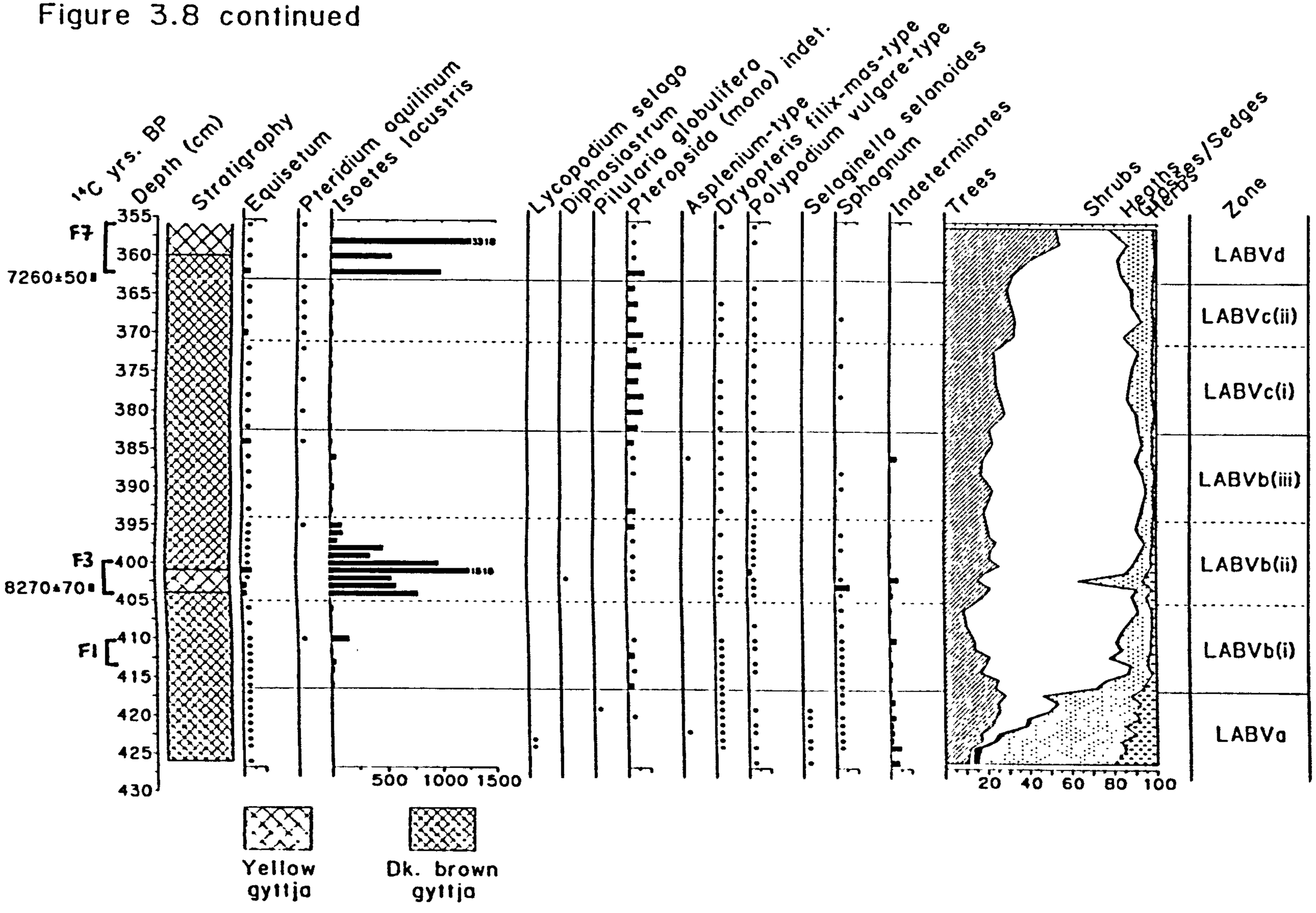


Figure 3.9 Pollen and spore percentage diagram for LABVI
(Circle symbol = < 2% TLP)

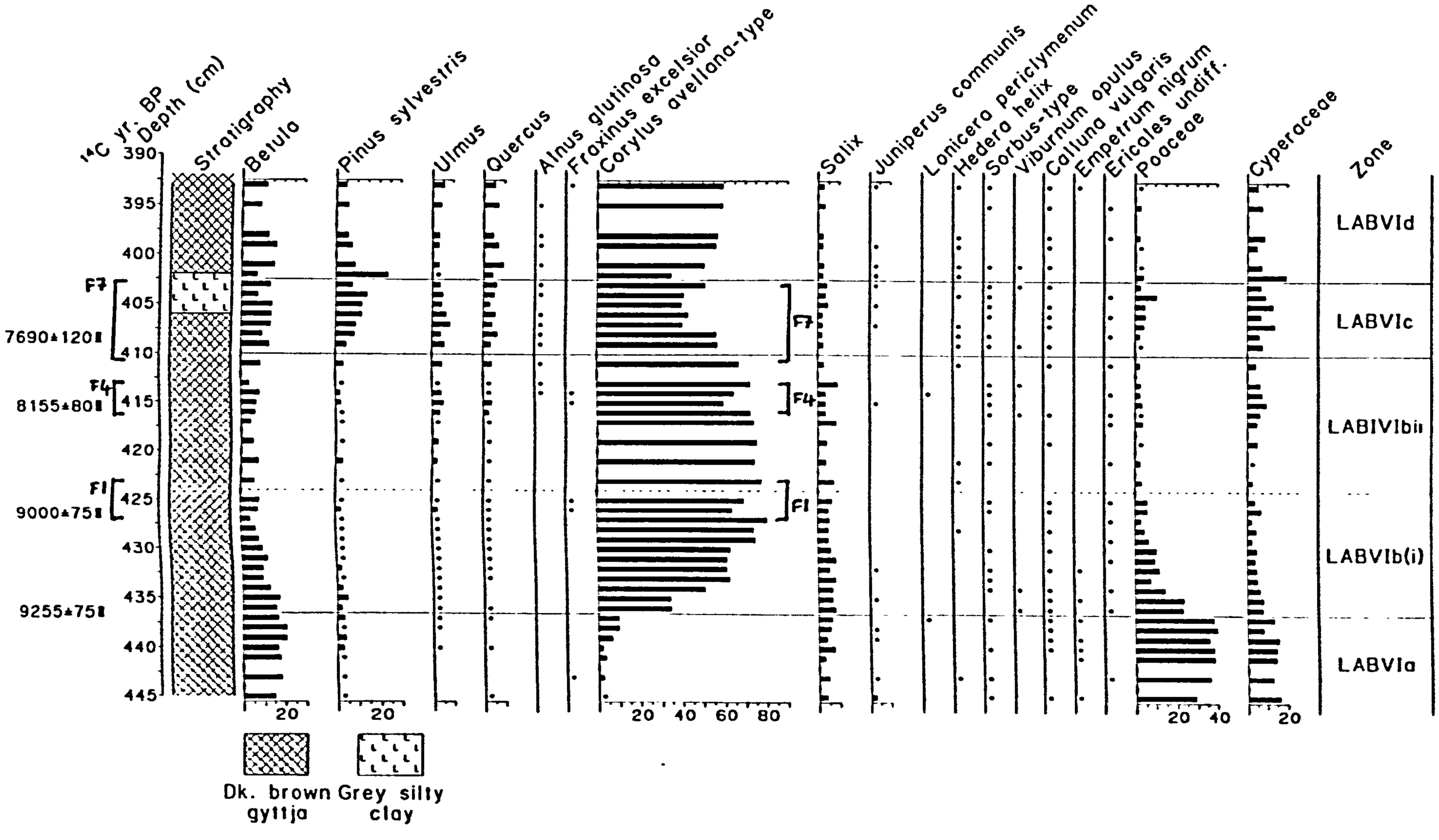
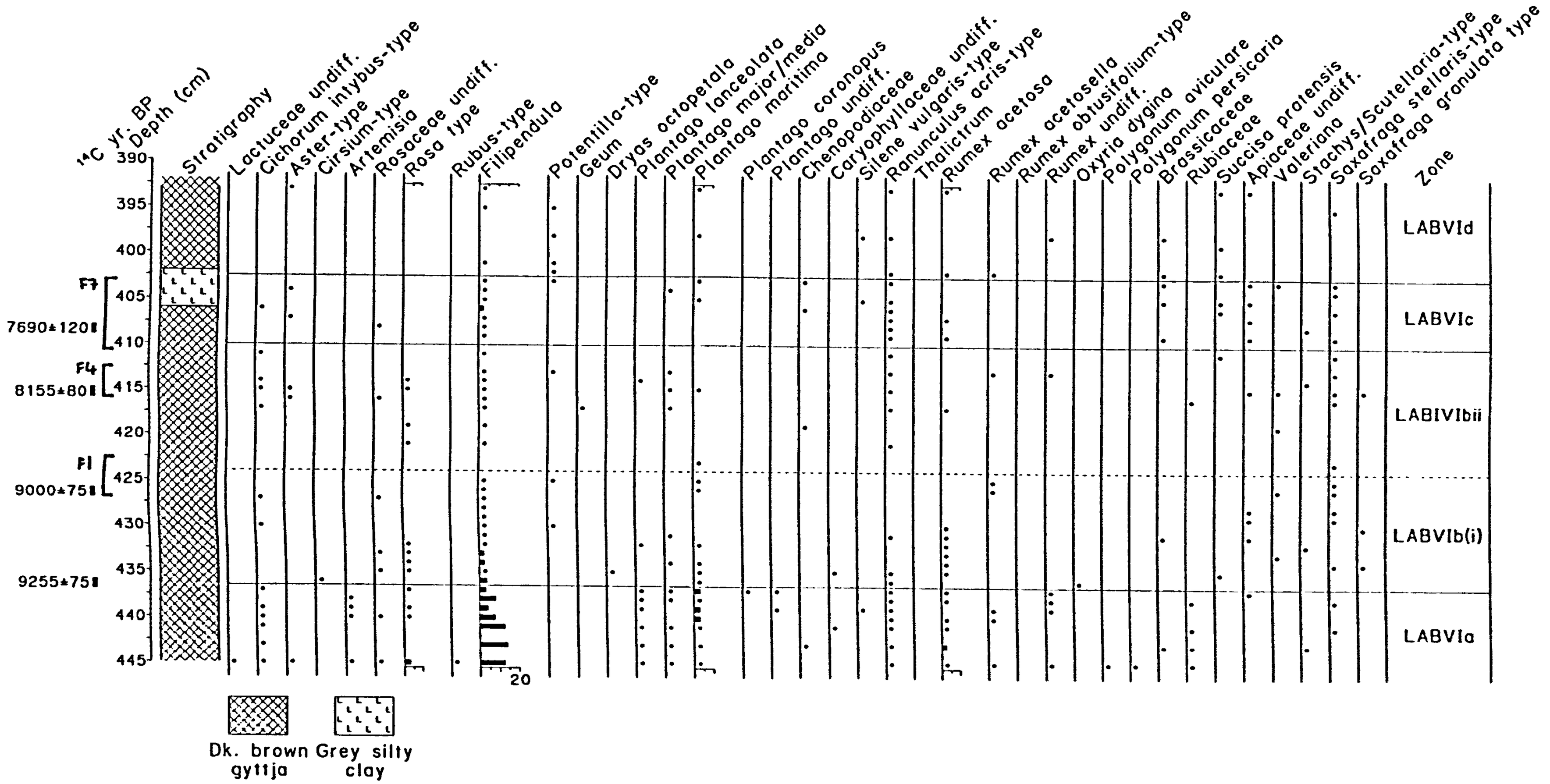


Figure 3.9 continued



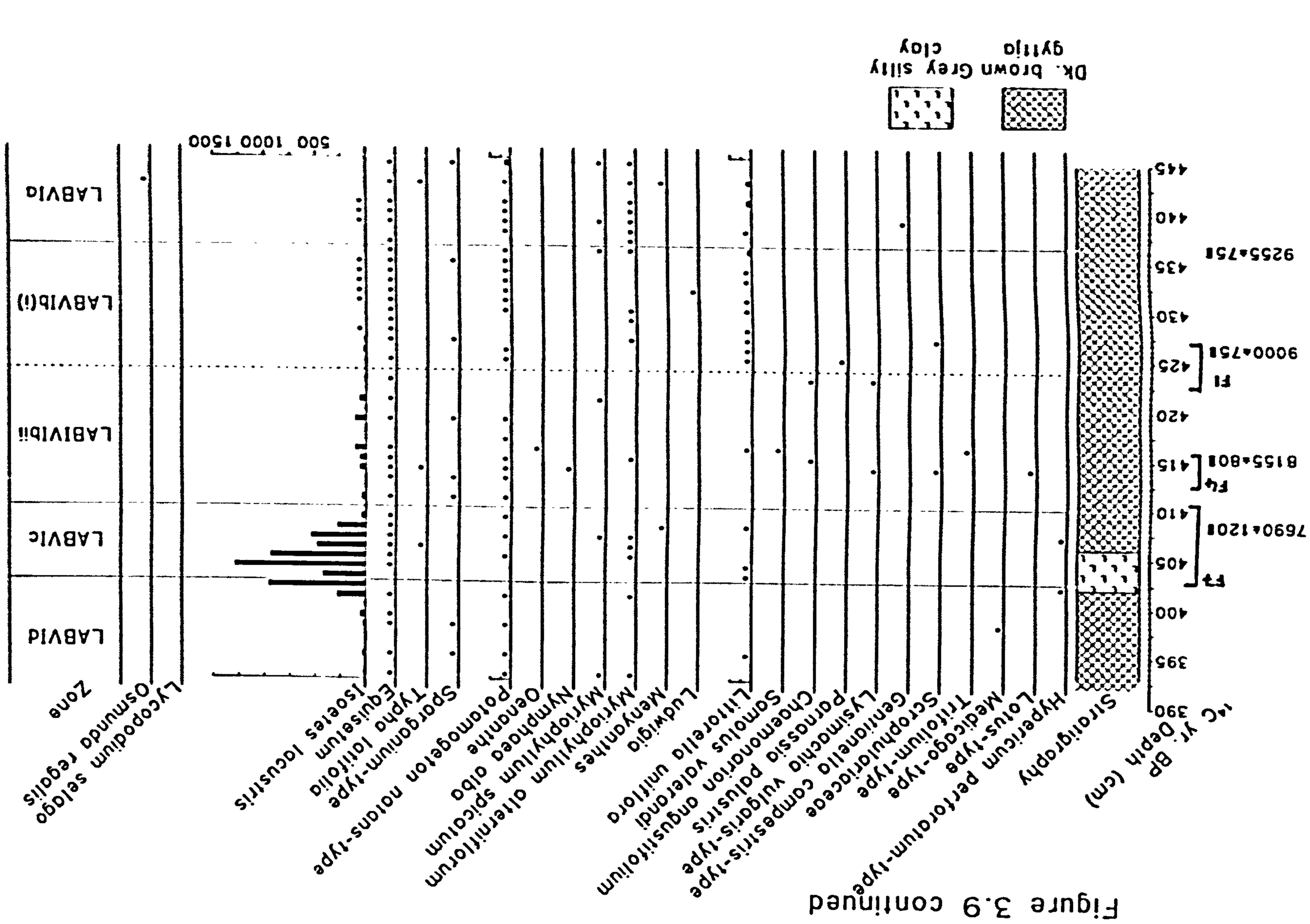
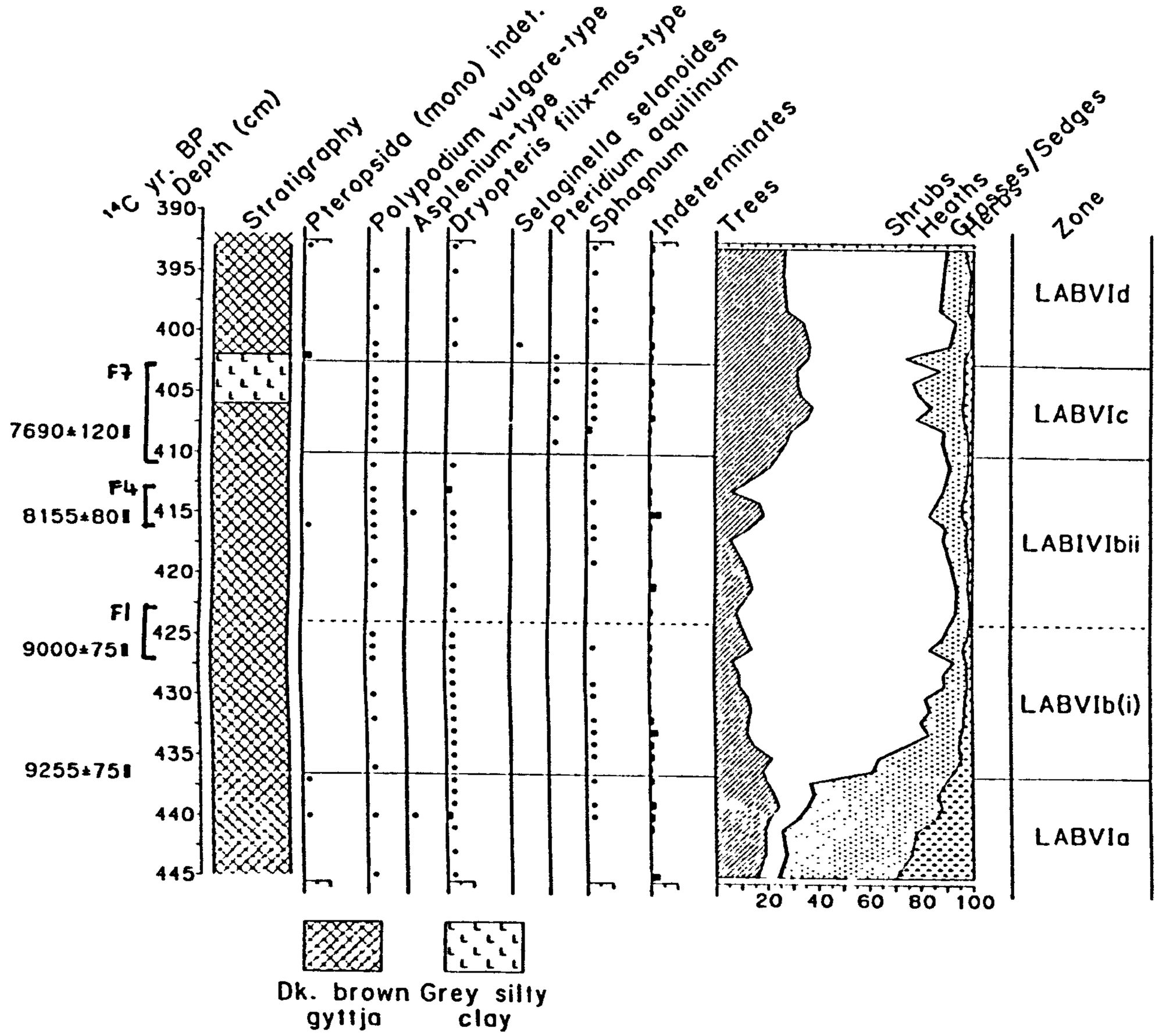


Figure 3.9 continued

Figure 3.9 continued



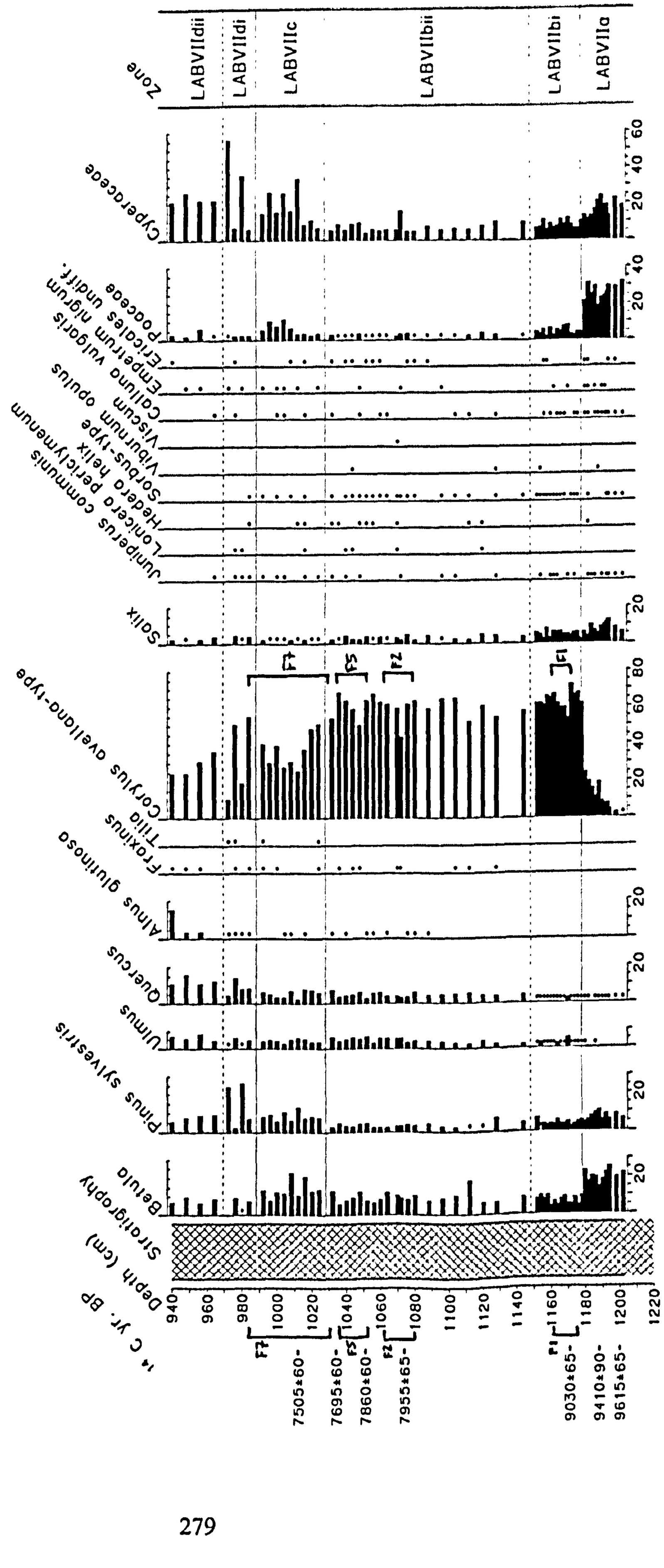


Figure 3.10 Pollen diagram for LABVII
(Circle symbol = < 2% TLP; Unshaded exaggeration curves = x10)

Figure 3.10 continued

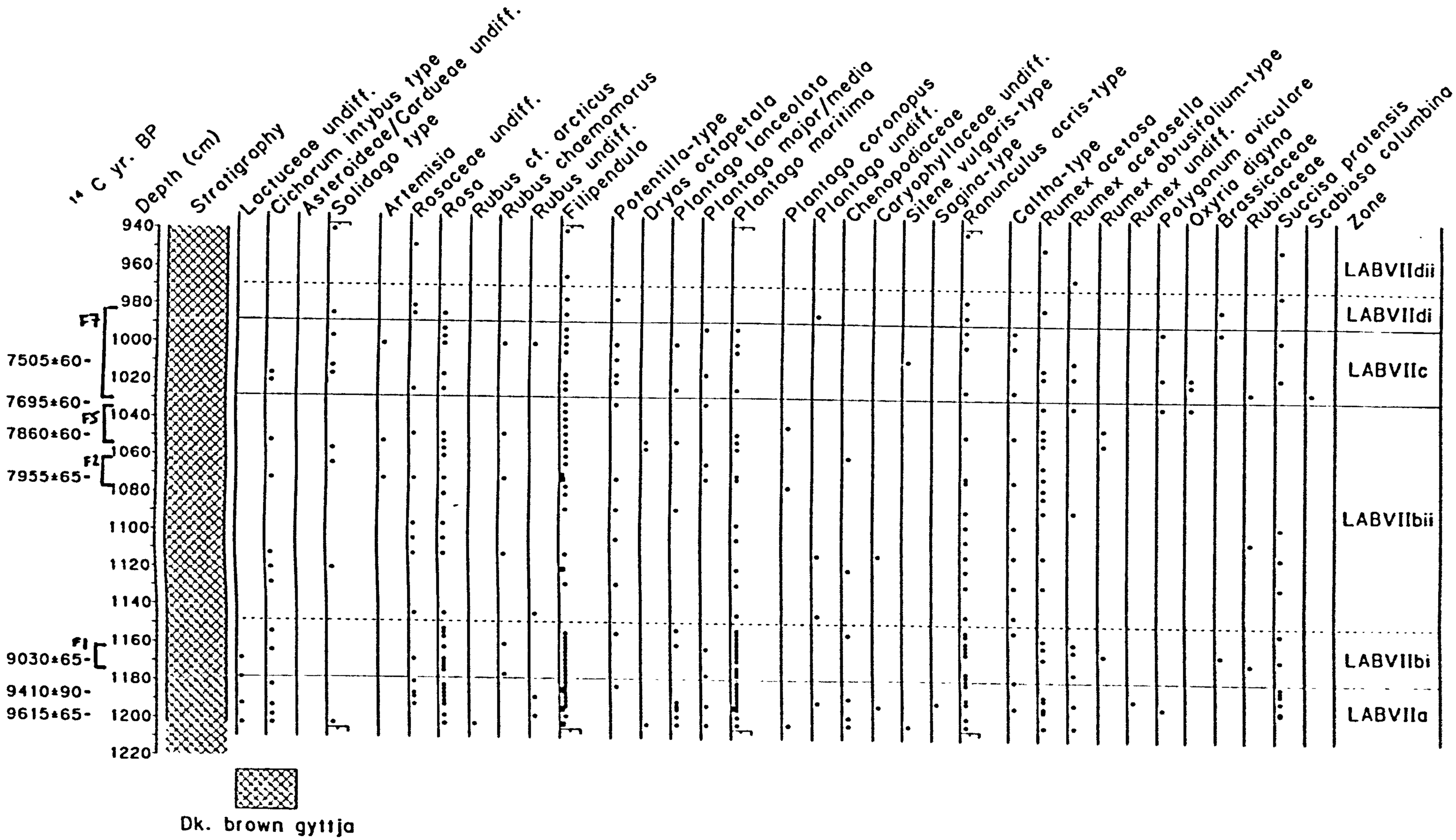
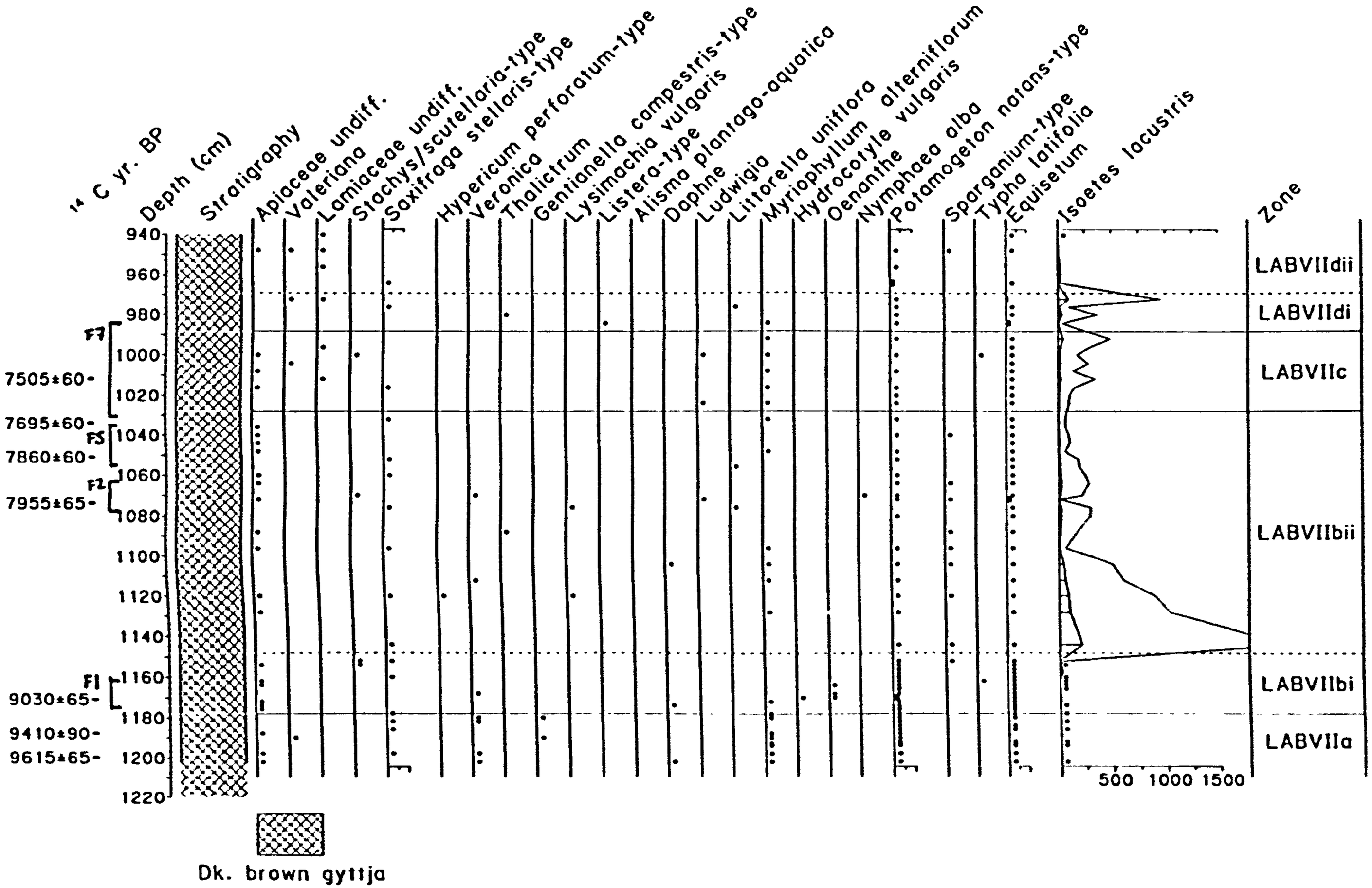


Figure 3.10 continued



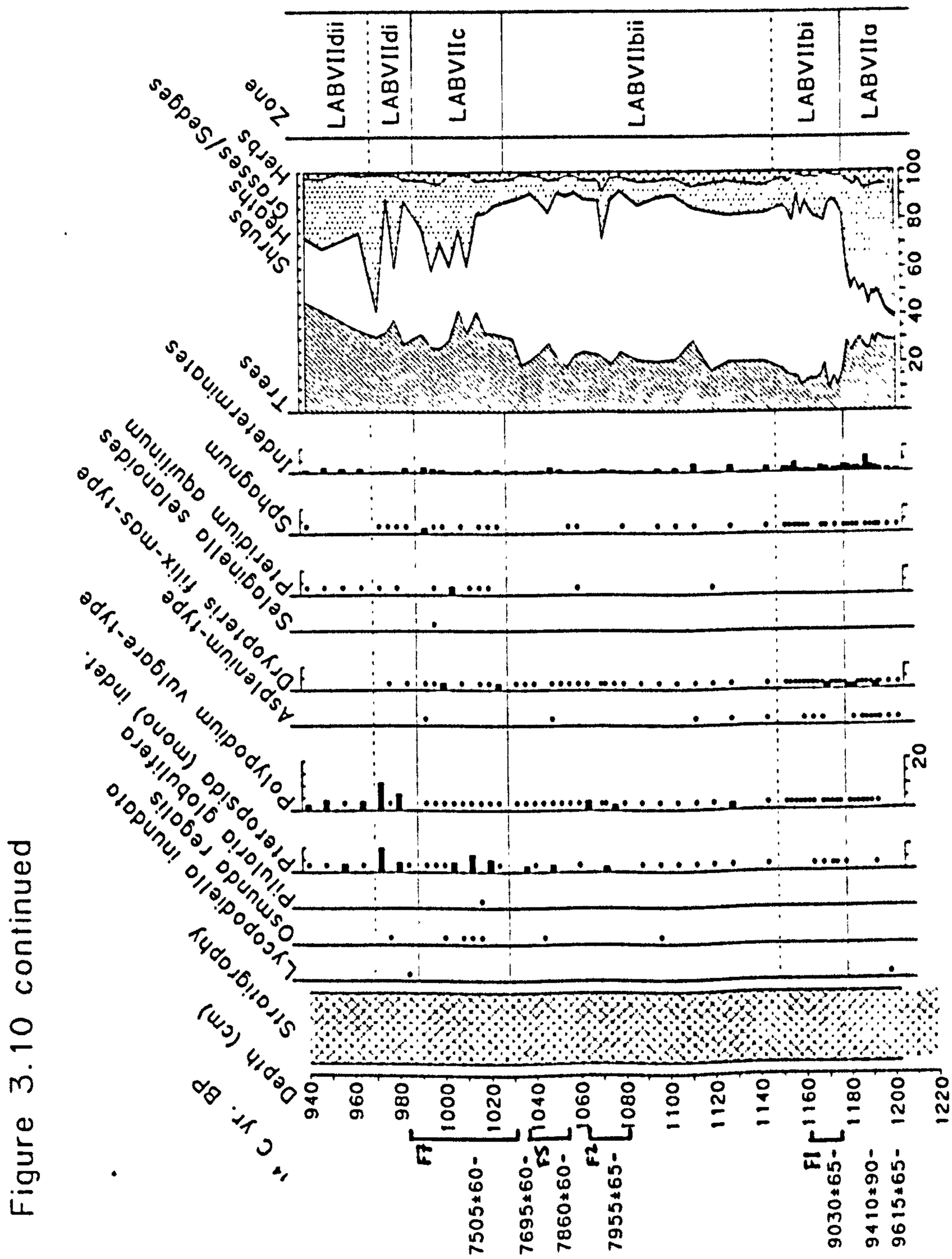


Figure 3.10 continued

Figure 3.11 Pollen and spore percentage diagram for LABVIII
(Circle symbol = < 2% TLP; unshaded exaggeration curves = x10)

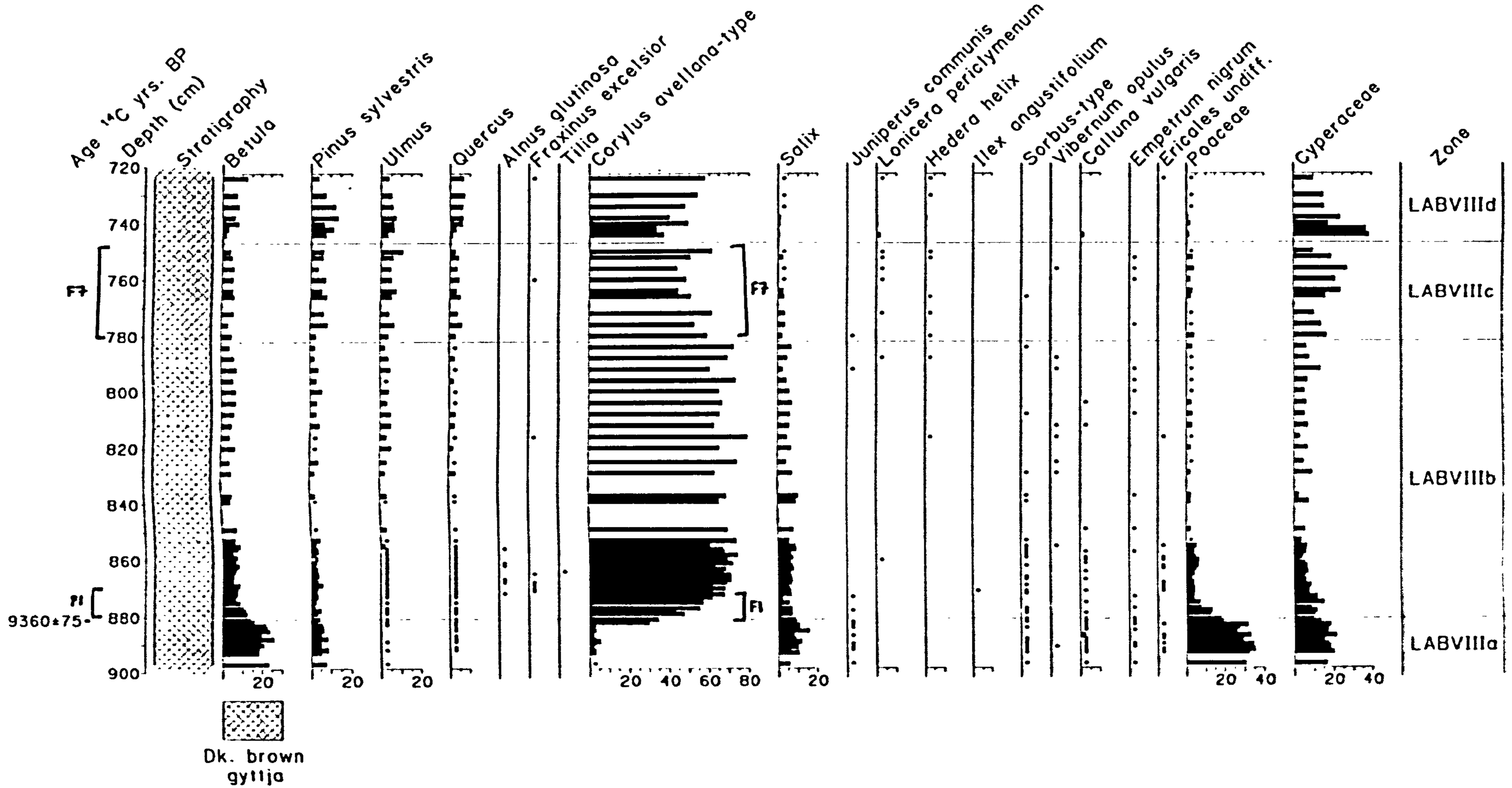


Figure 3.11 continued

Figure 3.11 continued

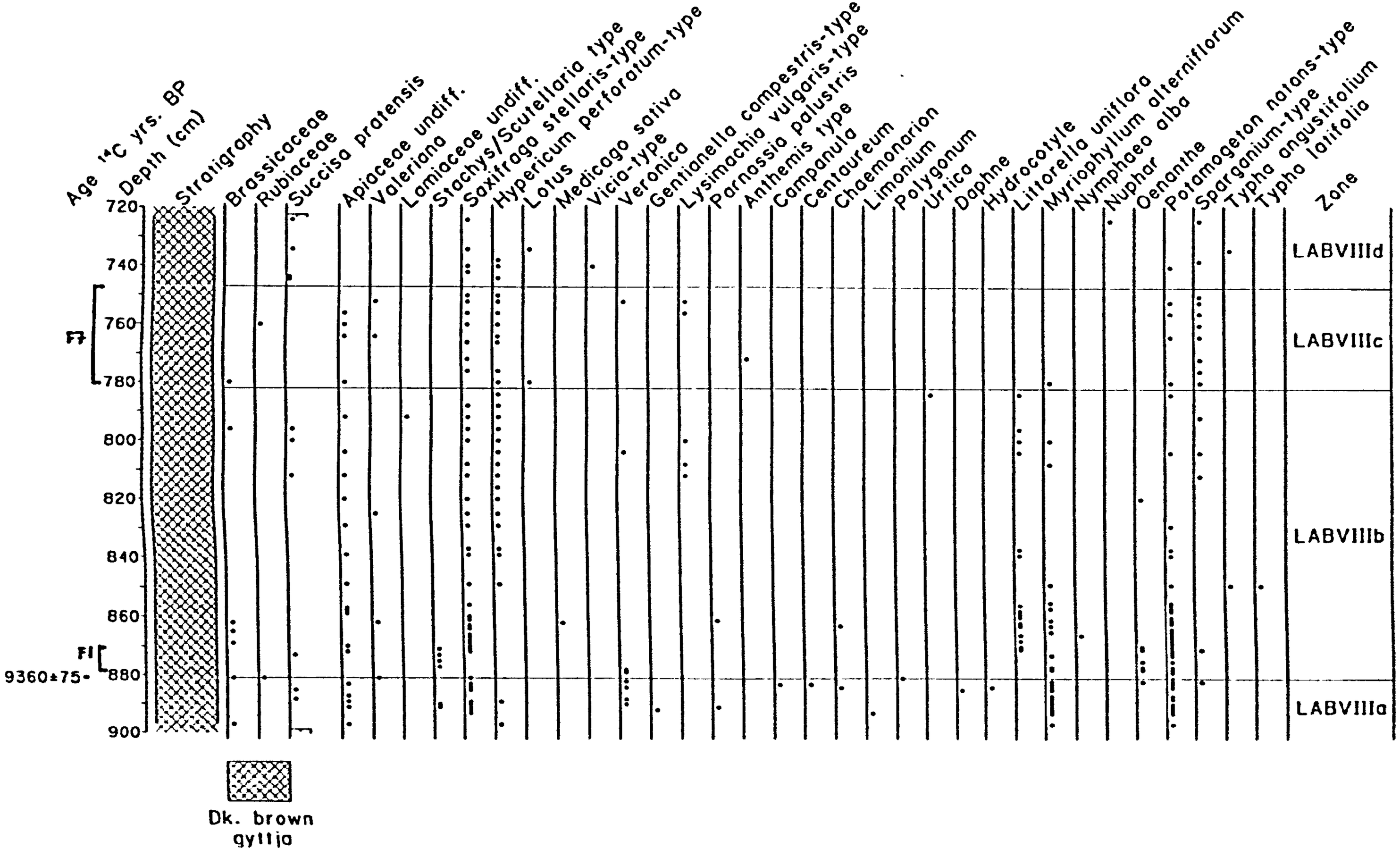


Figure 3.11 continued

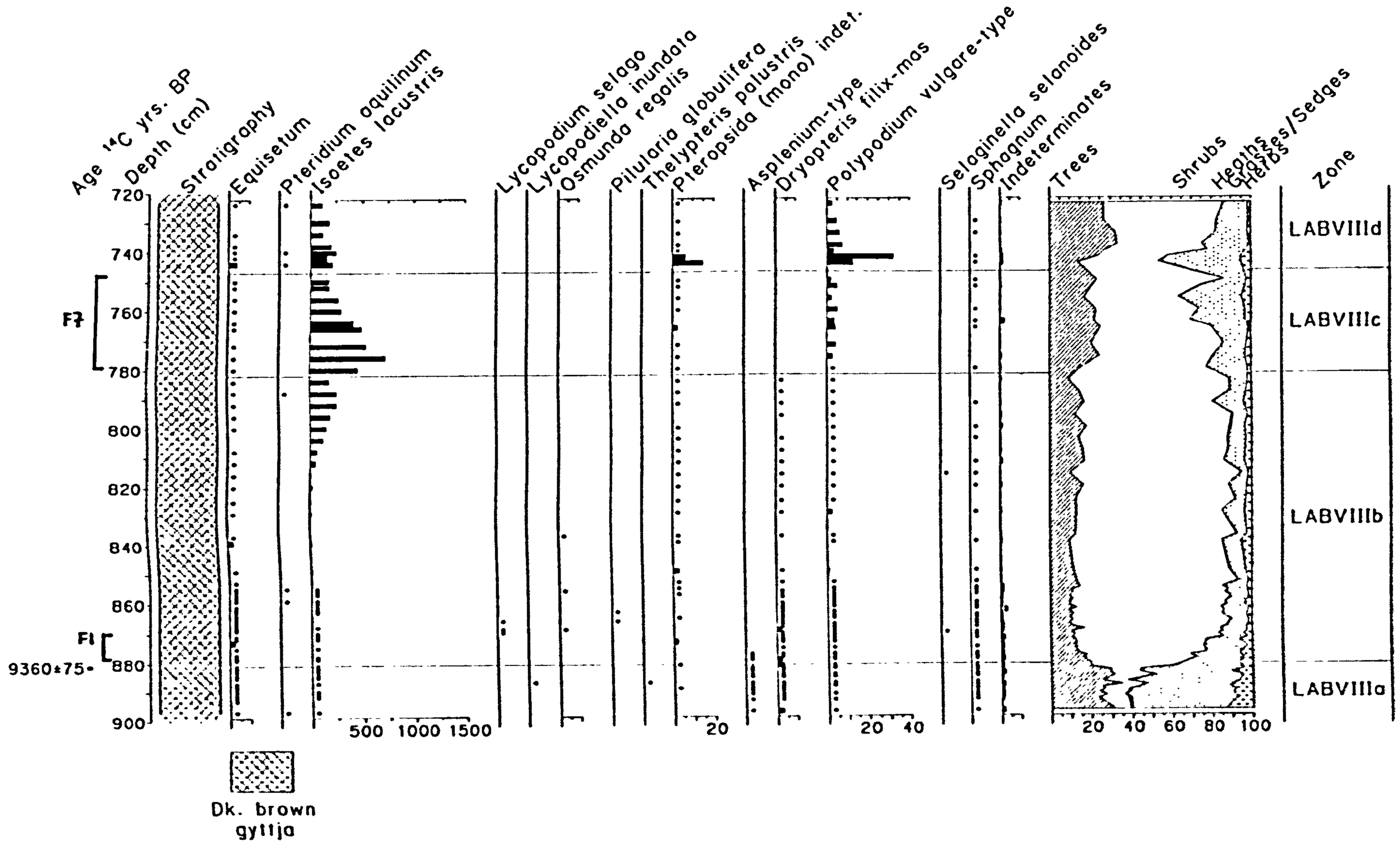


Figure 3.12 Summary diagram of LOI, charcoal, TLP concentration and influx and sediment accumulation from LABI
(Charcoal 1 = original Edwards and Berridge (1994); charcoal 2 = new)
(Exaggeration curves = x10)

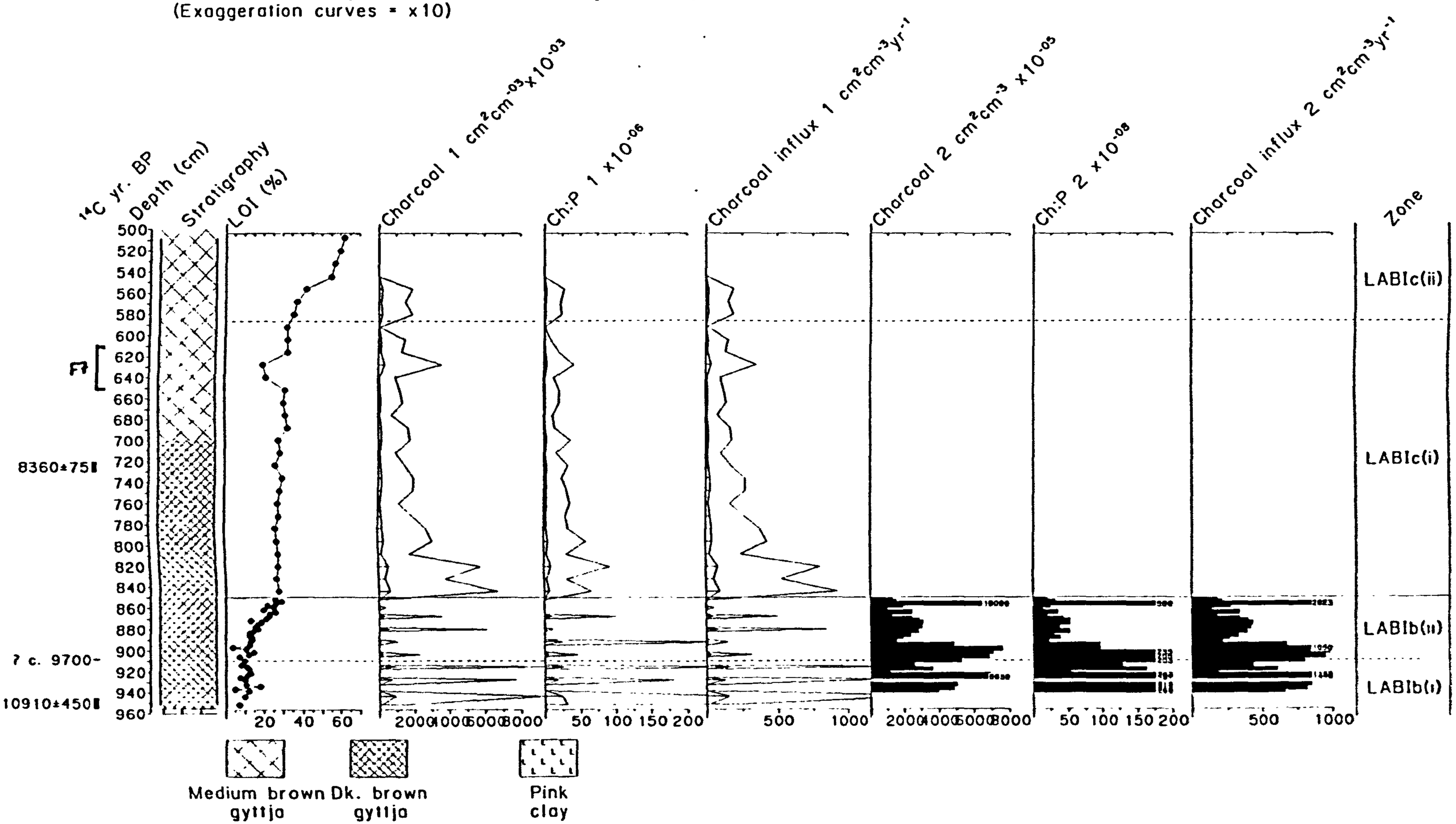


Figure 3.12 continued

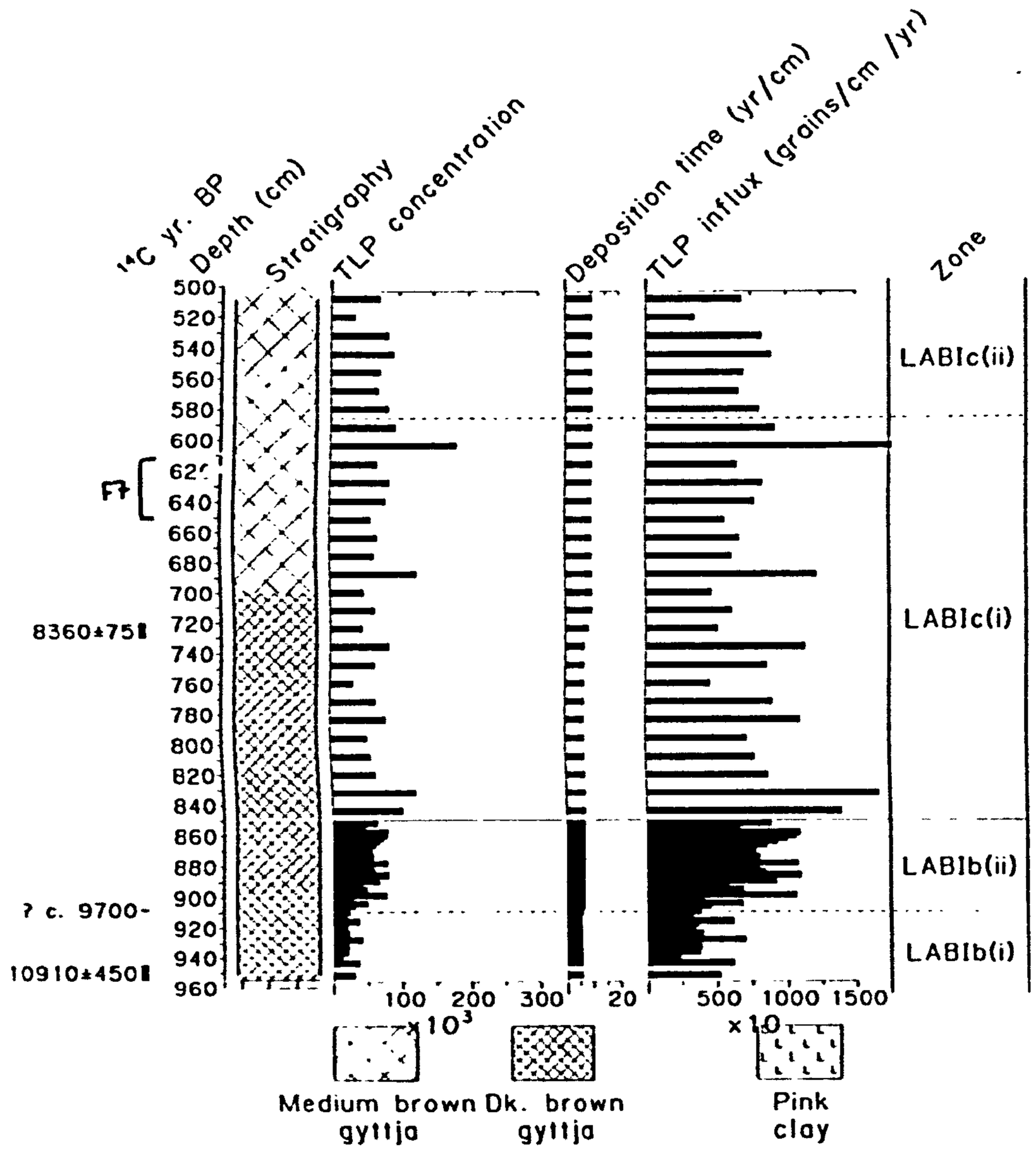


Figure 3.13 Summary diagram of LOI, charcoal and TLP concent LABII.
(Unshaded exaggeration curves = x10)

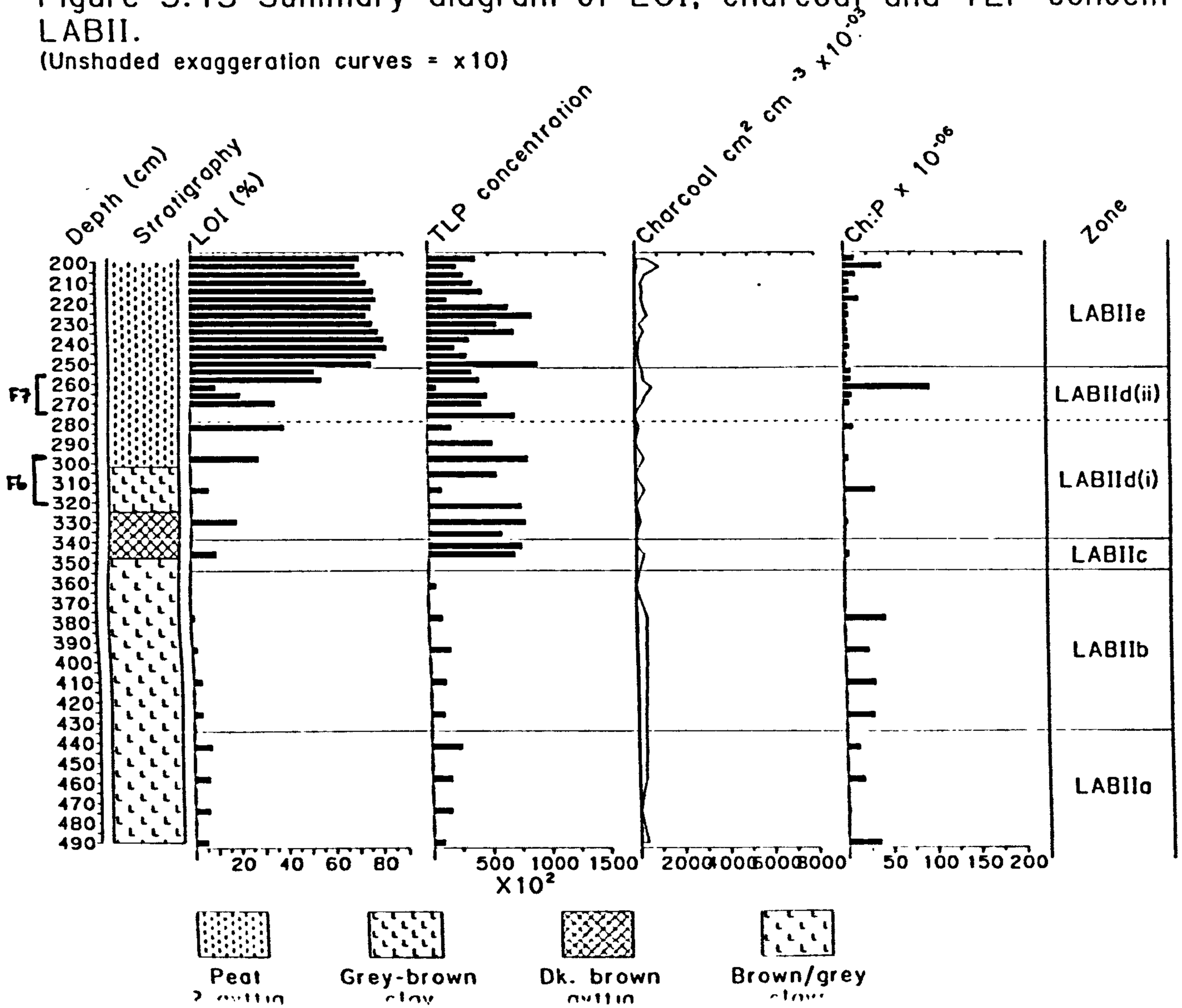


Figure 3.14 Summary diagram of LOI, microscopic charcoal, TLP concentration, pollen influx and damaged pollen for LABIII
(Unshaded exaggeration curves = x10; Two sets of influx rates based on two sets of dates used. Refer to text)

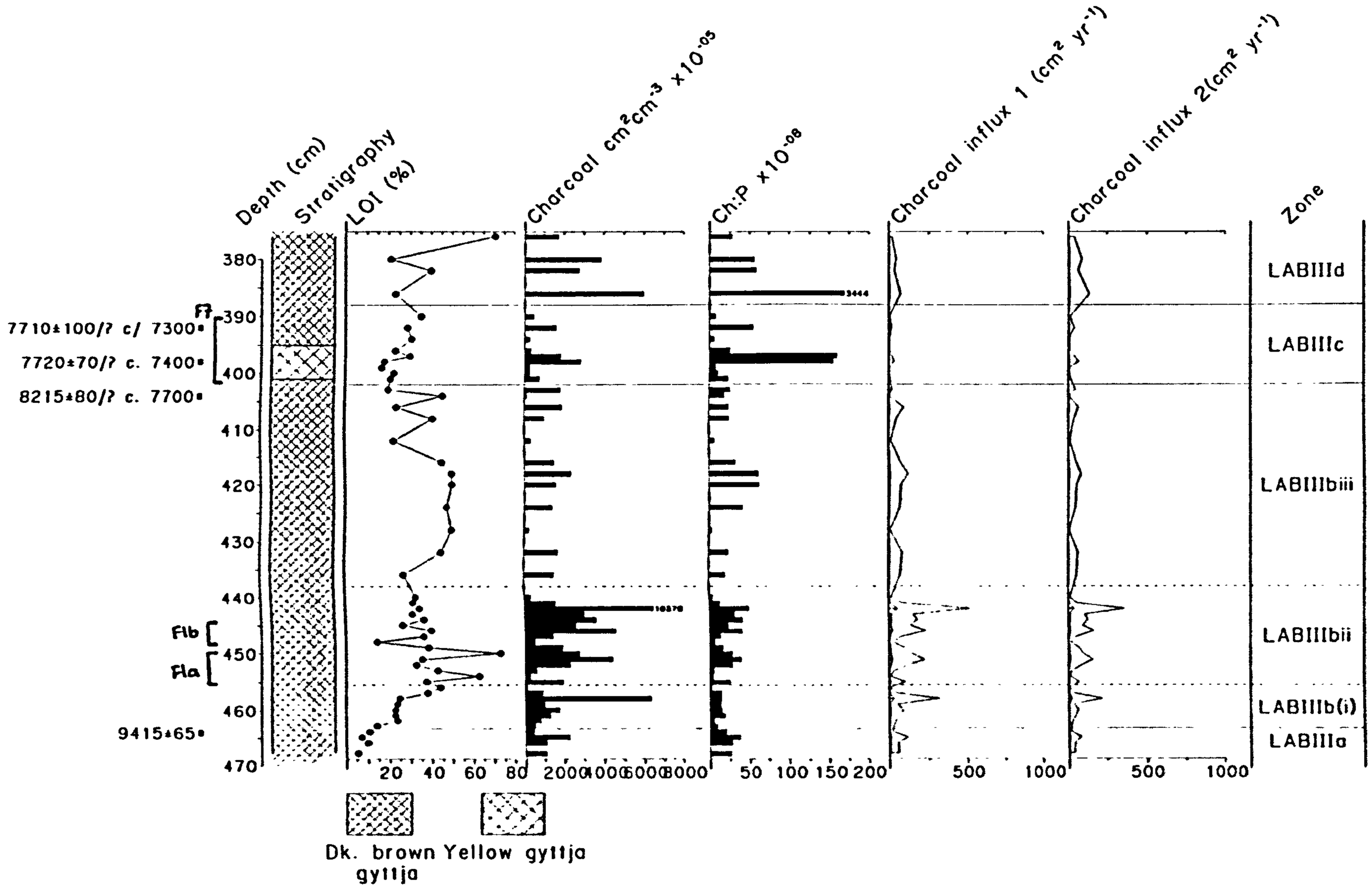


Figure 3.14 continued

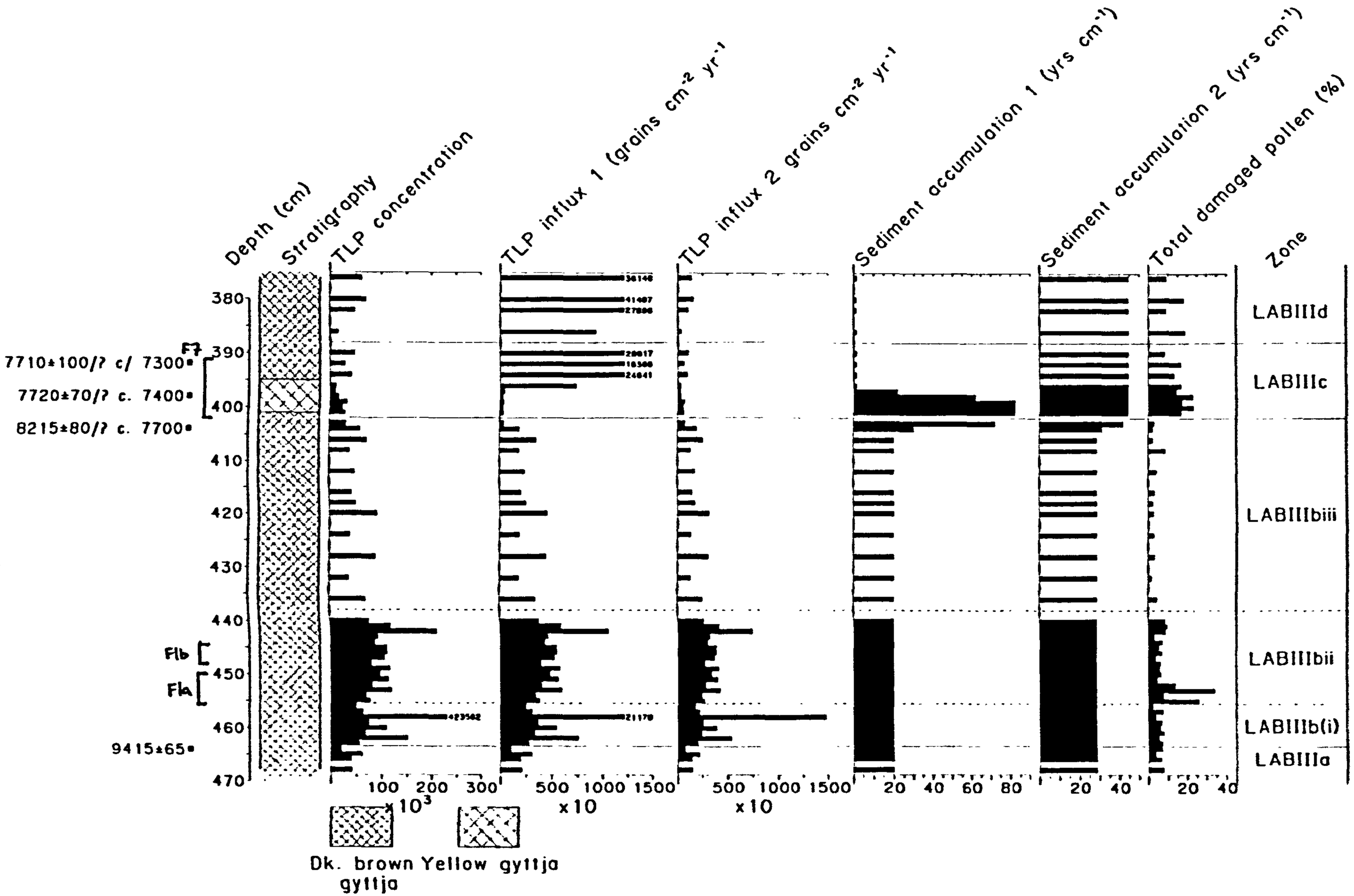


Figure 3.15 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and total damaged pollen (%) for LABIV

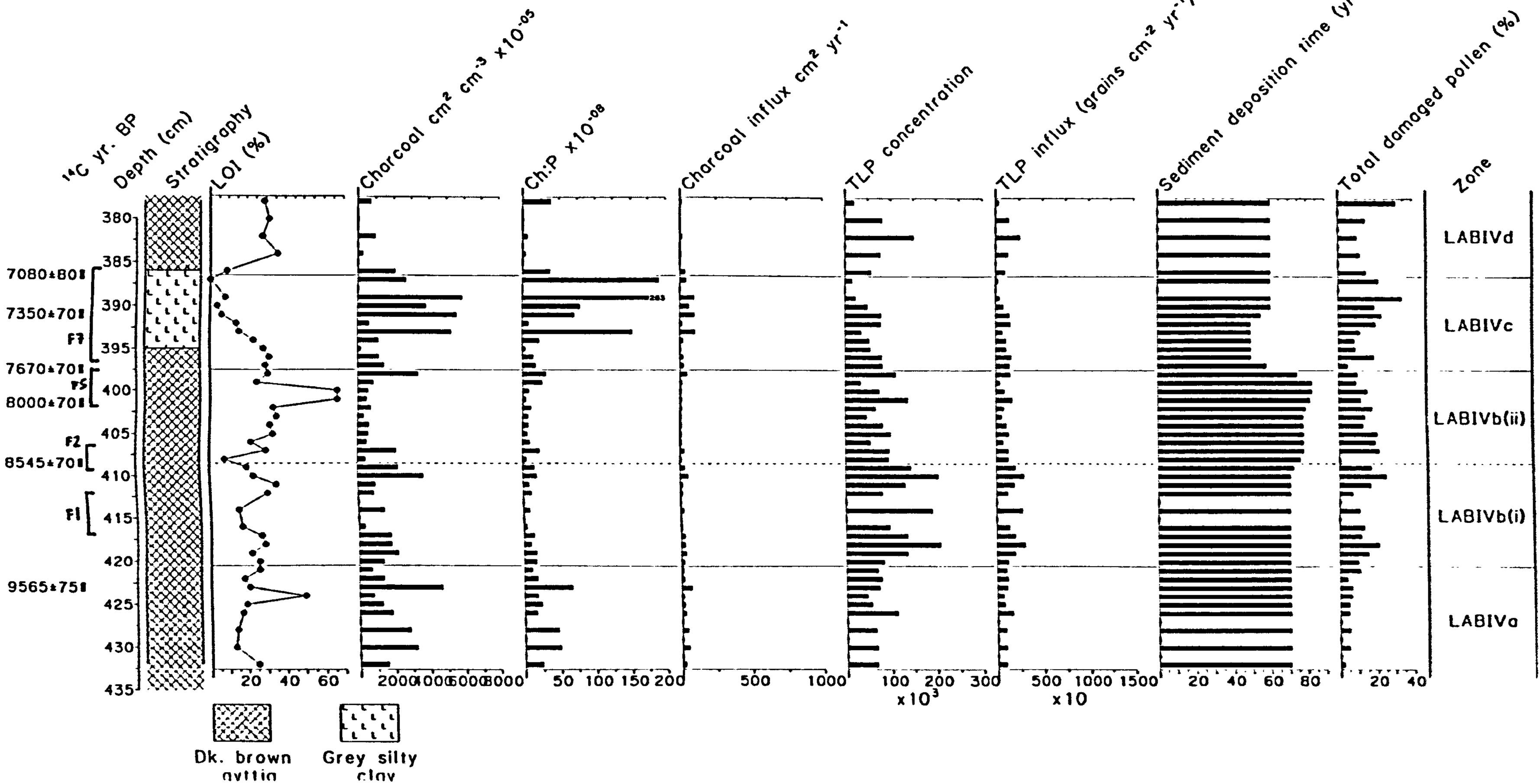


Figure 3.16 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and total damaged pollen (%) for LABV

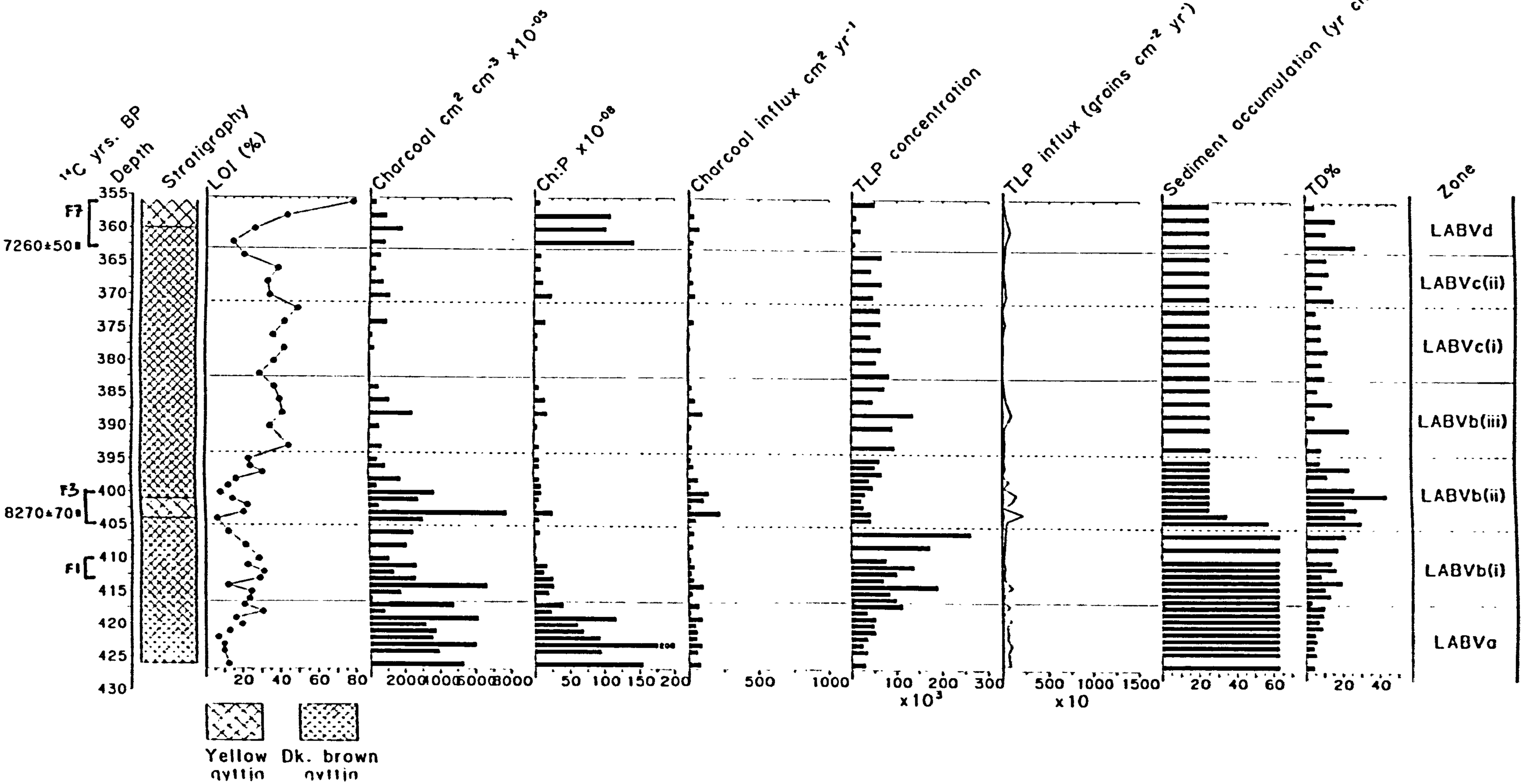


Figure 3.17 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and total damaged pollen (%) for LABVI

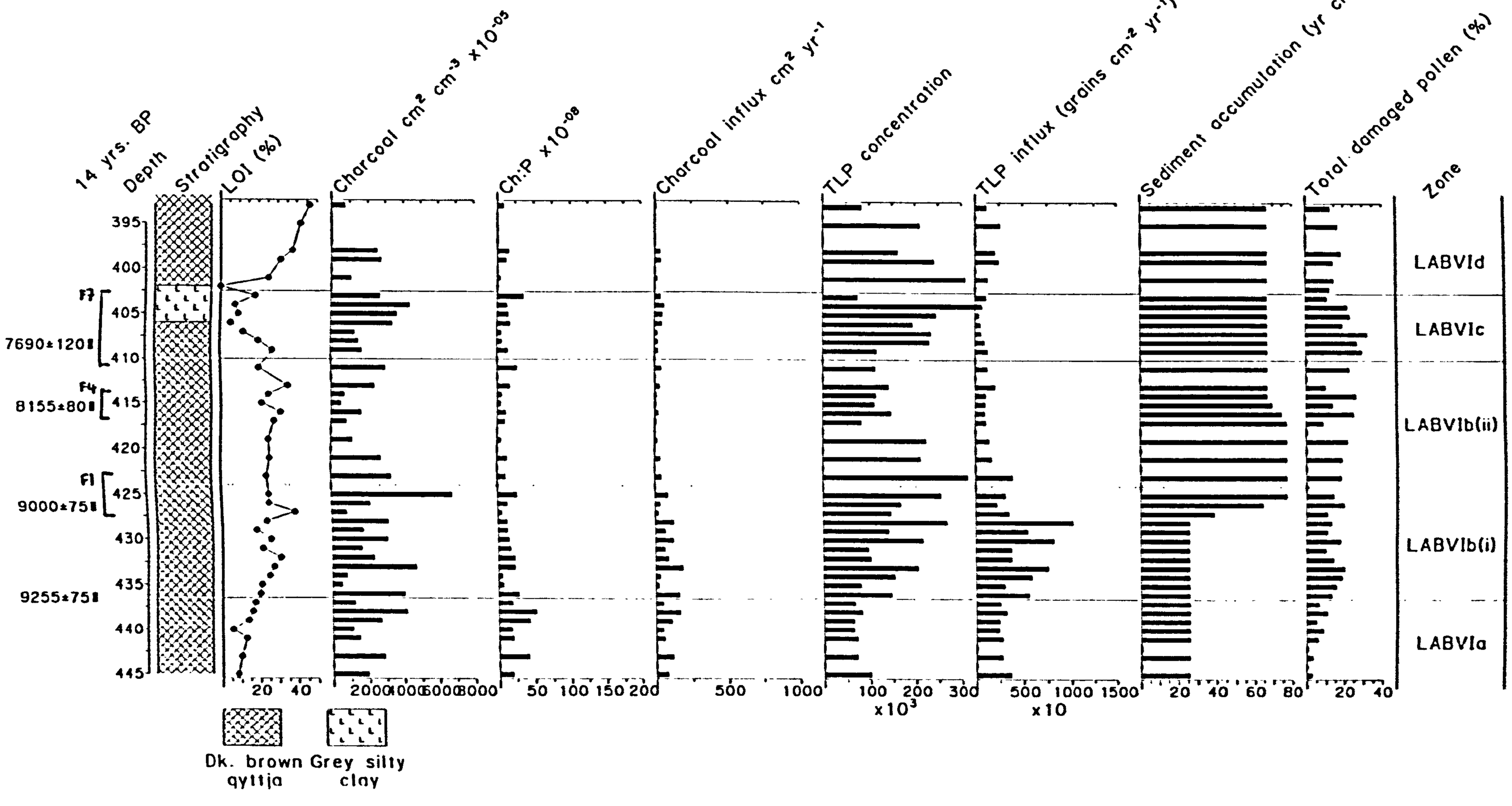


Figure 3.18 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and total damaged pollen for LABVII

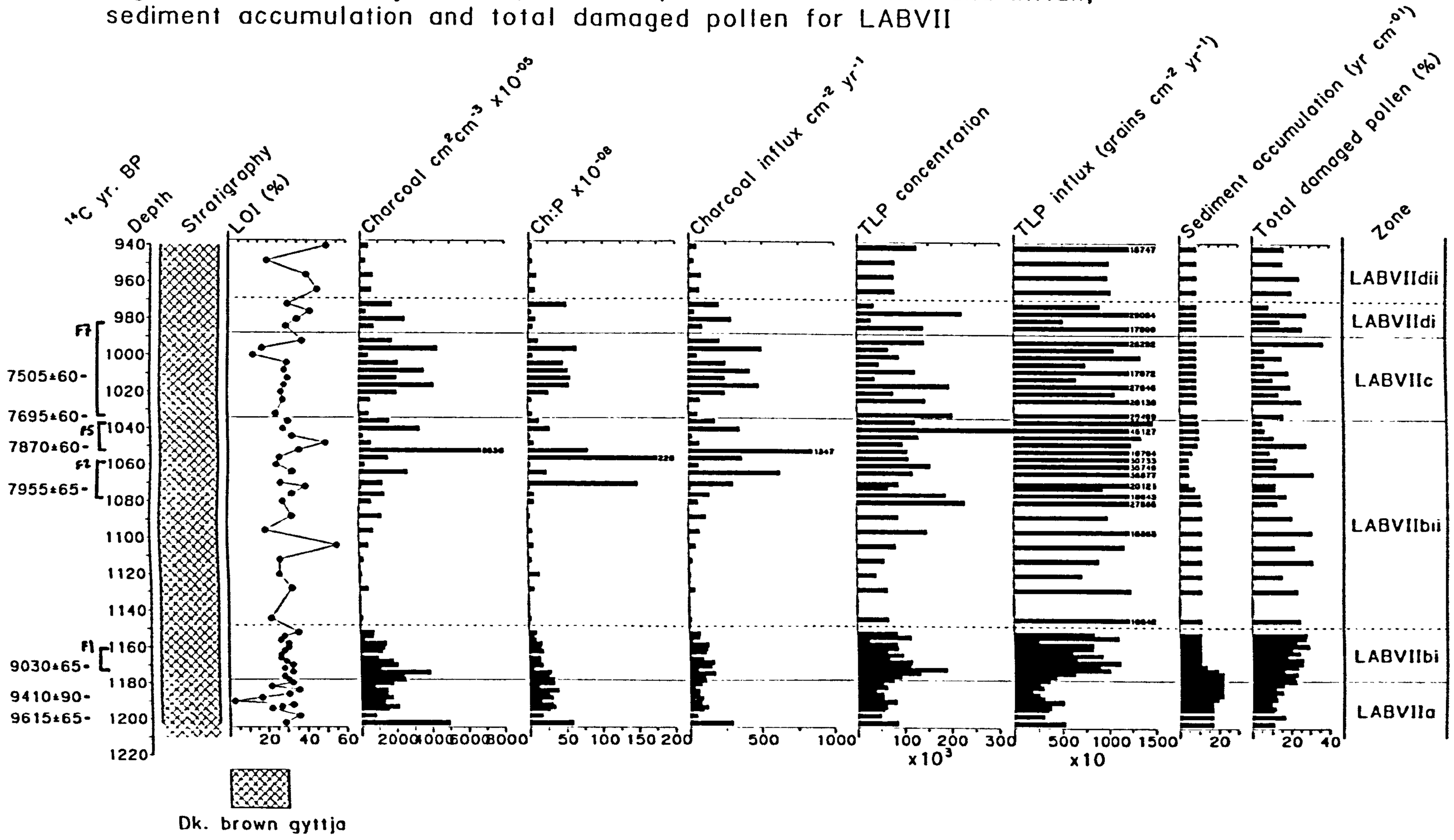


Figure 3.19 Summary of LOI, microscopic charcoal, TLP concentration and influx, sediment accumulation rate and total damaged pollen percentages for LABVIII

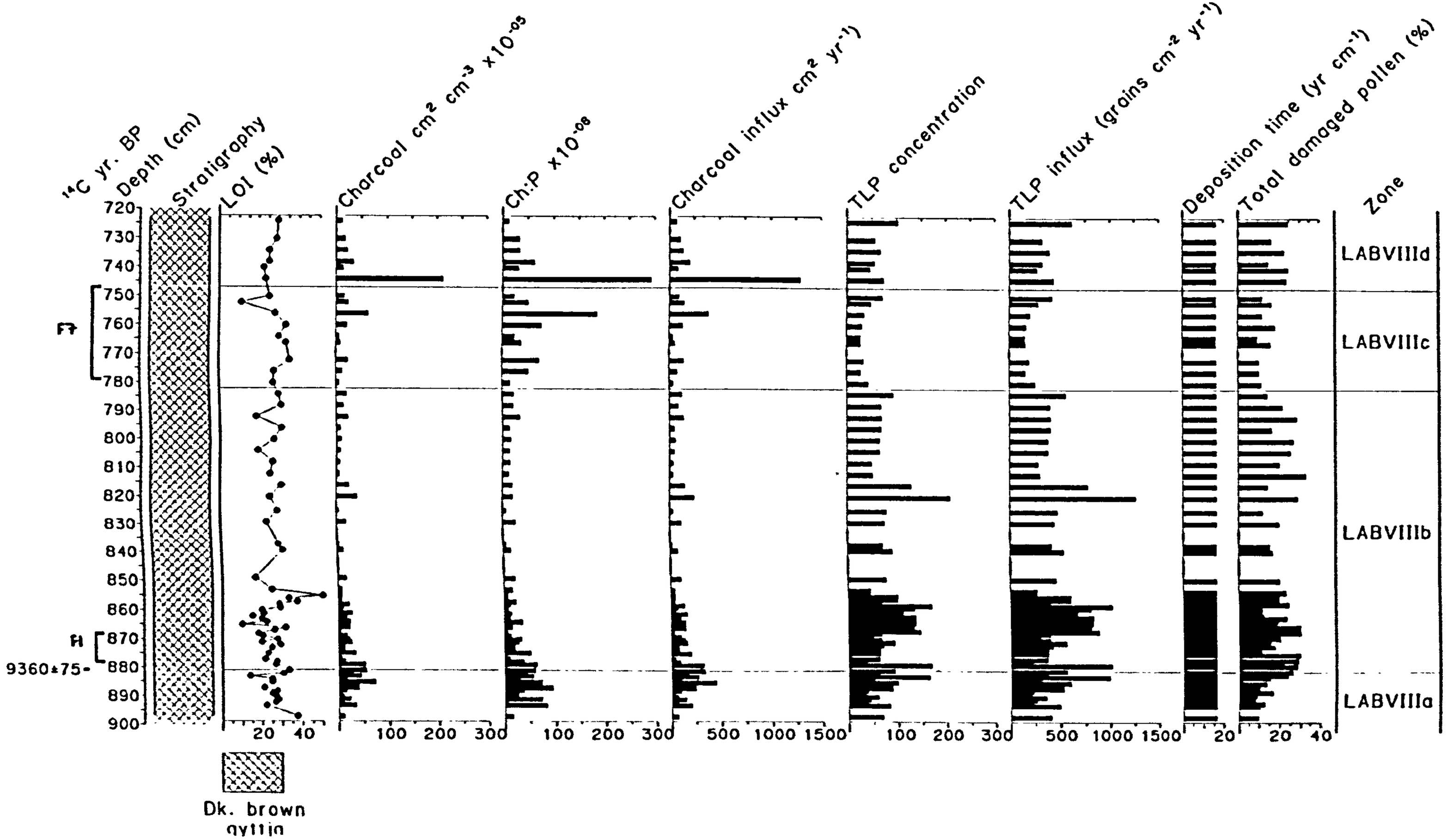
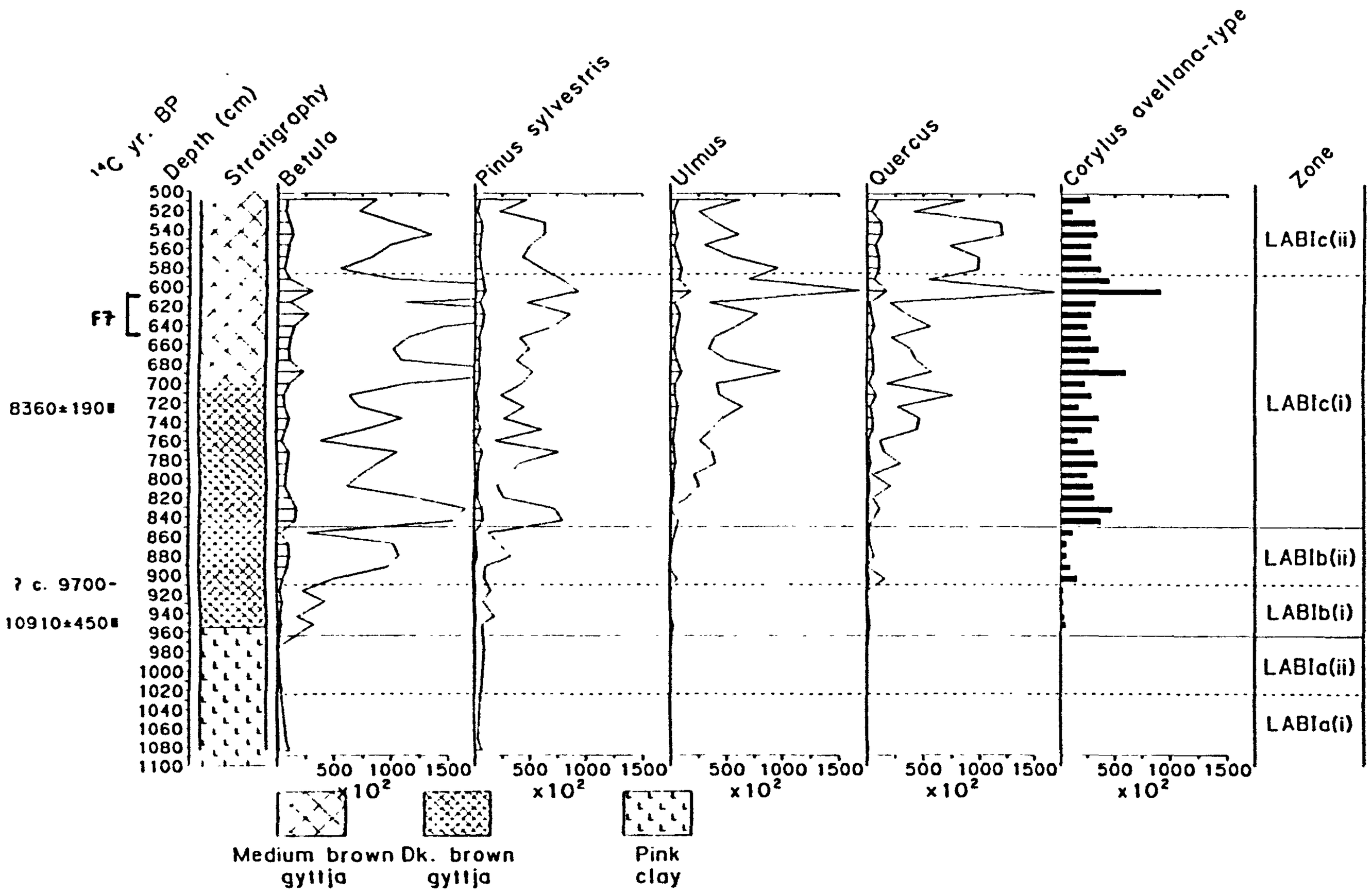


Figure 3.20 Pollen and spore concentrations of selected taxa from LABI (Unshaded exaggeration curves = x10)



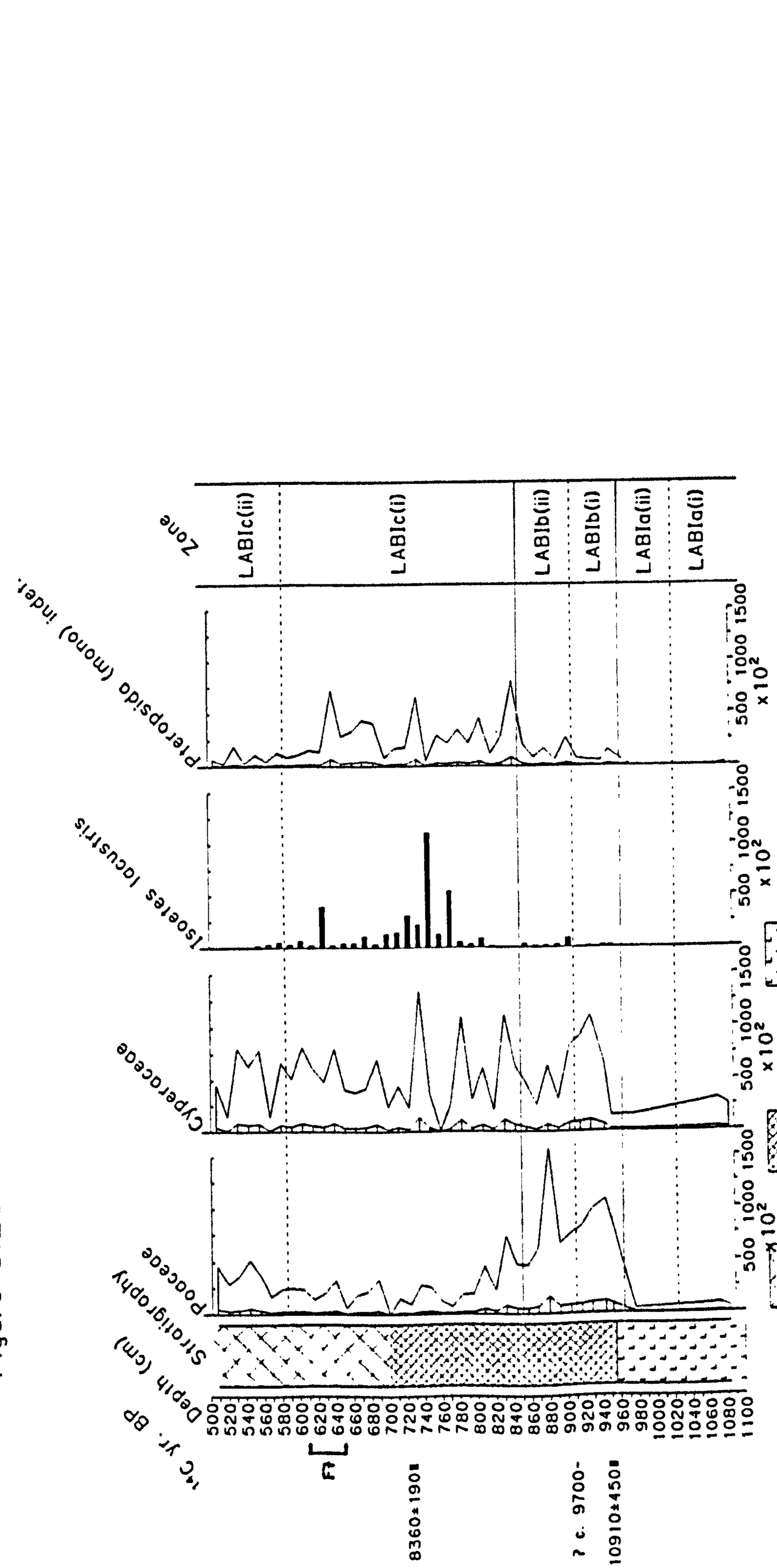


Figure 3.20 continued

Figure 3.21 Pollen and spore concentration diagram of selected taxa from LABII
(Unshaded exaggeration curves= x10)

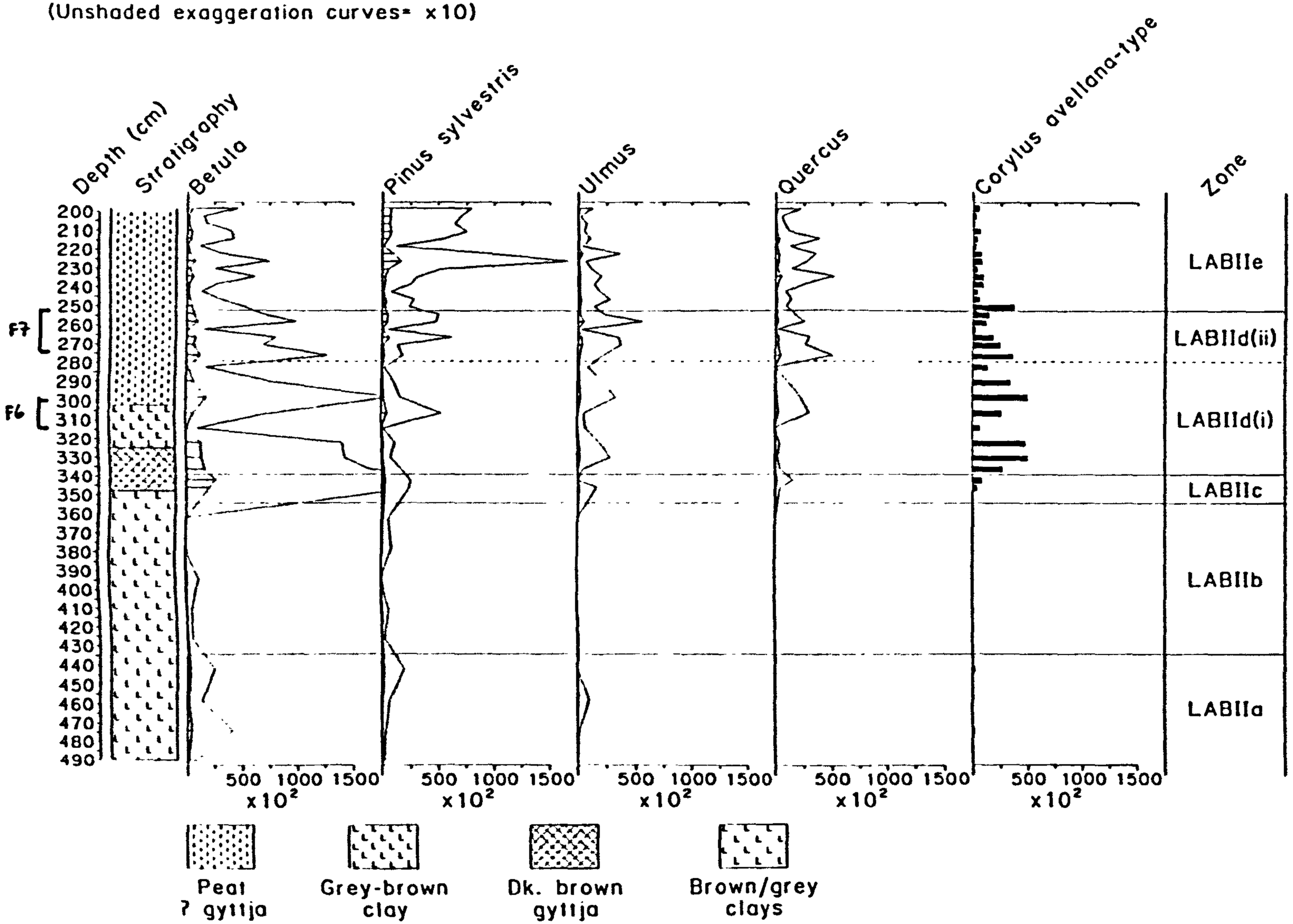


Figure 3.21 continued

Figure 3.22 Pollen and spore concentration diagram of selected taxa from LABIII
(Unshaded exaggeration curves = x10)

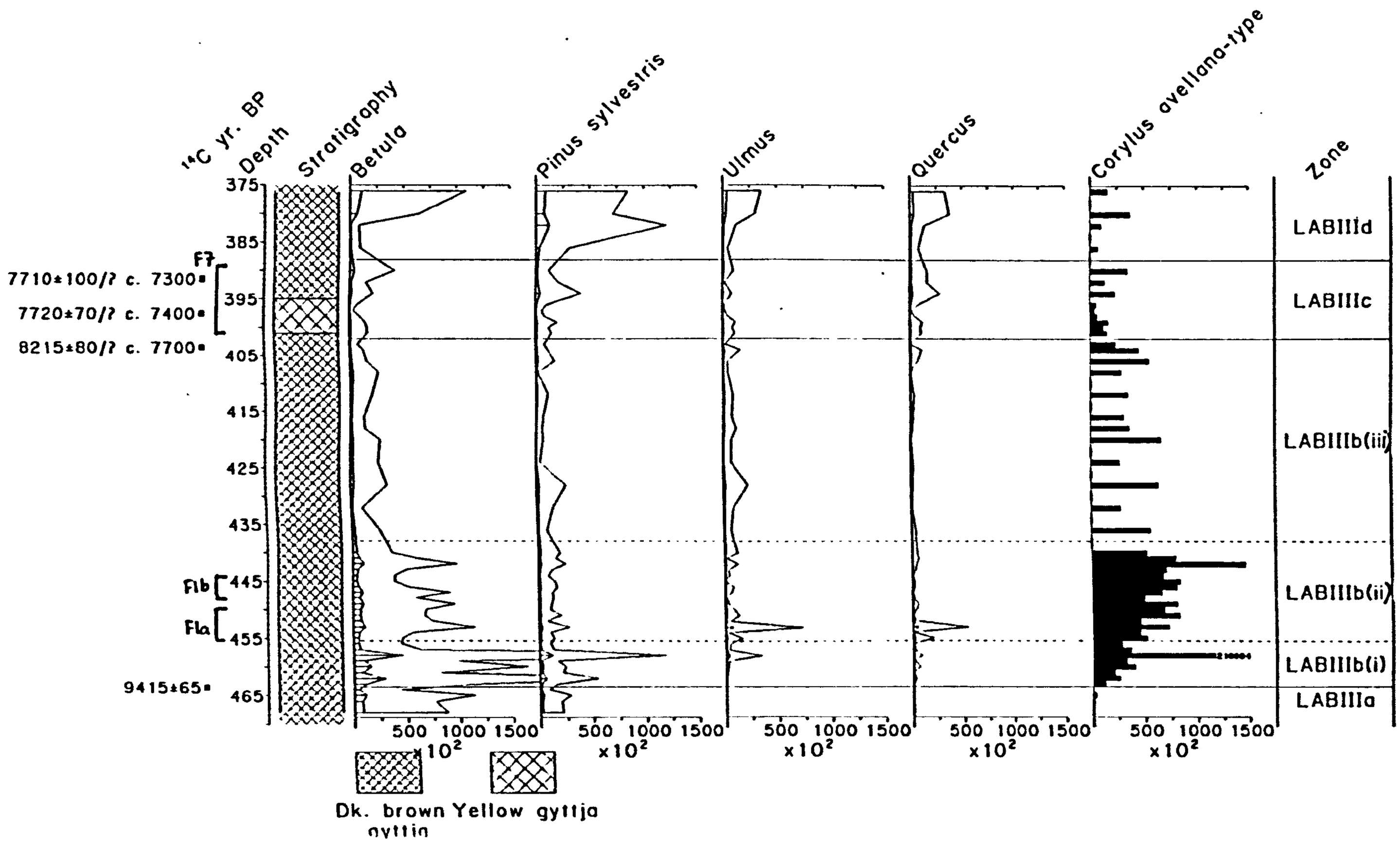


Figure 3.22 continued

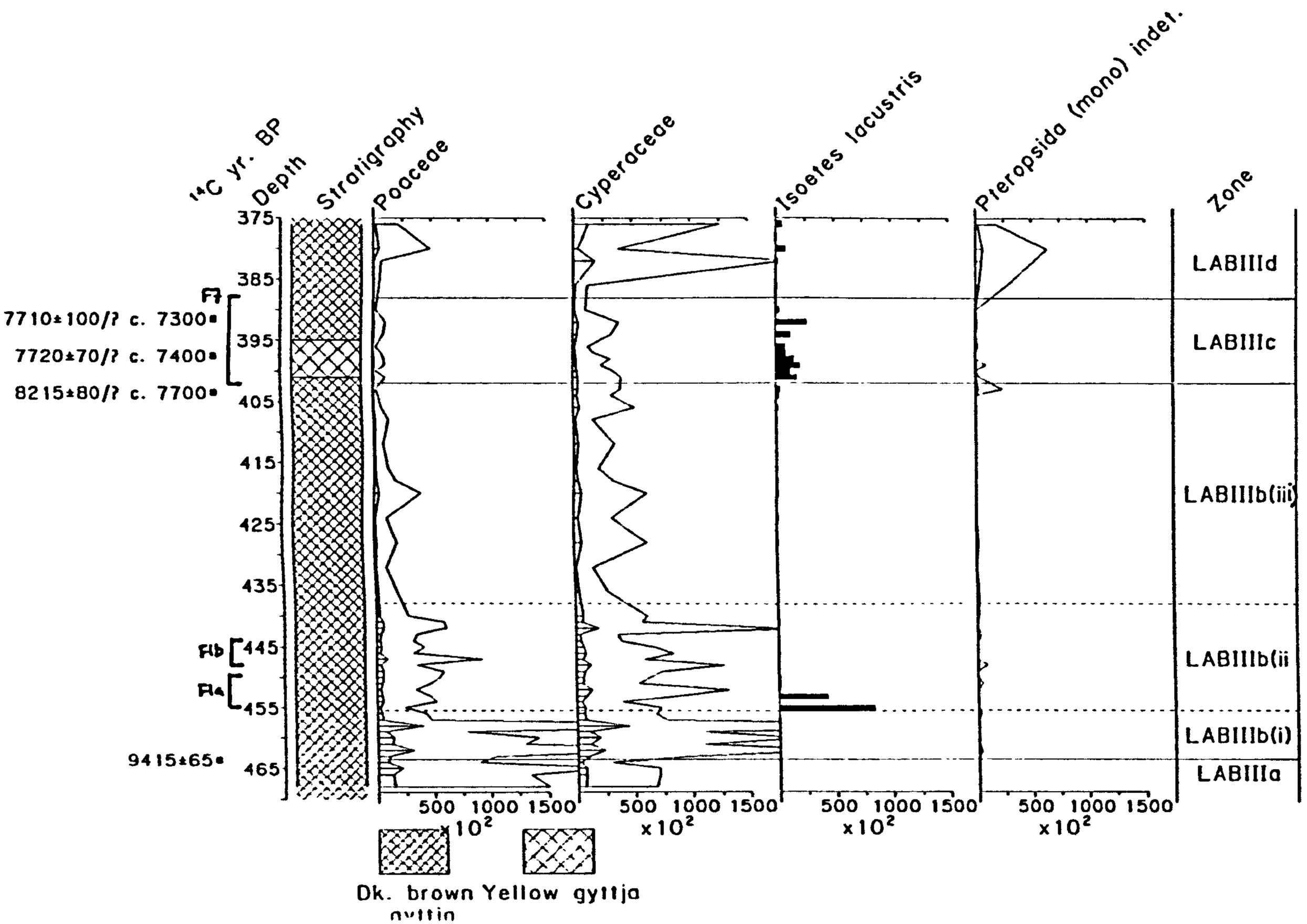
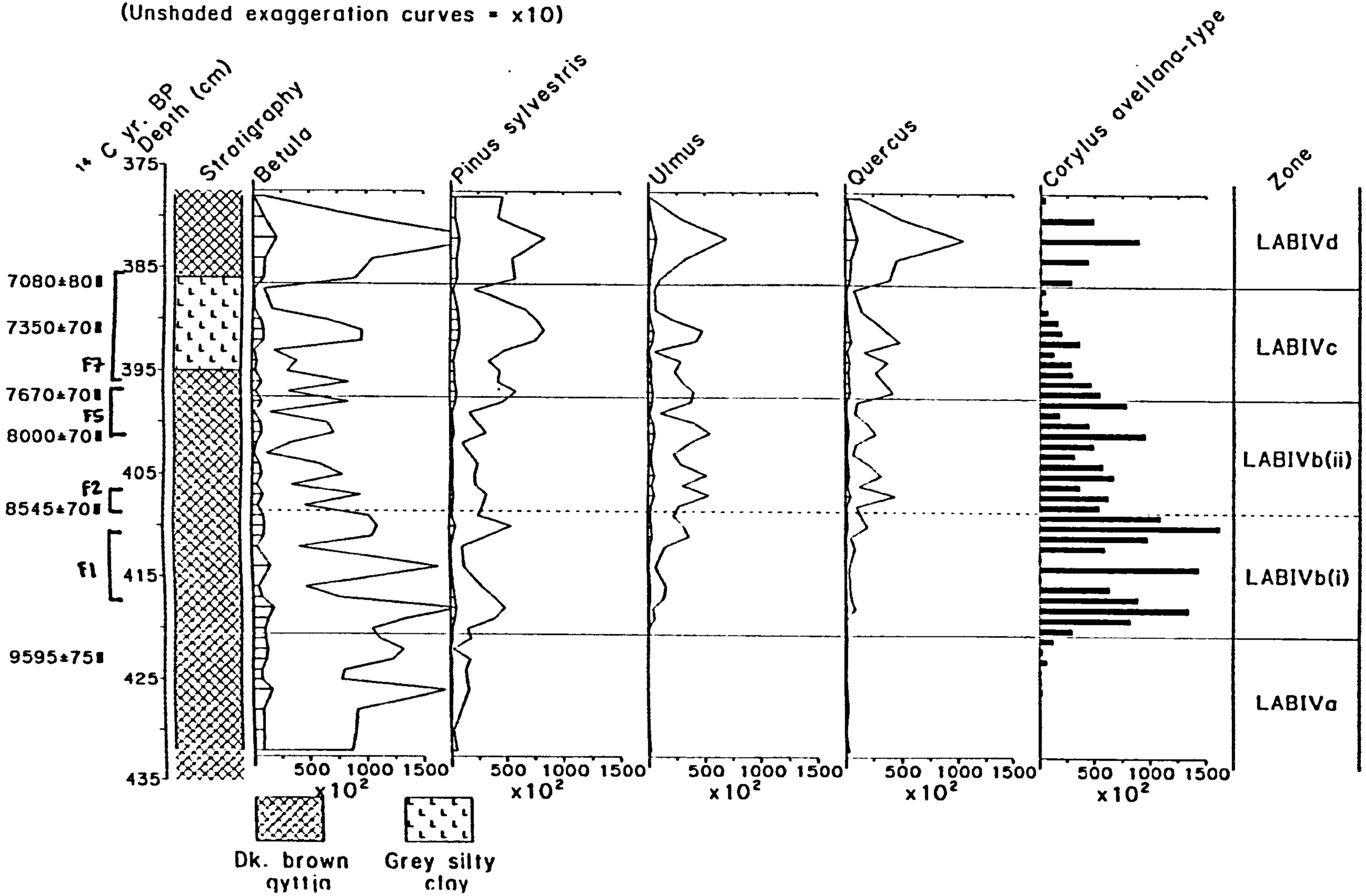


Figure 3.23 Pollen and spore concentration diagram of selected taxa from LABIV
(Unshaded exaggeration curves = x10)



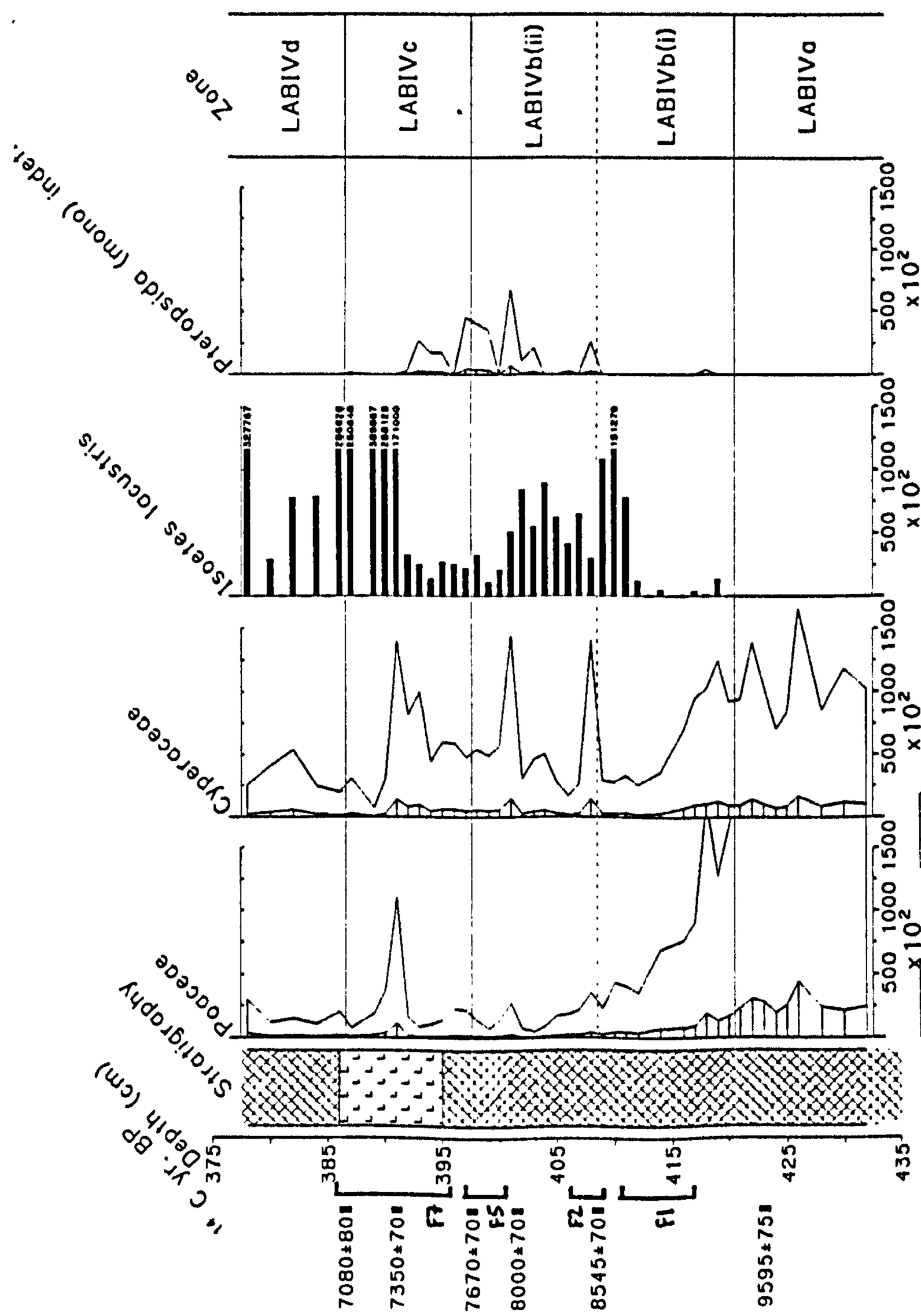


Figure 3.23 continued

Figure 3.24 Pollen and spore concentration diagram of selected taxa from LABV
(Unshaded exaggeration curves = x10)

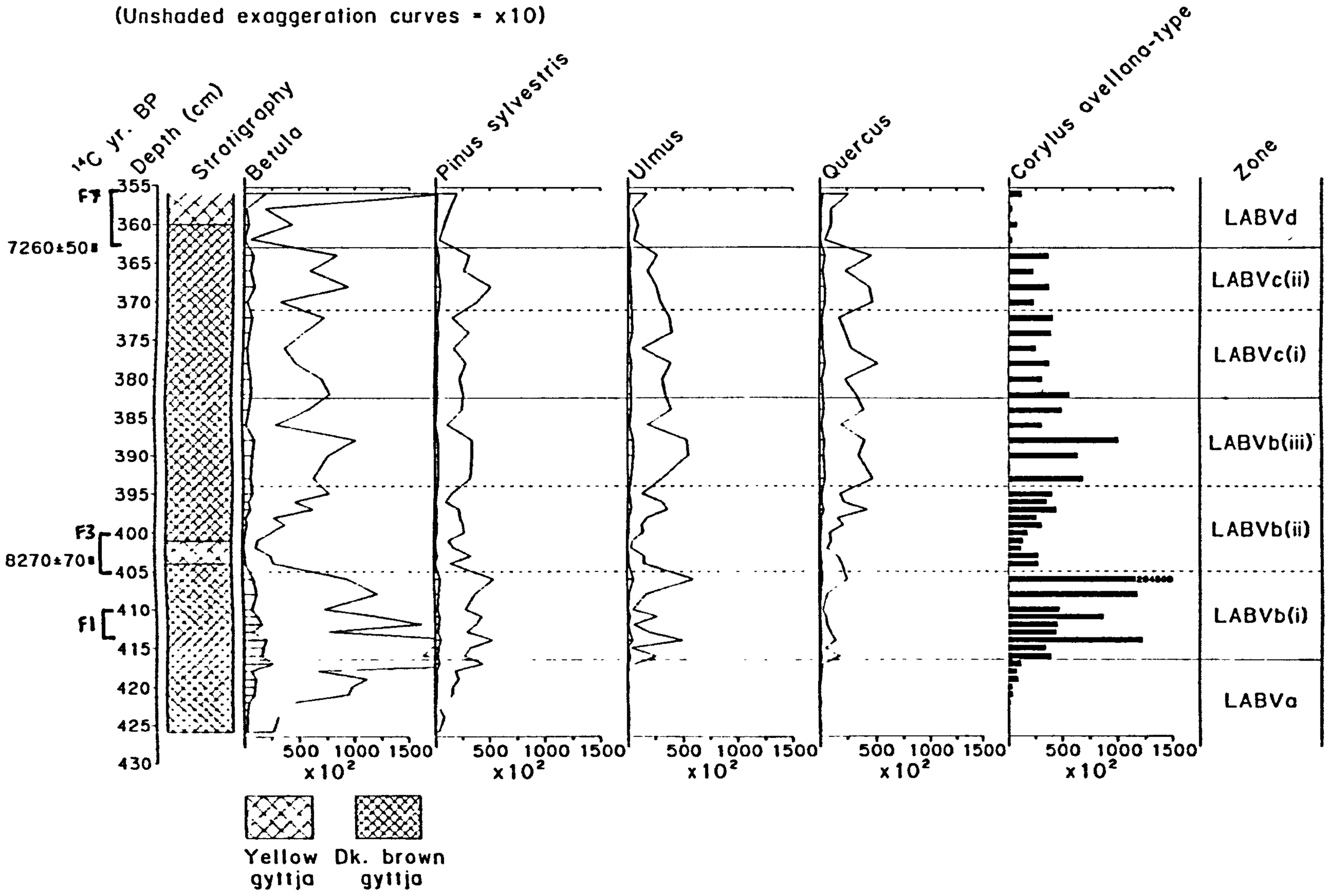


Figure 3.24 continued

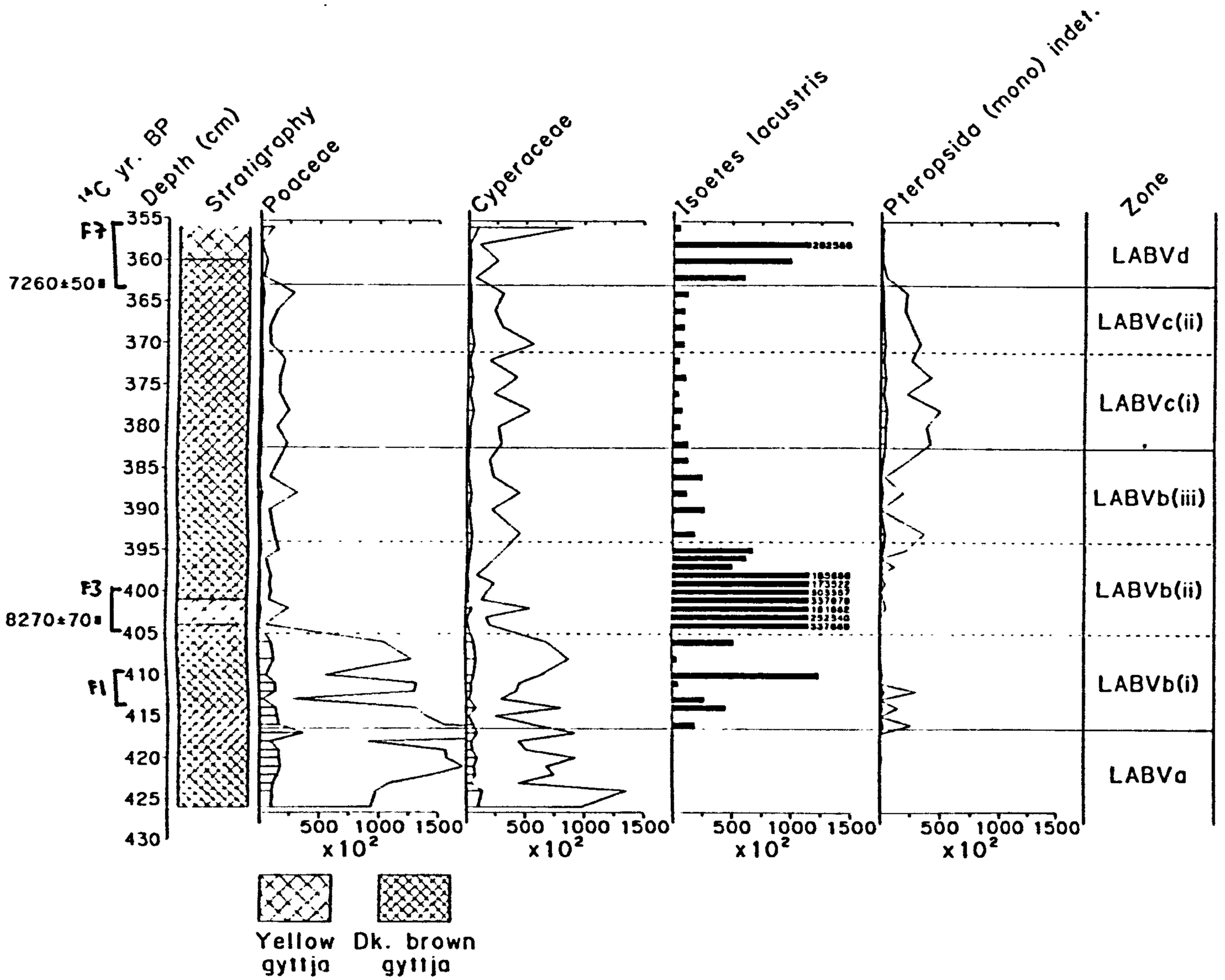


Figure 3.25 Pollen and spore concentration diagram of selected taxa from LABVI
(Unshaded exaggeration curves = x10)

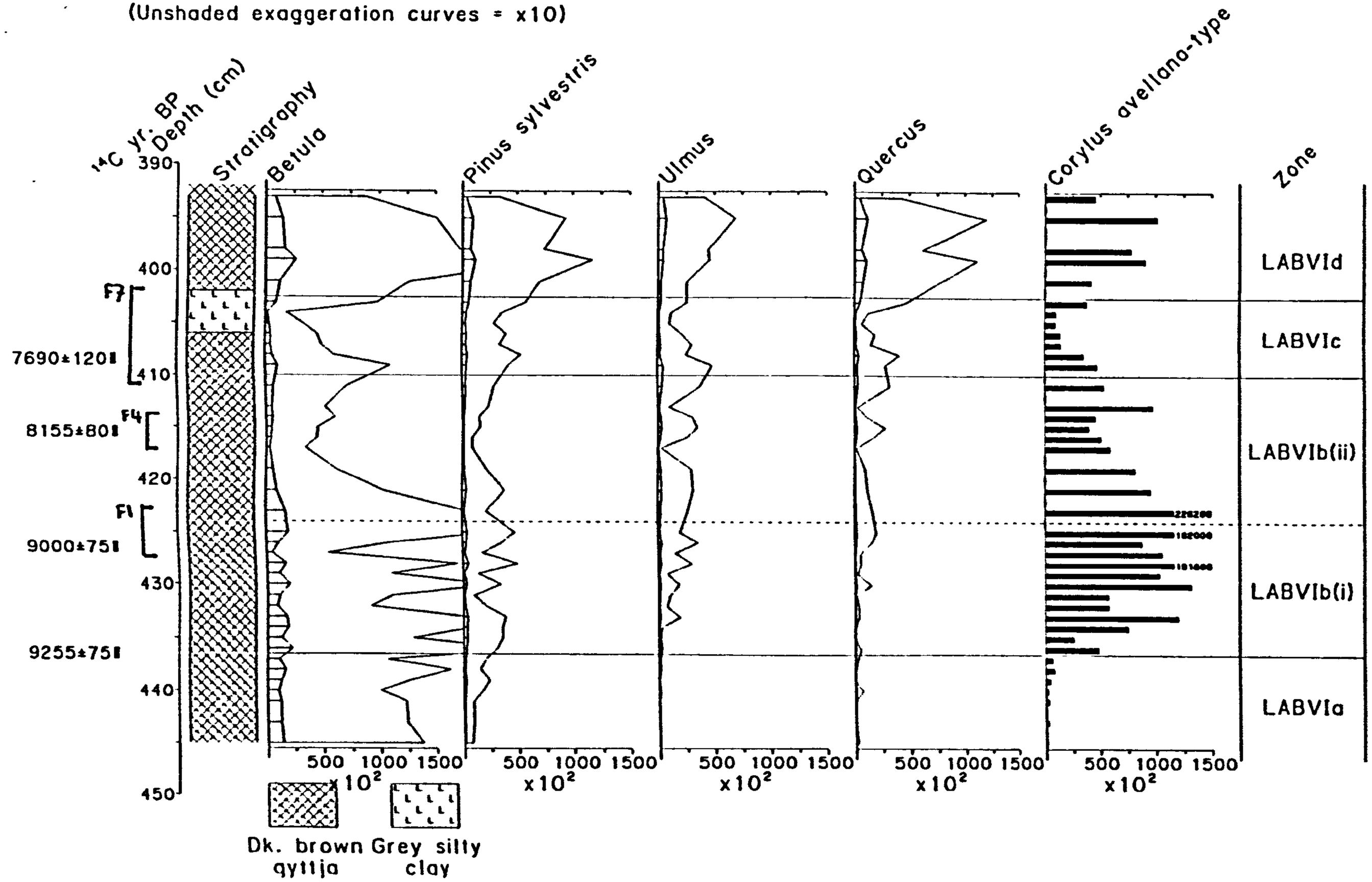


Figure 3.25 continued

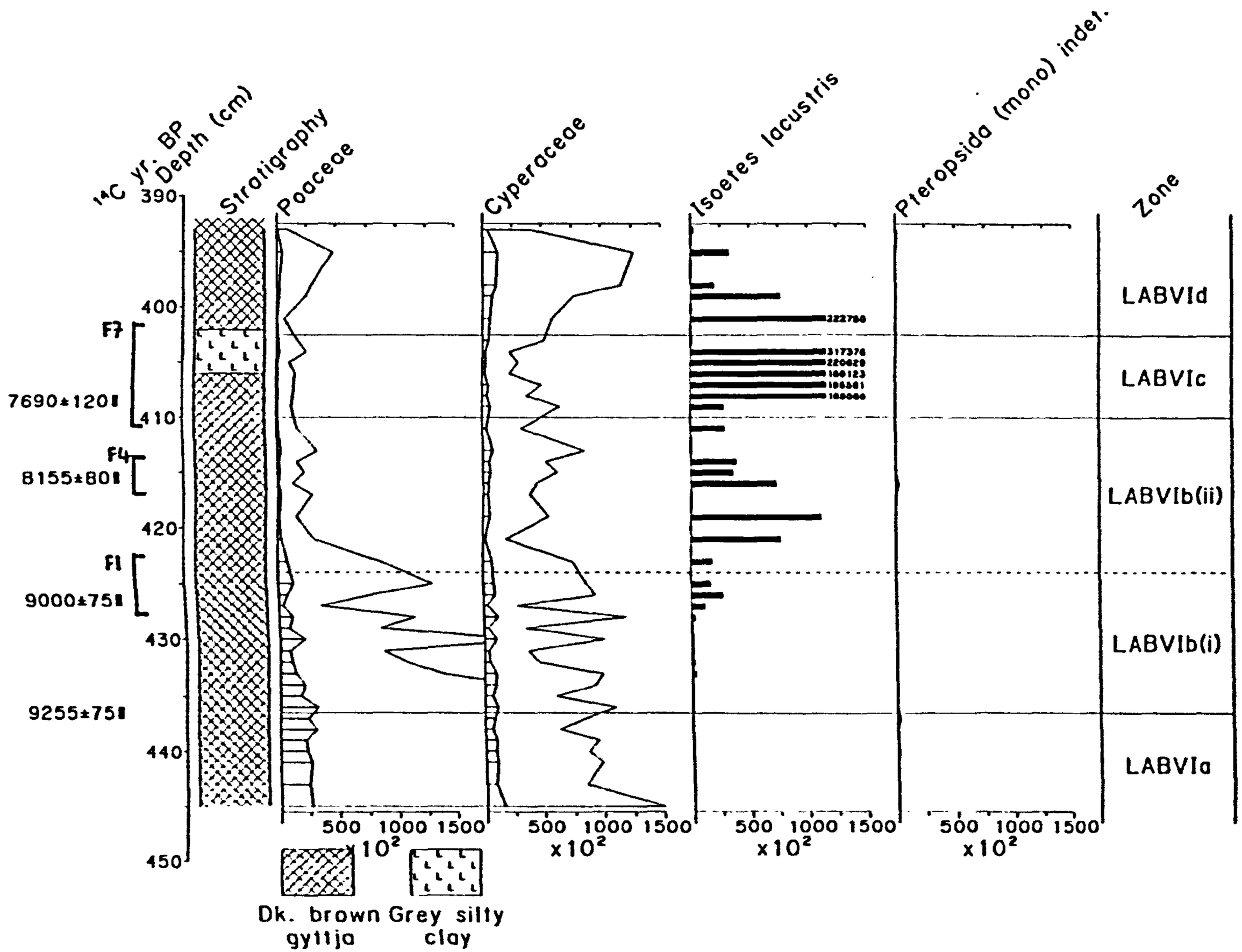
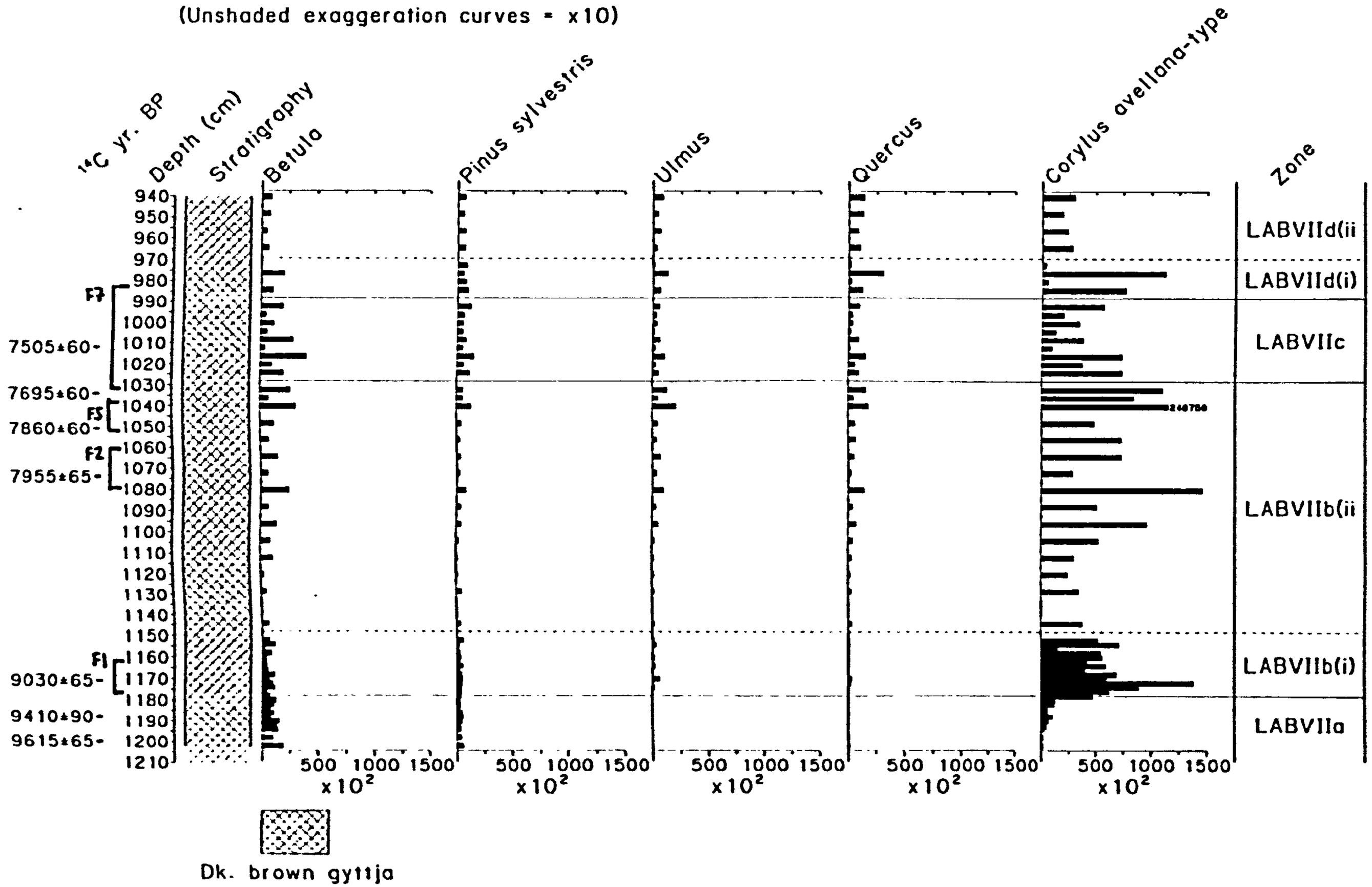


Figure 3.26 Pollen and spore concentration diagram of selected taxa from LABVII
(Unshaded exaggeration curves = x10)



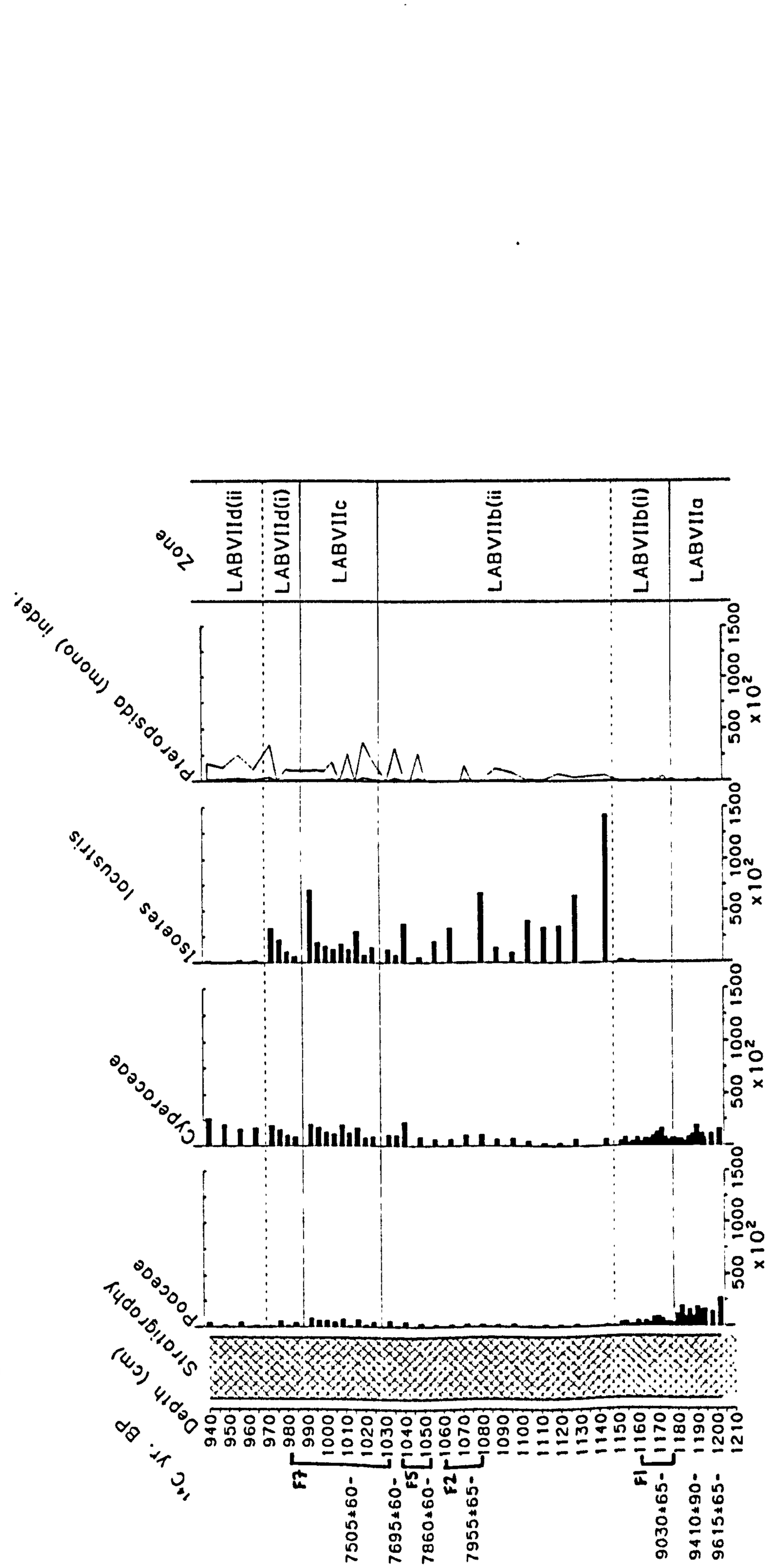


Figure 3.26 continued

Figure 3.27 Pollen and spore concentration diagram of selected taxa for LABVIII

(Unshaded exaggeration curves = x10)

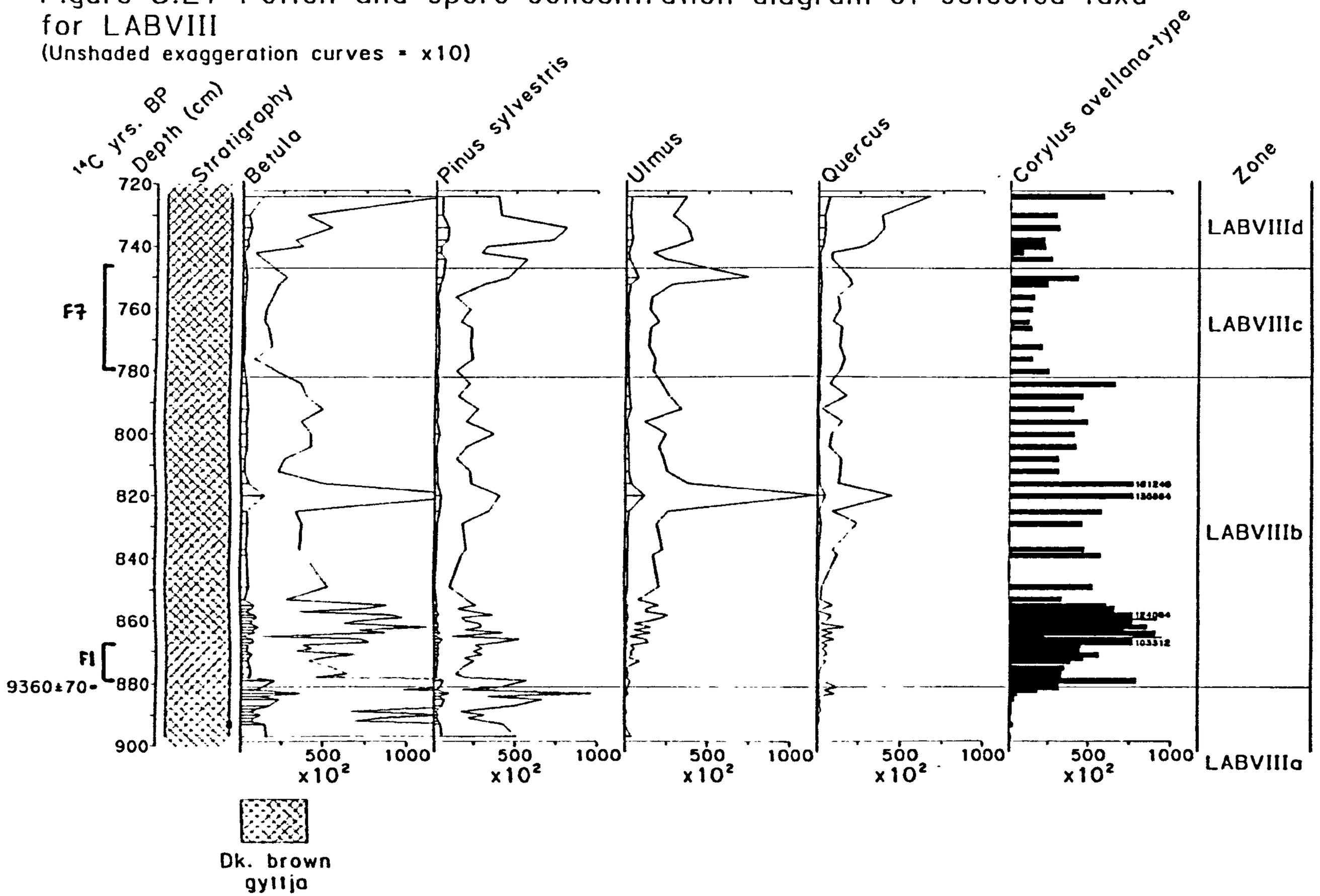


Figure 3.27 continued

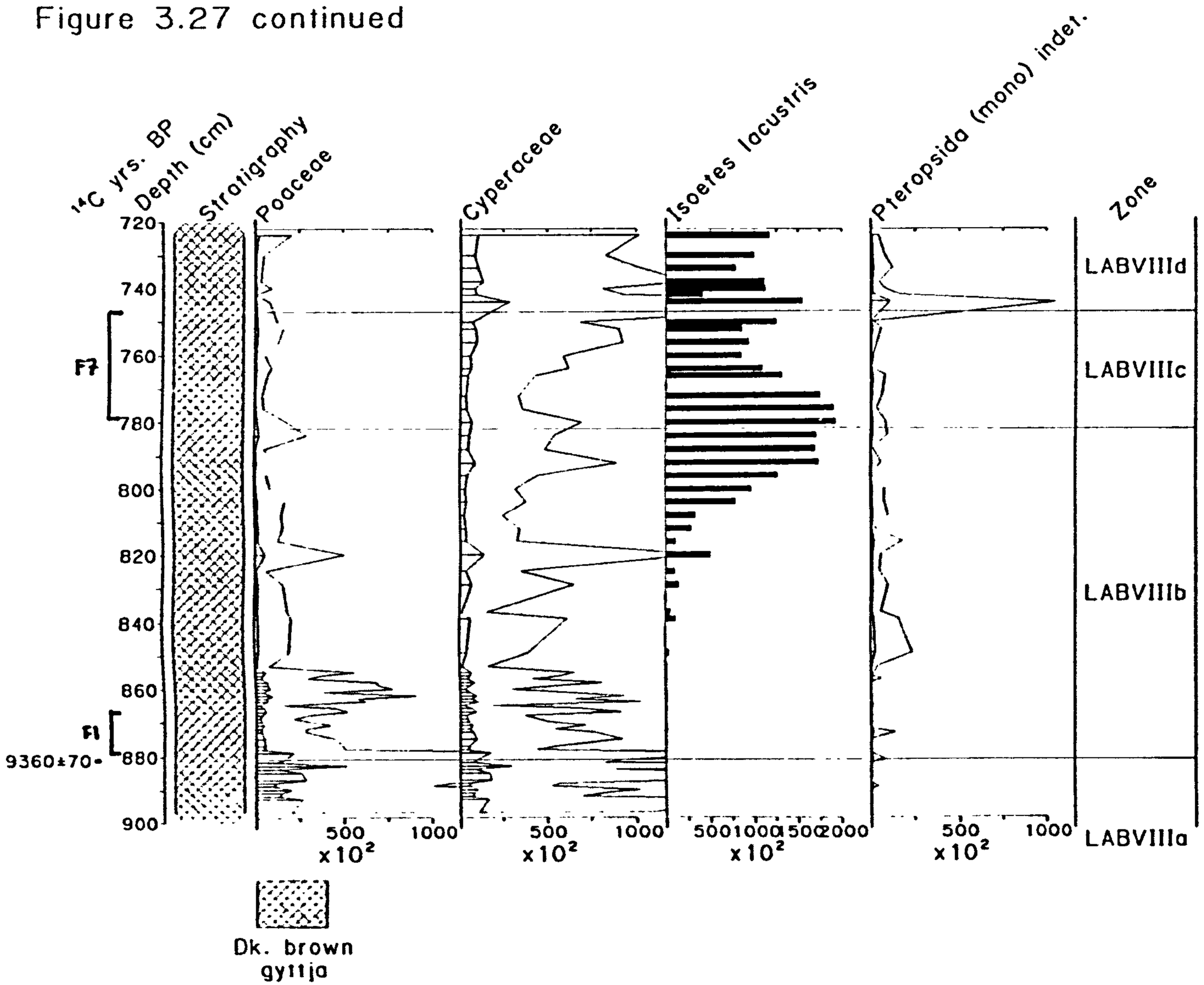
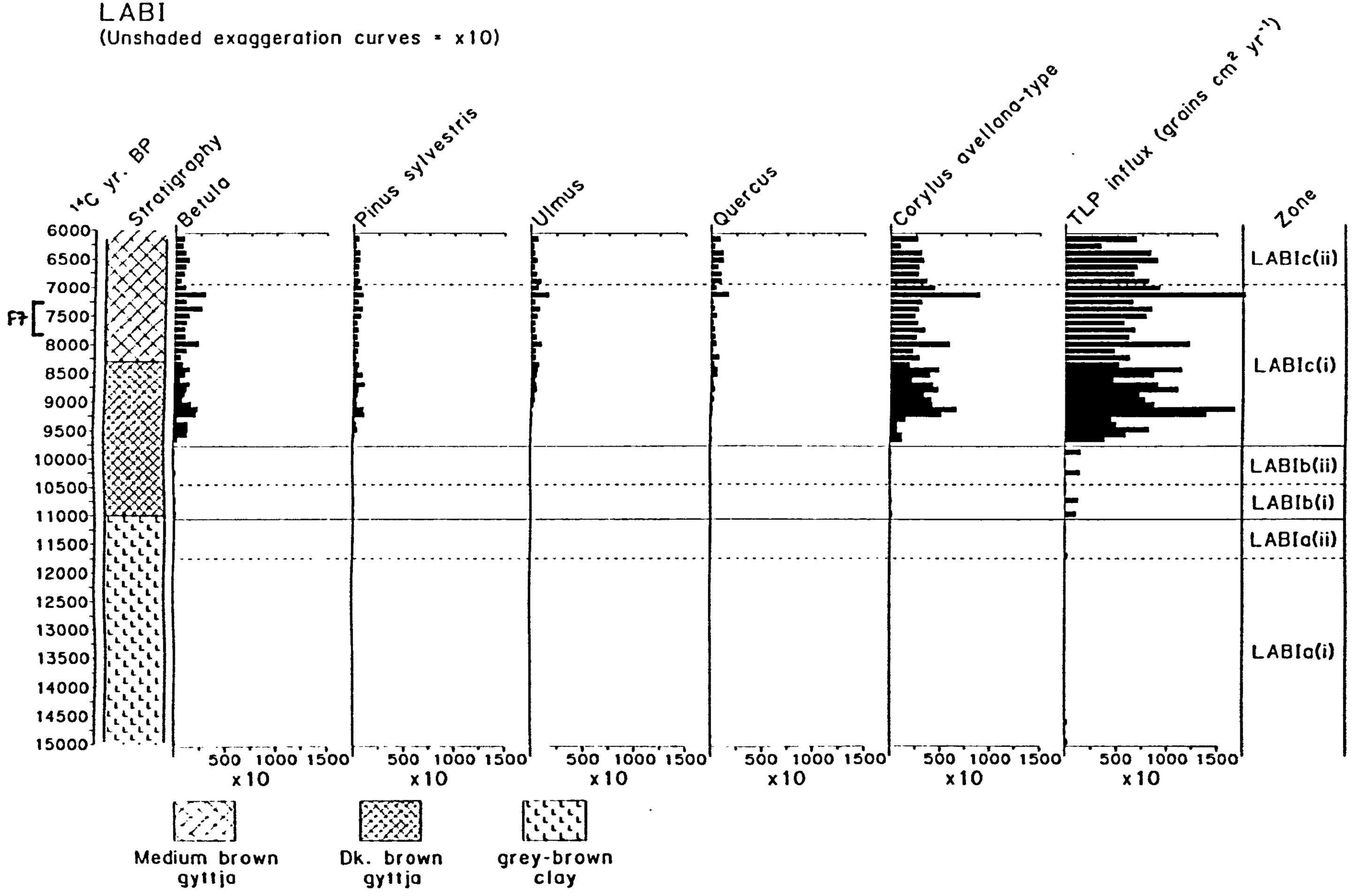


Figure 3.28 Pollen and spore influx diagram of selected taxa from LABI
(Unshaded exaggeration curves = x10)



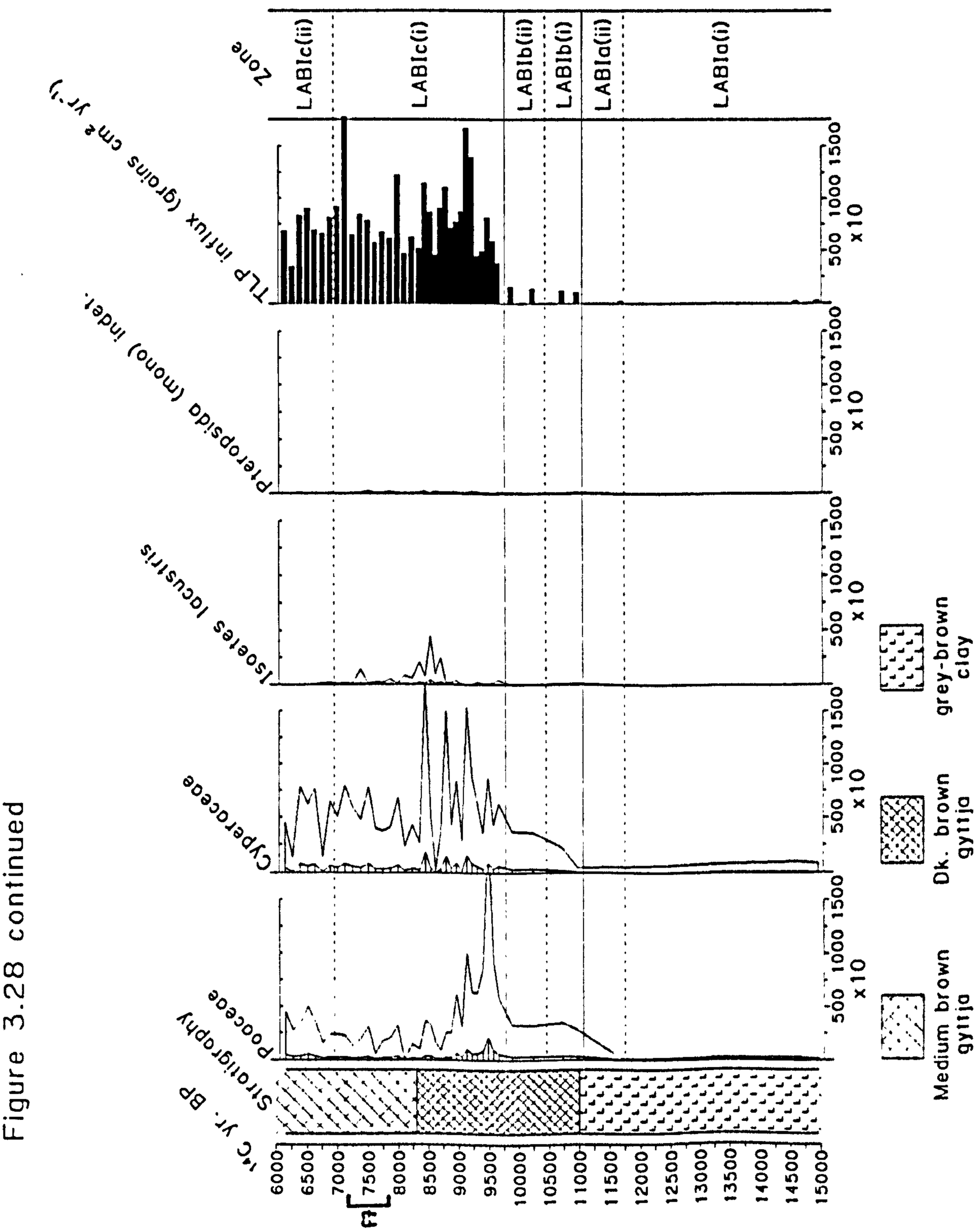


Figure 3.28 continued

Figure 3.29 Pollen and spore influx diagram of selected taxa from LABIII using original AMS dates for the profile
(Unshaded exaggeration curves = x10)

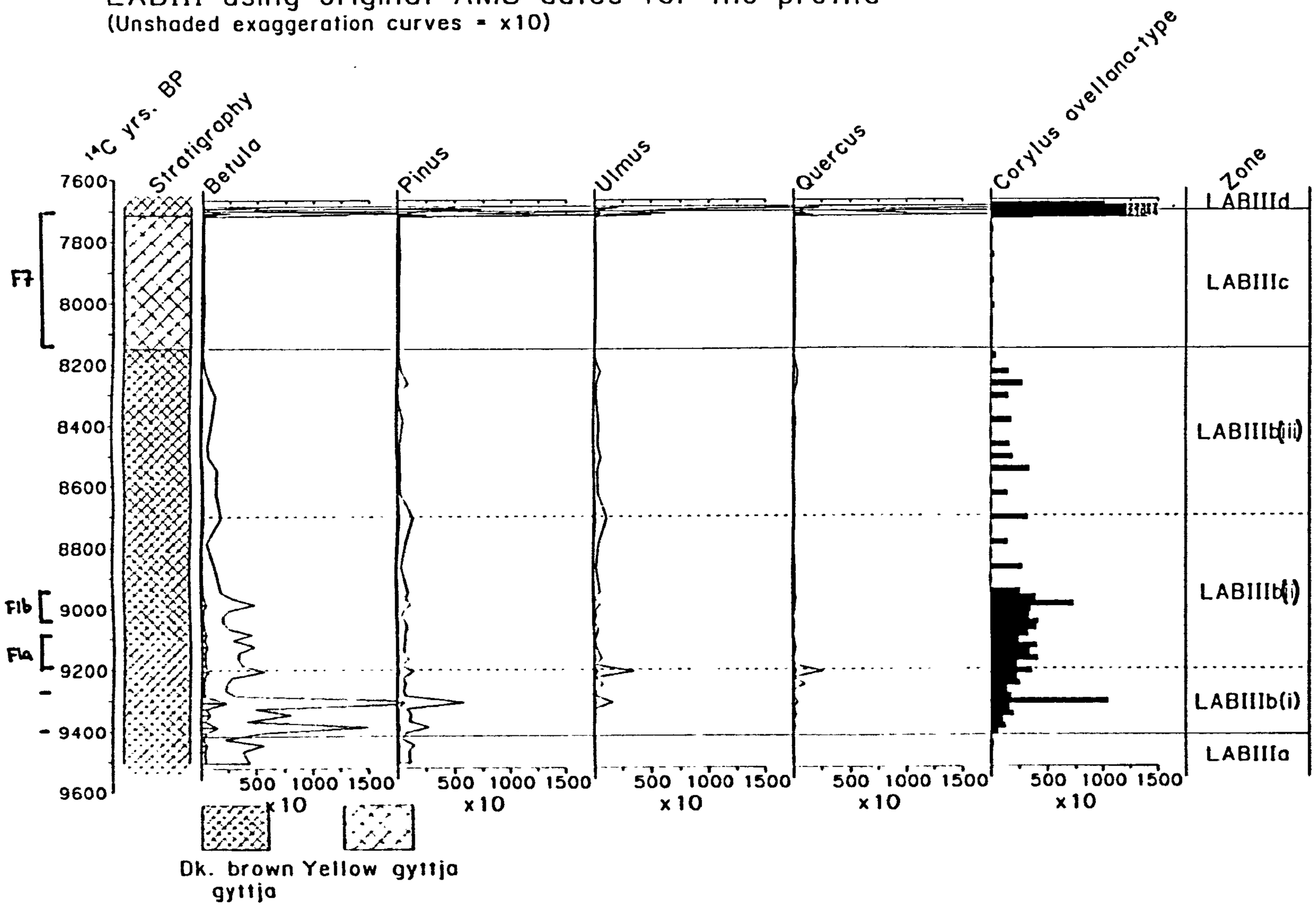


Figure 3.29 continued

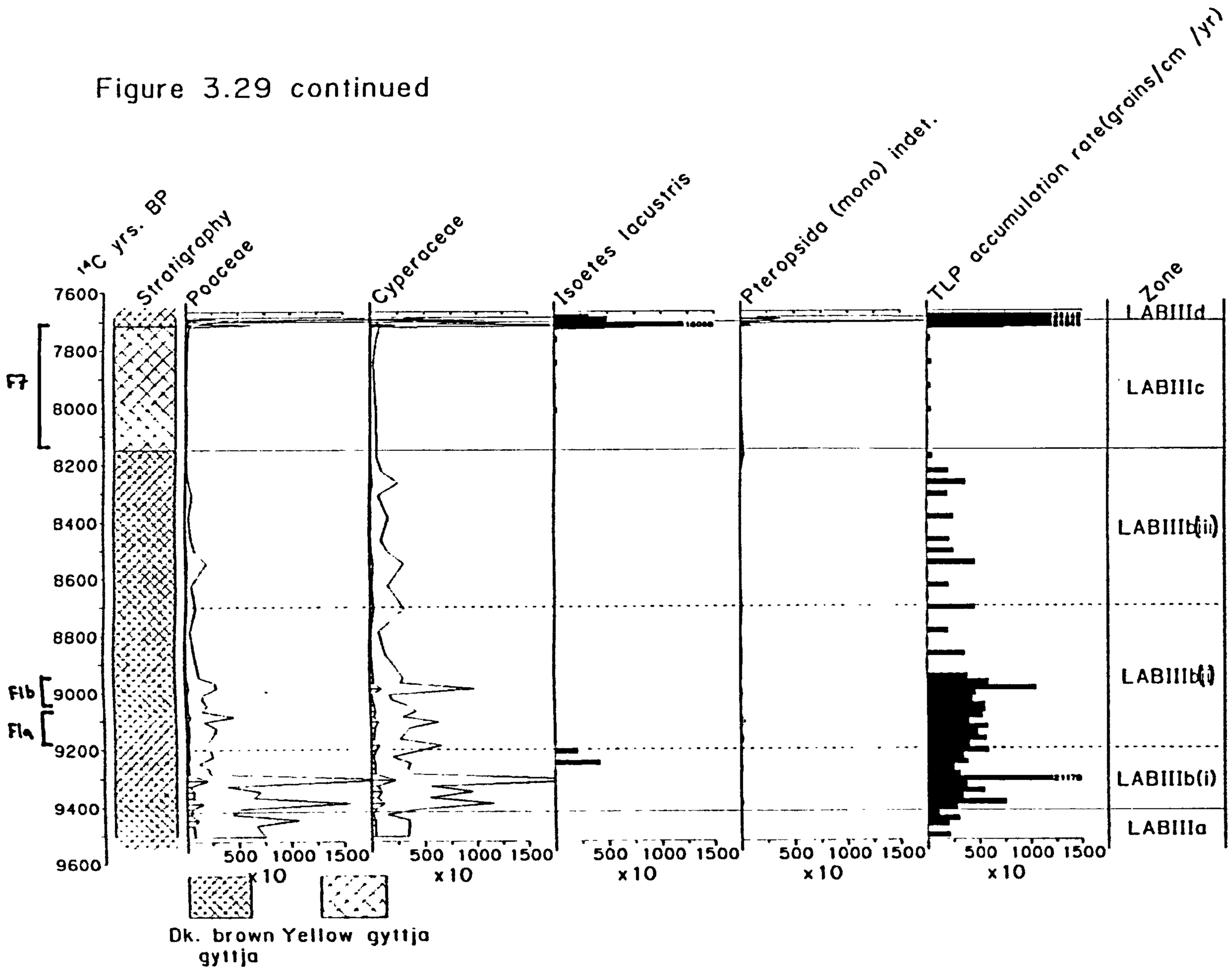
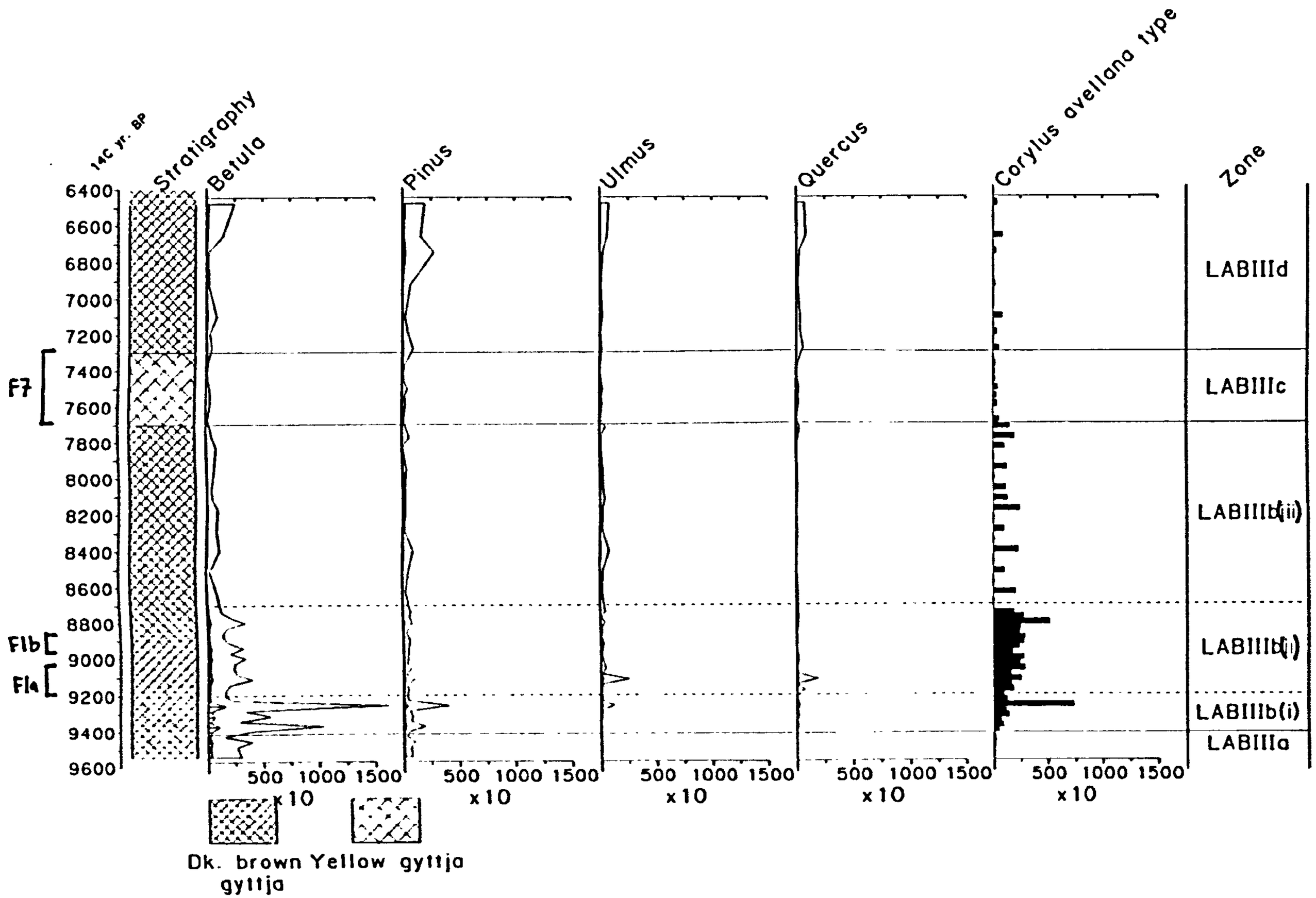


Figure 3.30 Pollen and spore influx data for selected taxa from LABIII using dates revised by comparison with other profiles.
(Unshaded exaggeration curves = x10)



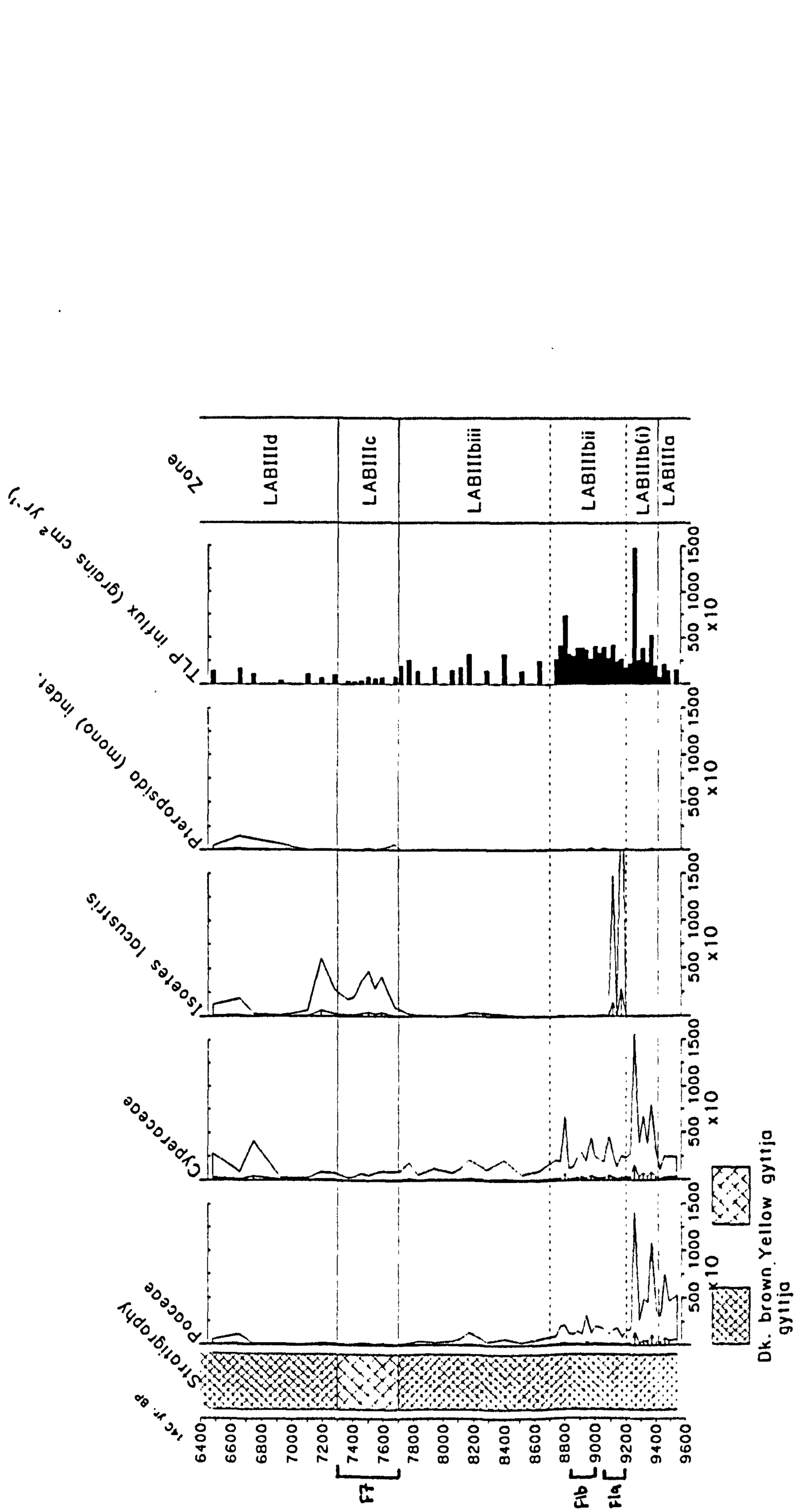


Figure 3.30 continued

Figure 3.31 Pollen and spore influx diagram of selected taxa from LABIV
(Unshaded exaggeration curve = x10)

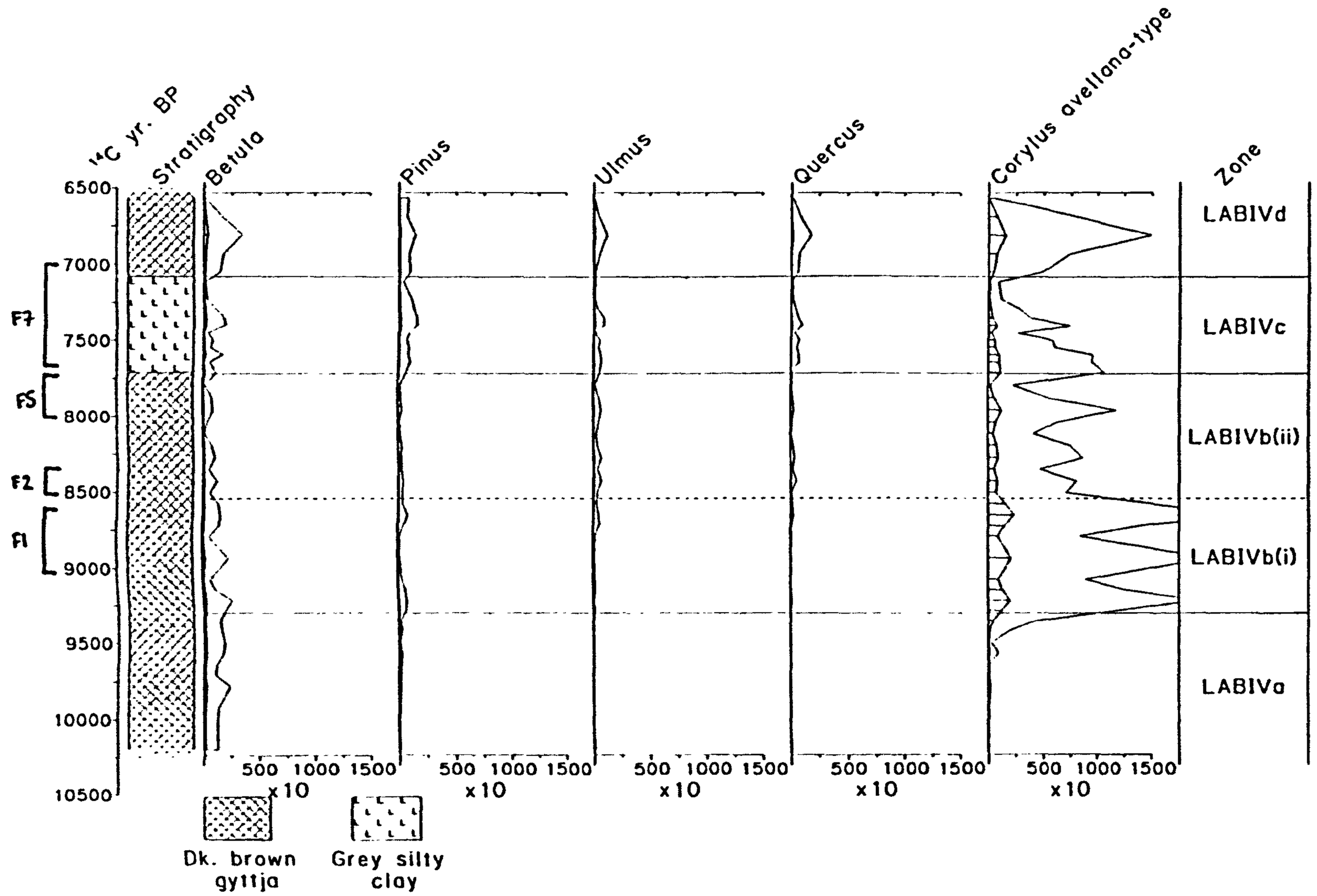


Figure 3.31 continued

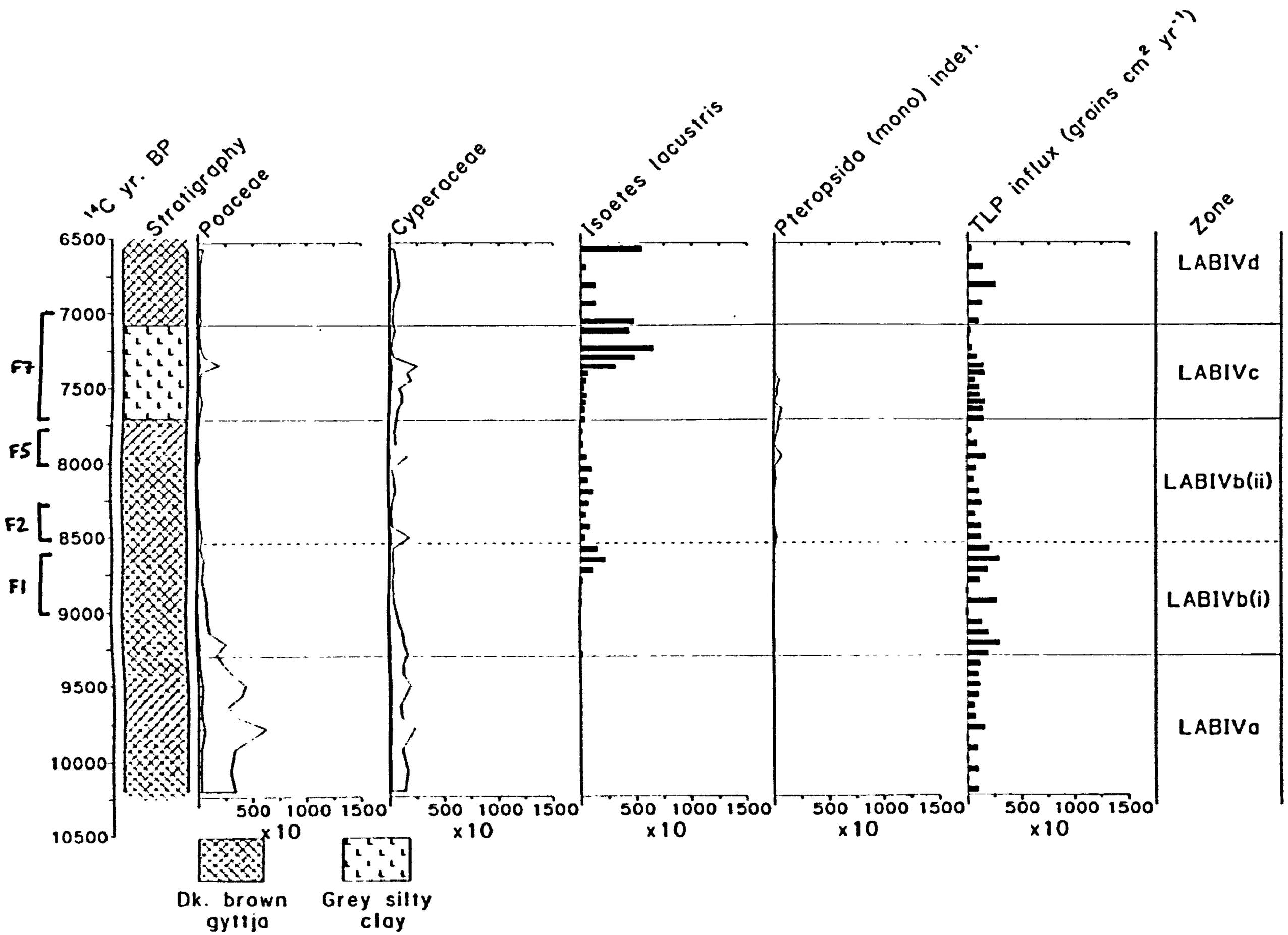


Figure 3.32 Pollen and spore influx diagram of selected taxa from LABV
(Unshaded exaggeration curves = x10)

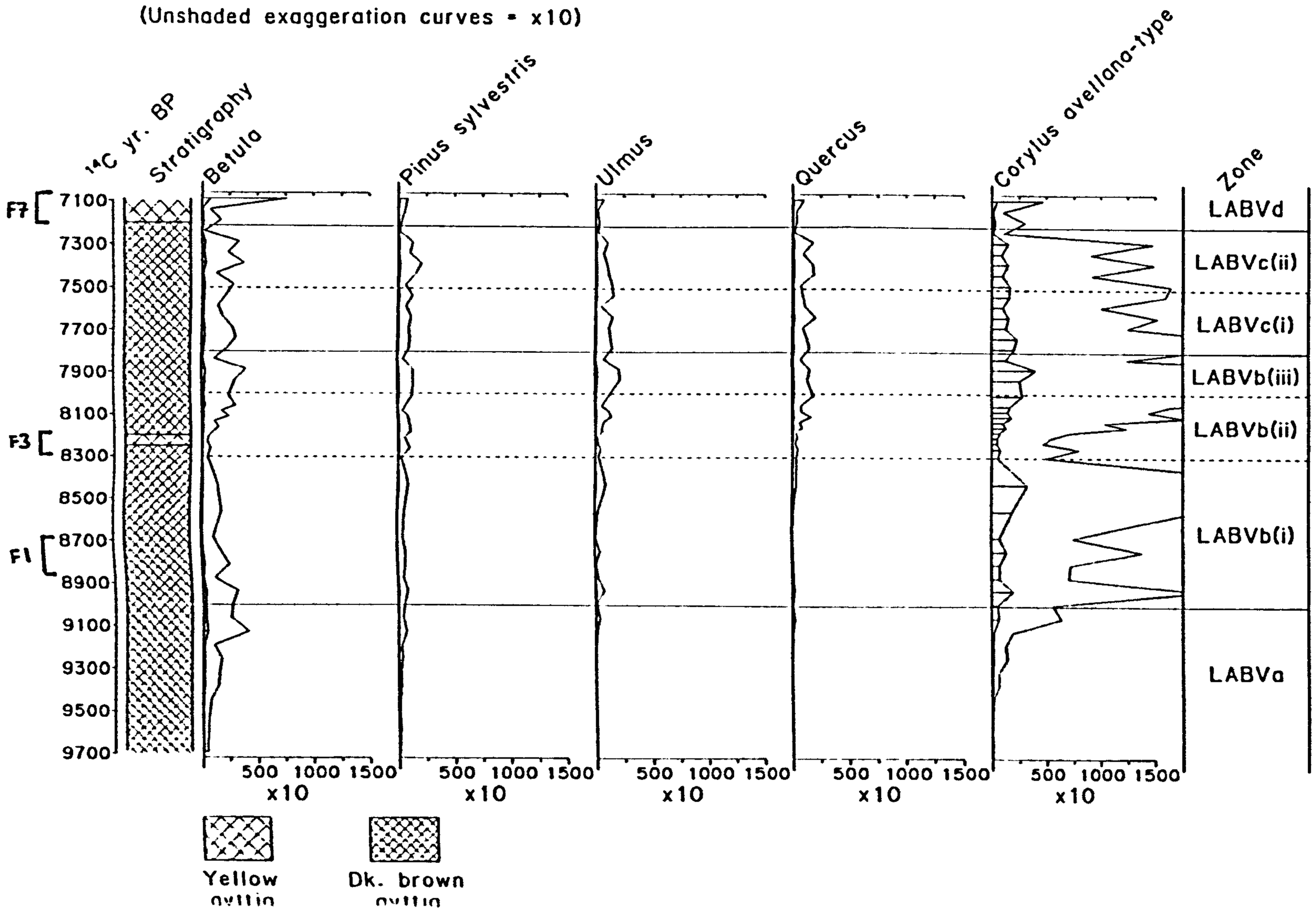


Figure 3.32 continued

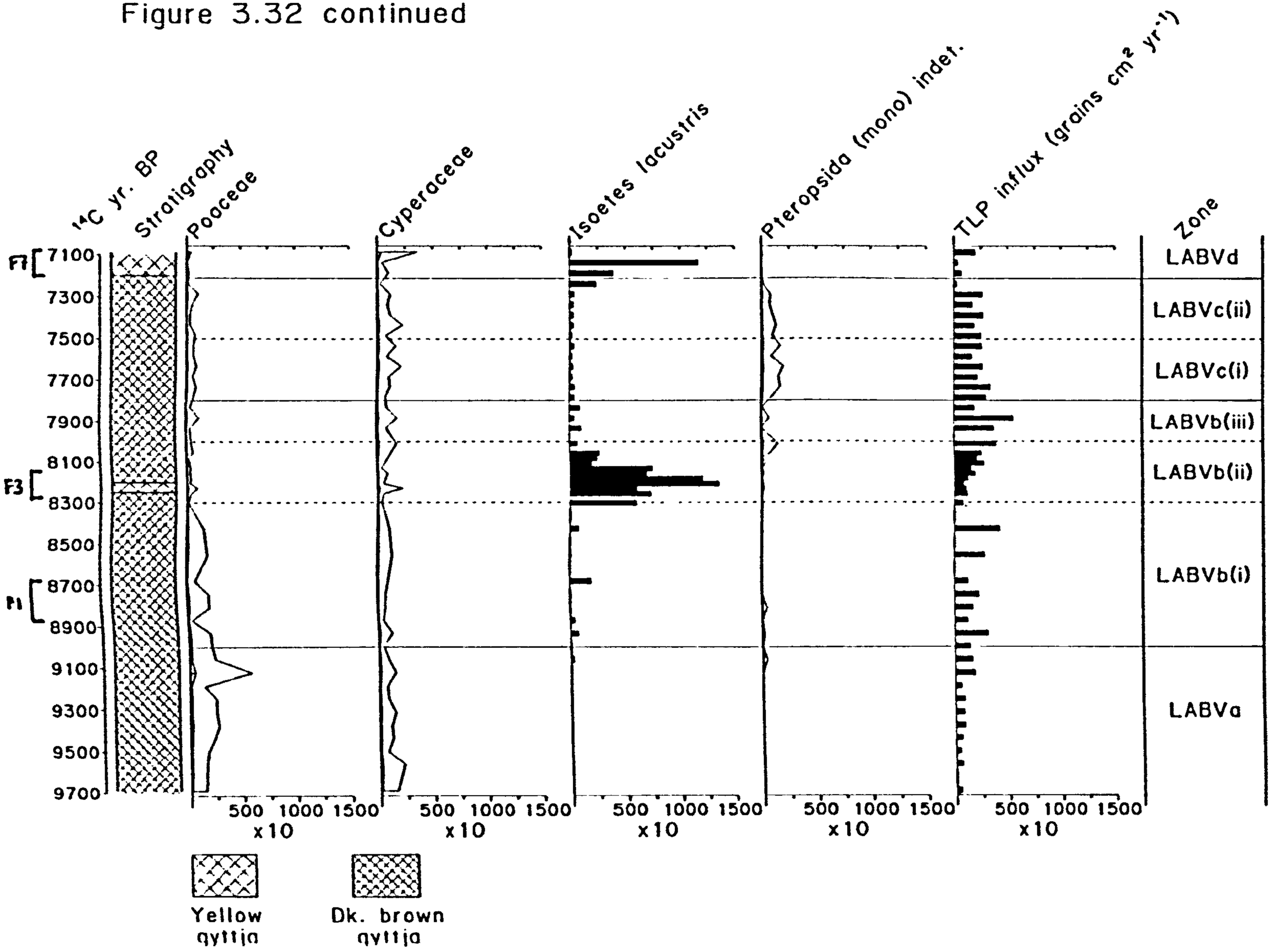


Figure 3.33 Pollen and spore influx diagram of selected taxa from LABVI
(Unshaded exaggeration curves = x10)

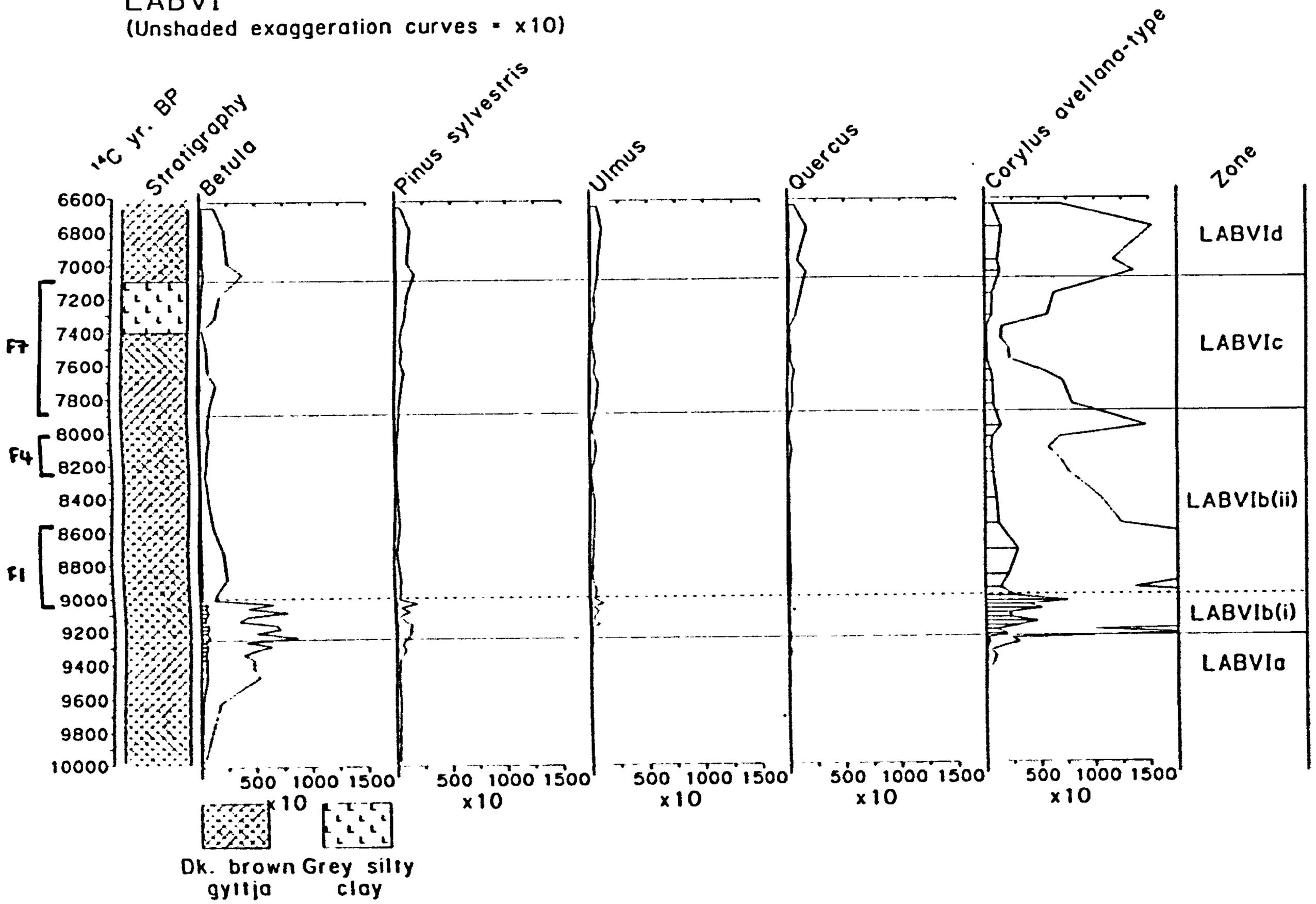


Figure 3.33 continued

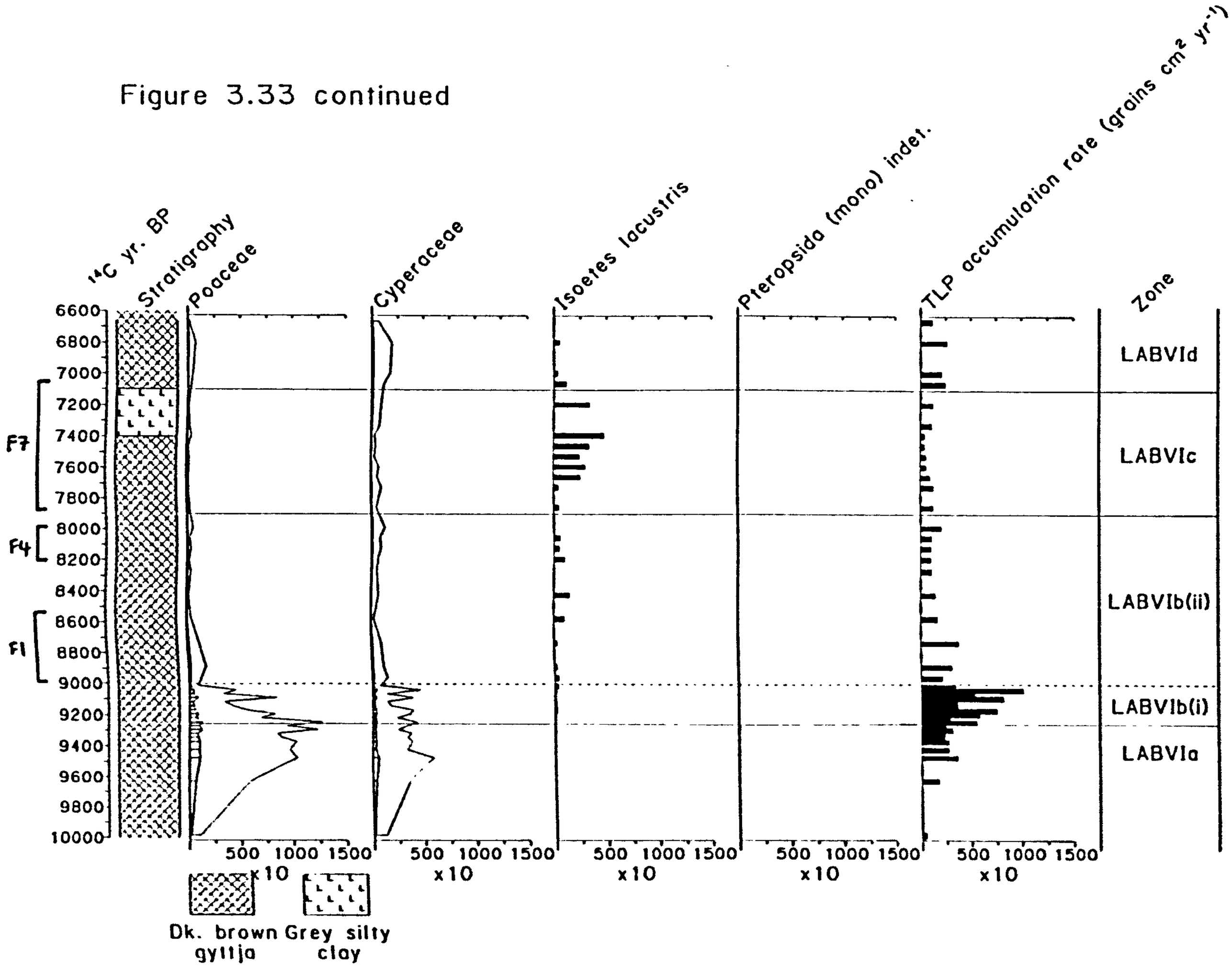


Figure 3.34 Pollen and spore influx diagram of selected taxa from LABVII
(Unshaded exaggeration curves = x10)

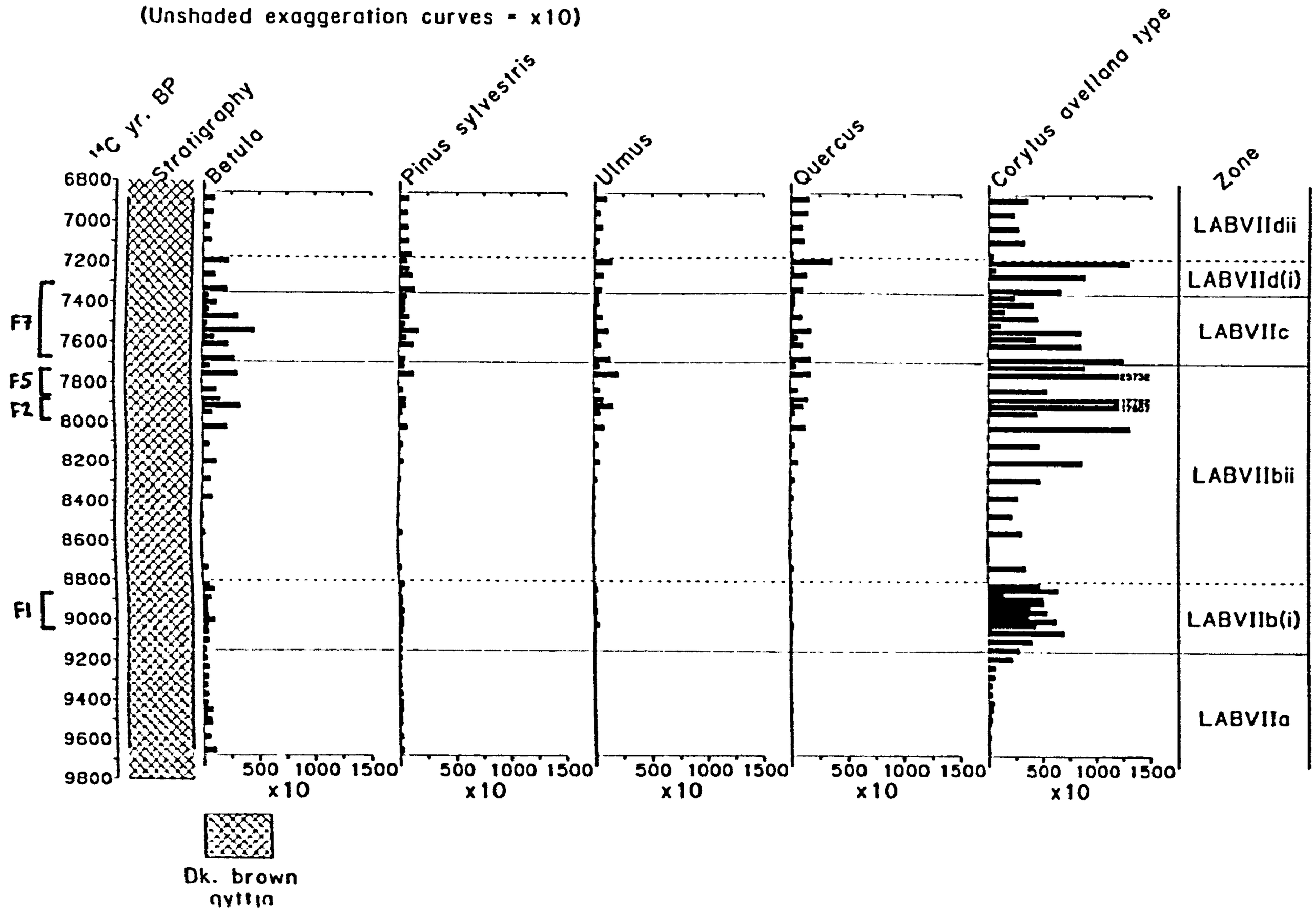


Figure 3.34 continued

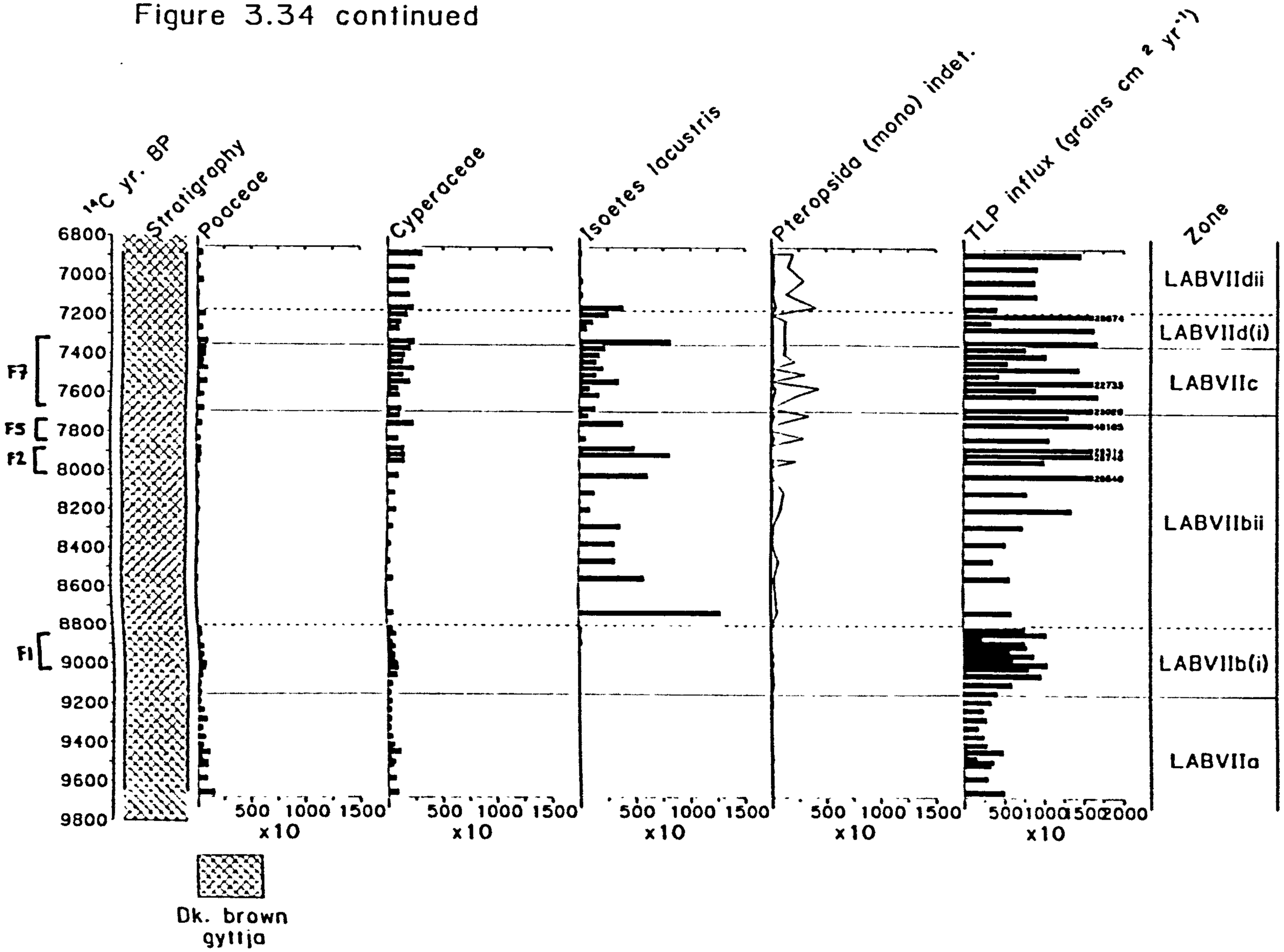
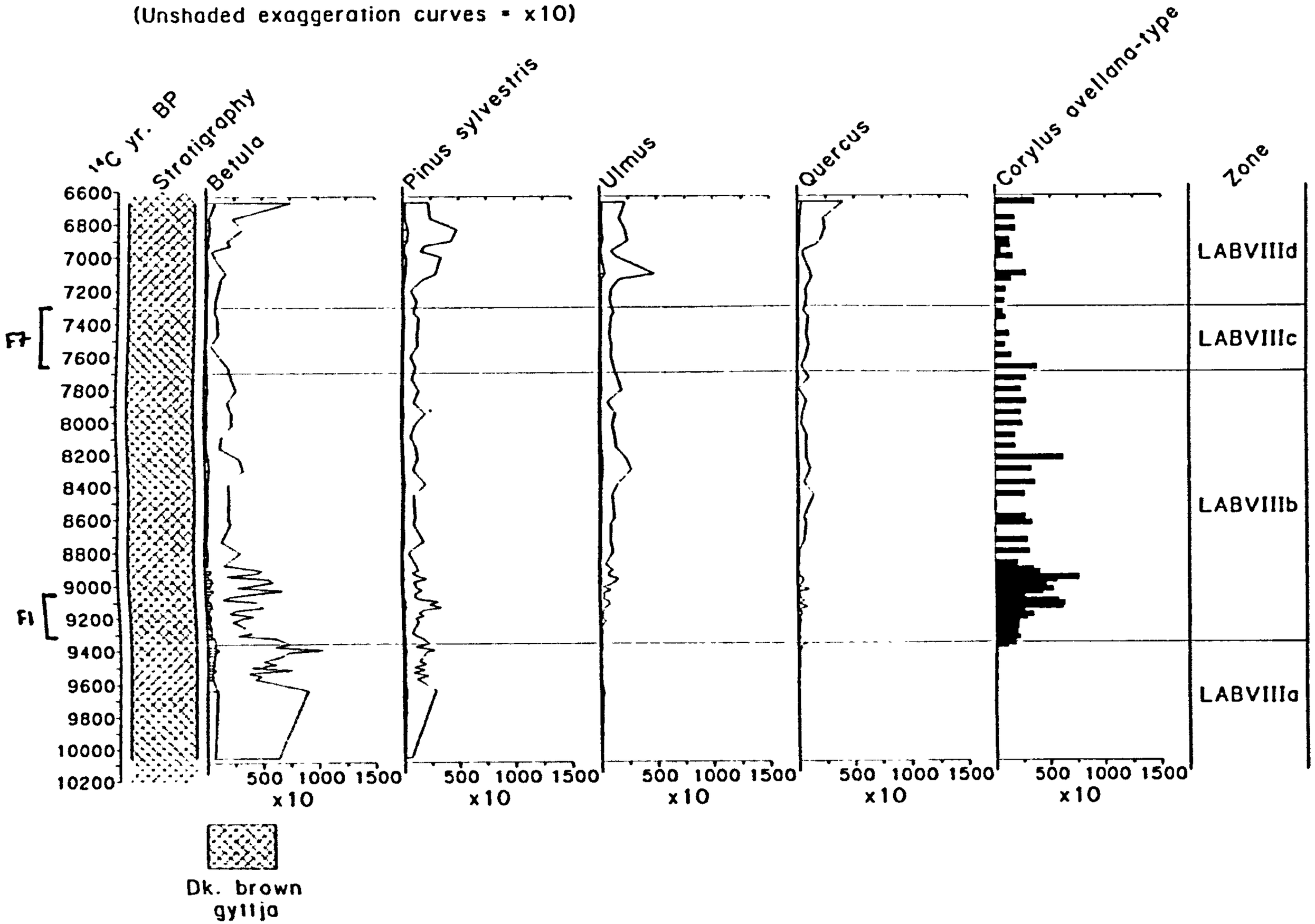


Figure 3.35 Pollen and spore influx diagram of selected taxa from LABVIII
(Unshaded exaggeration curves = x10)



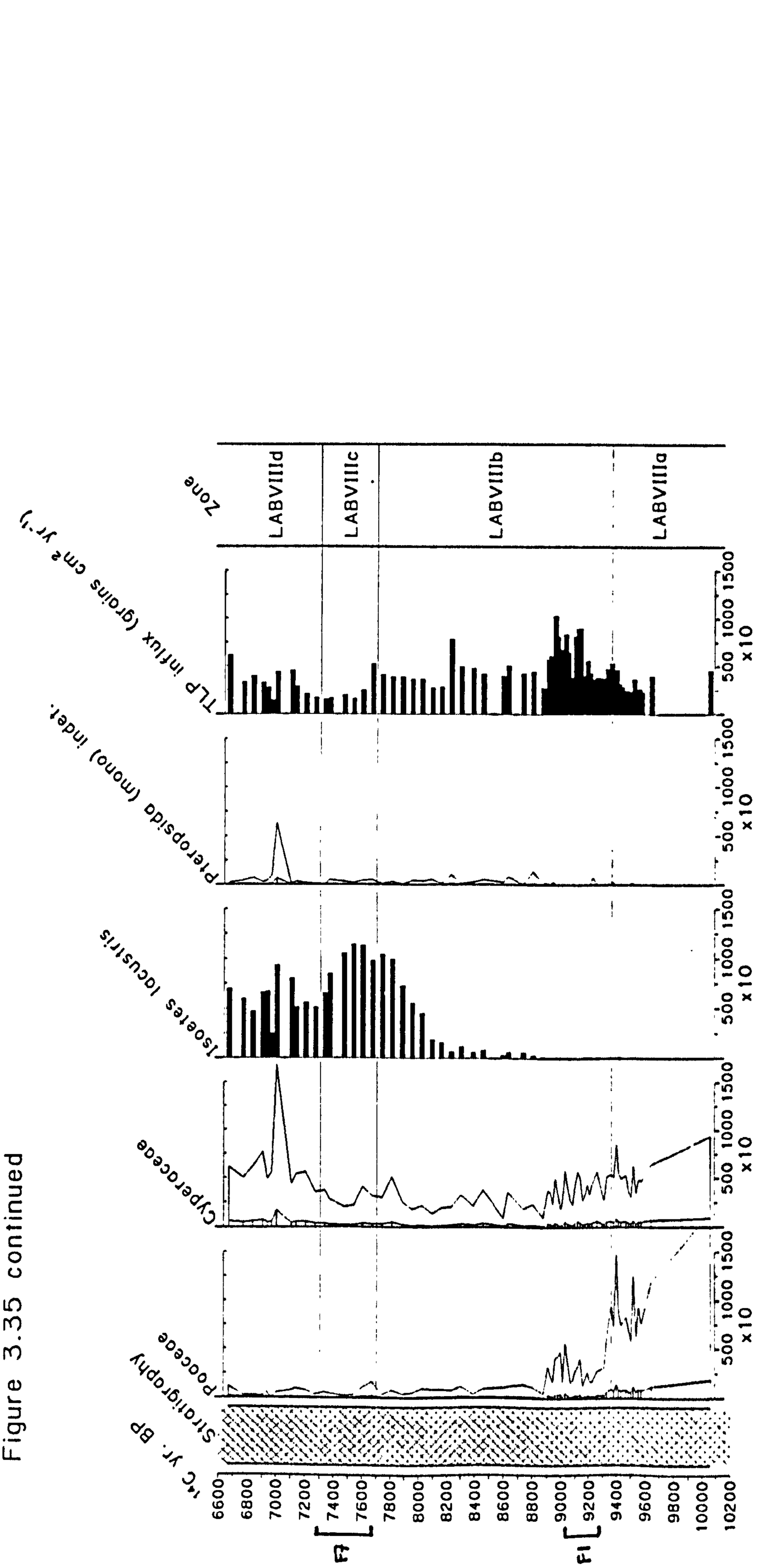
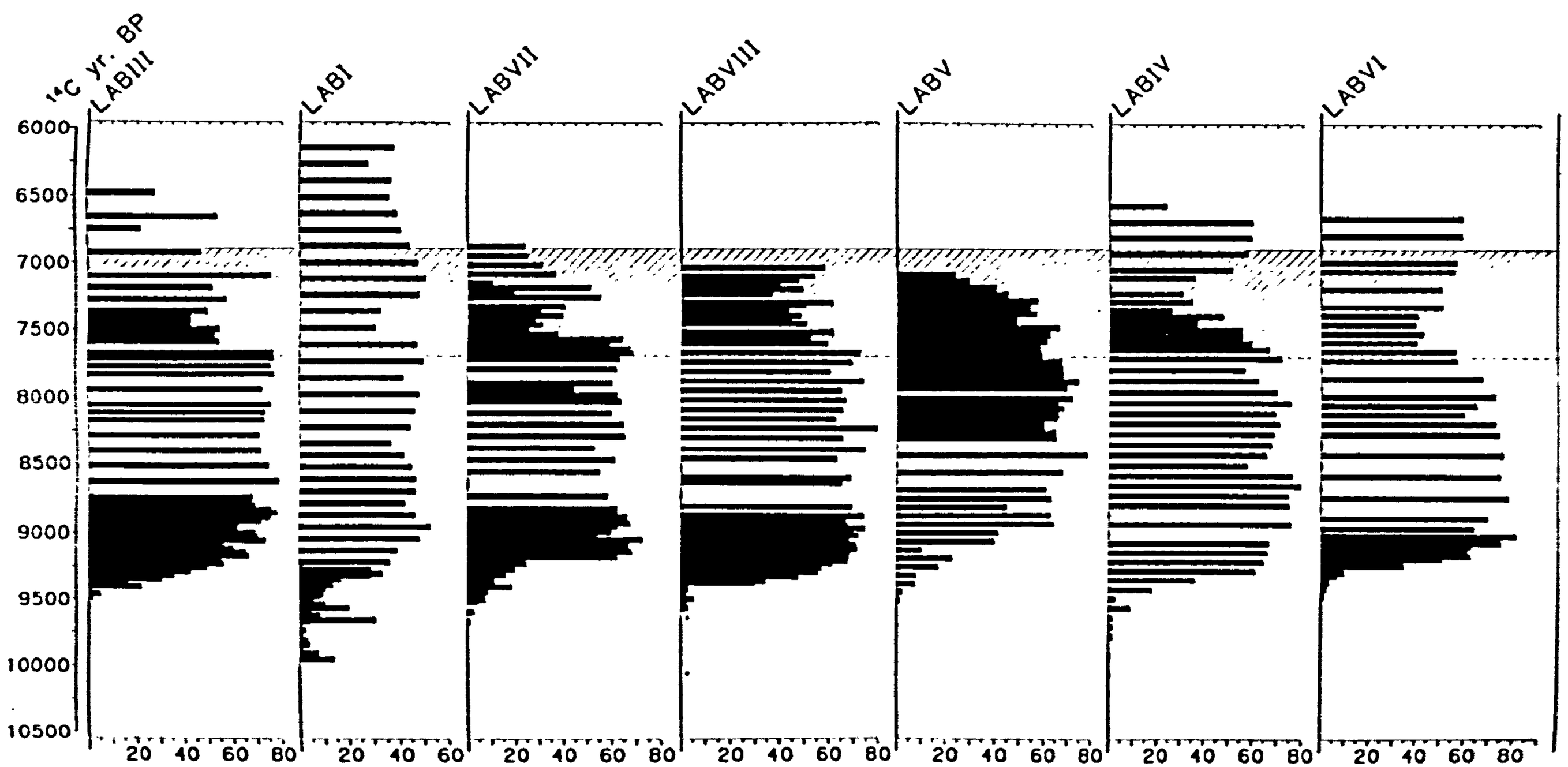


Figure 3.35 continued

Figure 3.36 Corylus percentage curves from Loch a'Bhogaidh
(Shaded area indicates probable impact of climatic oscillation and/or human activity)



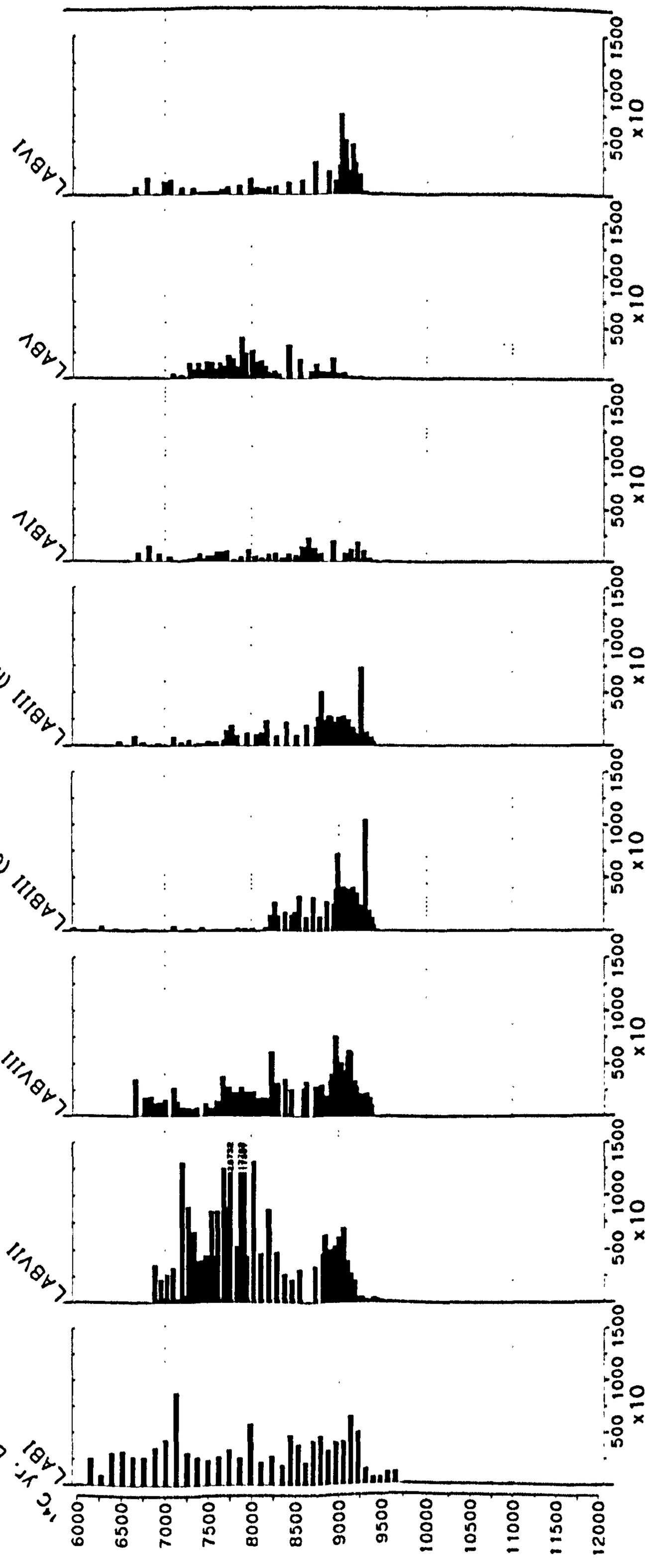

Summary diagram of Corylus influx profiles
LABVI
LABV
LABIII (new)
LABIV
LABIII (orig)
LABVIII
LABVII
Cyr. yr. BP (LABI)
x10
500 1000 1500
6000
6500
7000
7500
8000
8500
9000
9500
10000
10500
11000
11500
12000

Figure 3.37 S

Figure 3.38 Charcoal concentration profiles from Loch a'Bhogaidh (cm^2 cm^3)

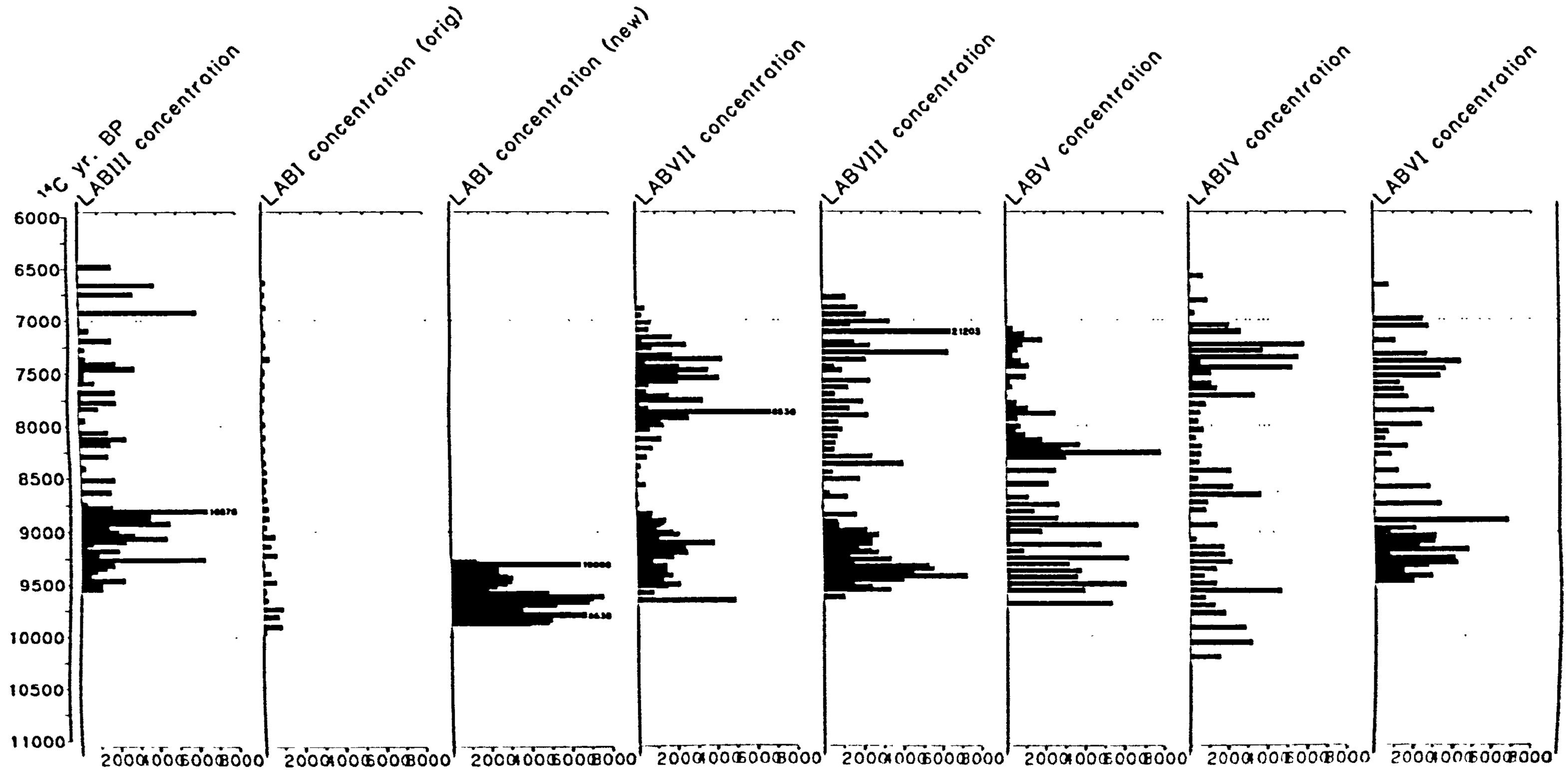


Figure 3.39 Ch:P profiles from Loch a'Bhogaidh
(Curves = $x10^{-08}$; LABI original = $x10^{-06}$)

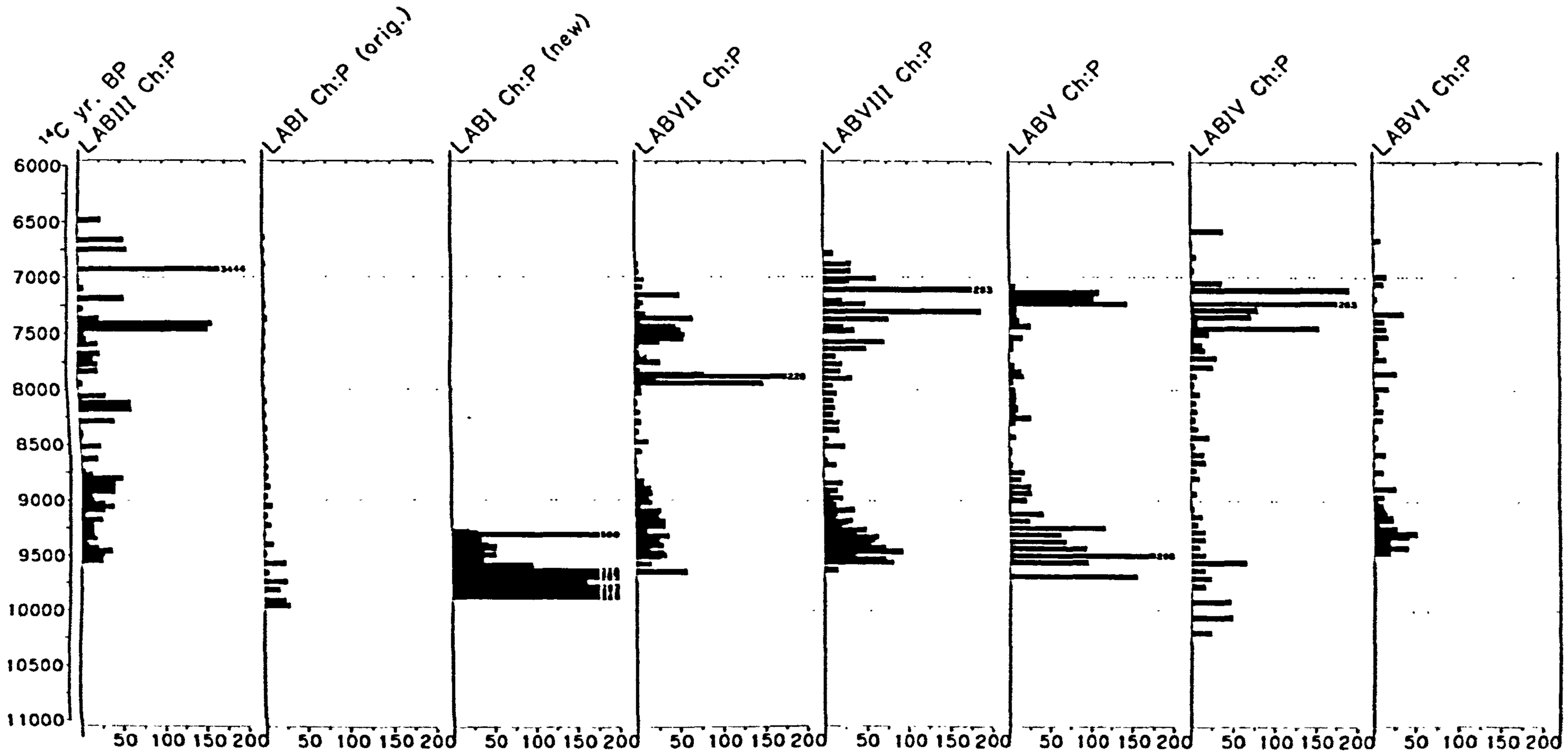
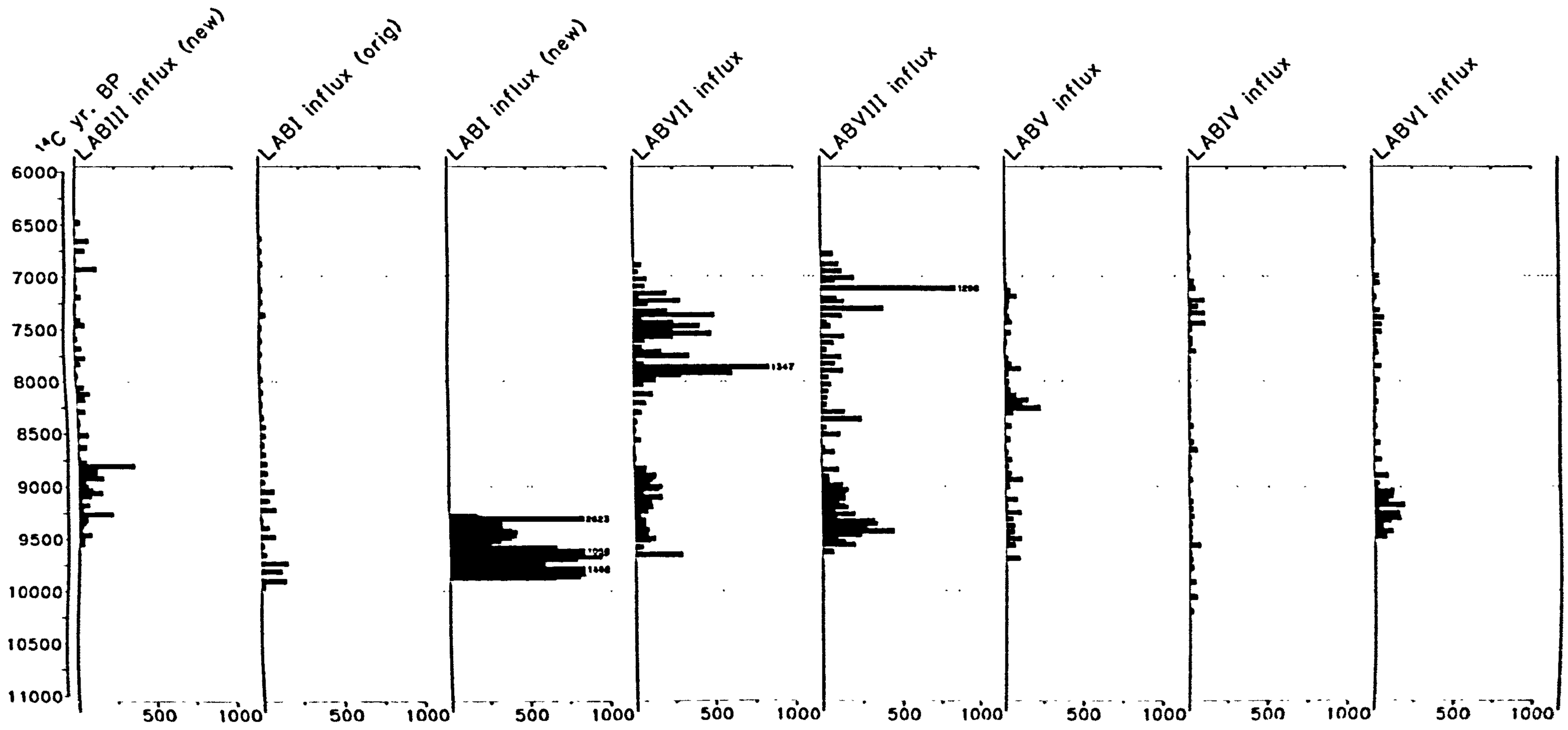


Figure 3.40 Charcoal influx profiles from Loch a'Bhogaidh
(All profiles = cm^2 cm^{-3} yr^{-1})



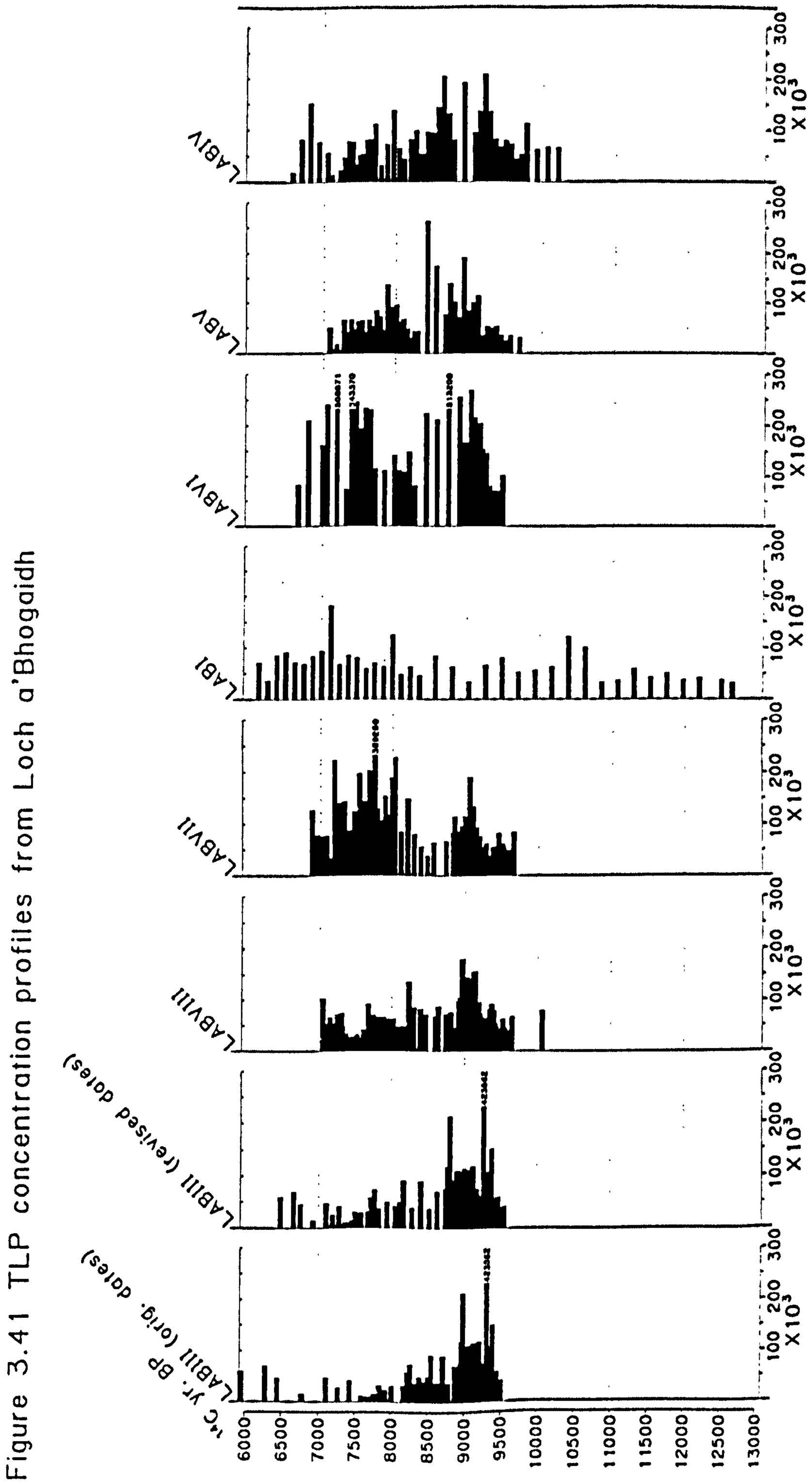


Figure 3.41 TLP concentration profiles from Loch a'Bhogaidh

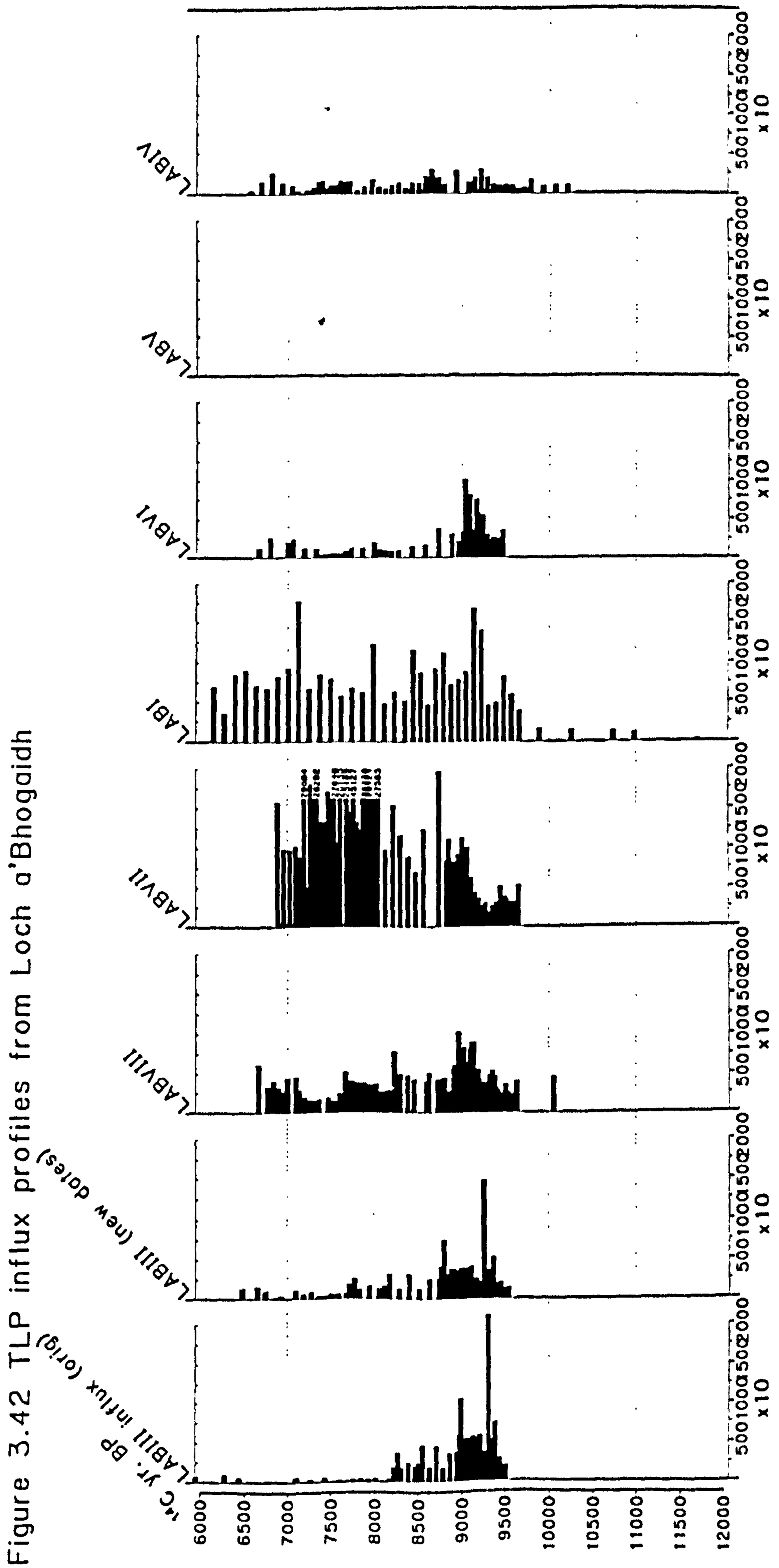


Figure 3.42 TLP influx profiles from Loch a'Bhogaidh

Figure 3.43 Percentage diagram of damaged pollen types for selected taxa from LABIII
(Taxon scores presented as raw counts)

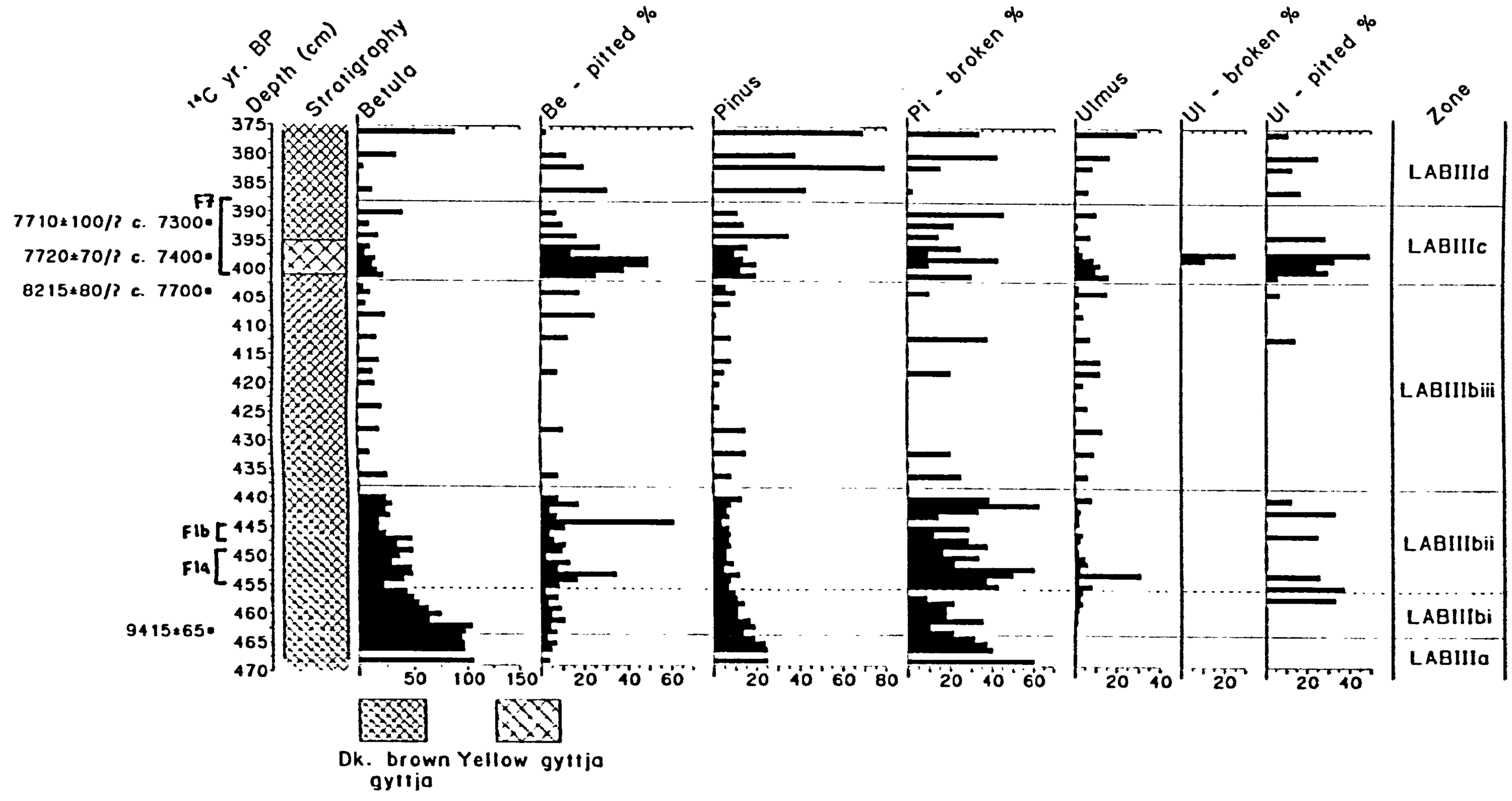
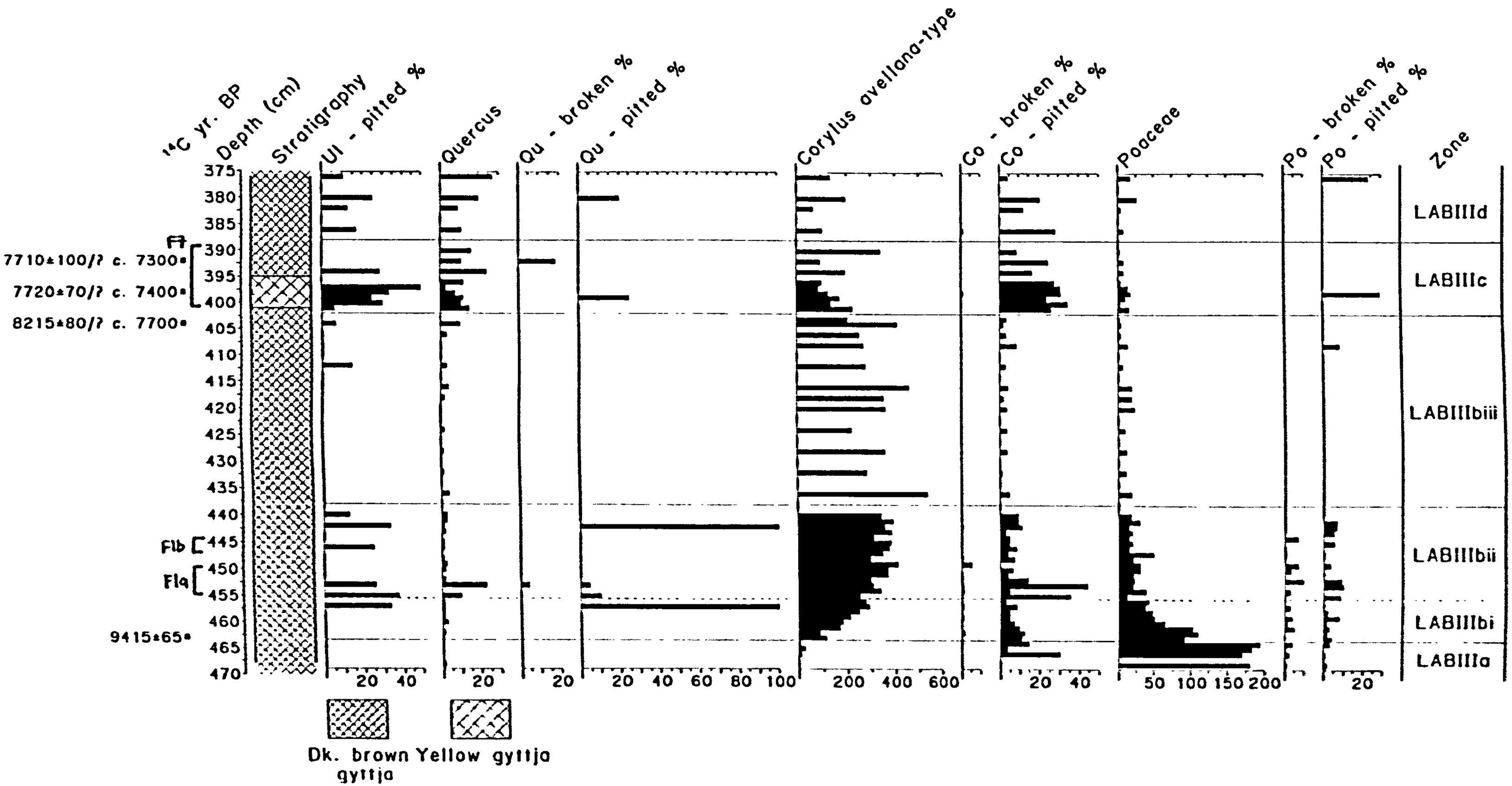


Figure 3.43 continued



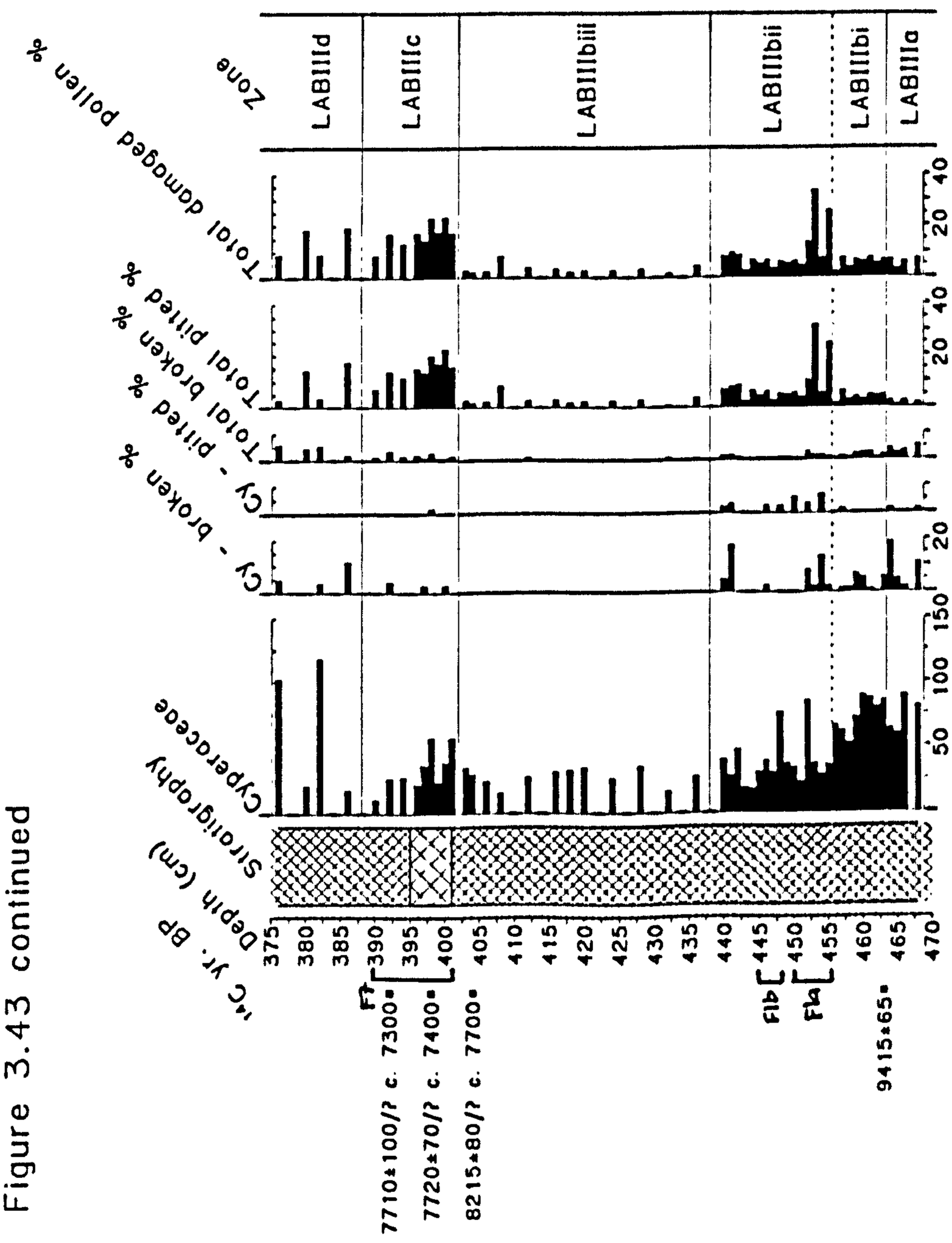


Figure 3.43 continued

Figure 3.44 Percentage diagram of damaged pollen types for selected taxa from LABIV
(Taxon scores presented as raw counts)

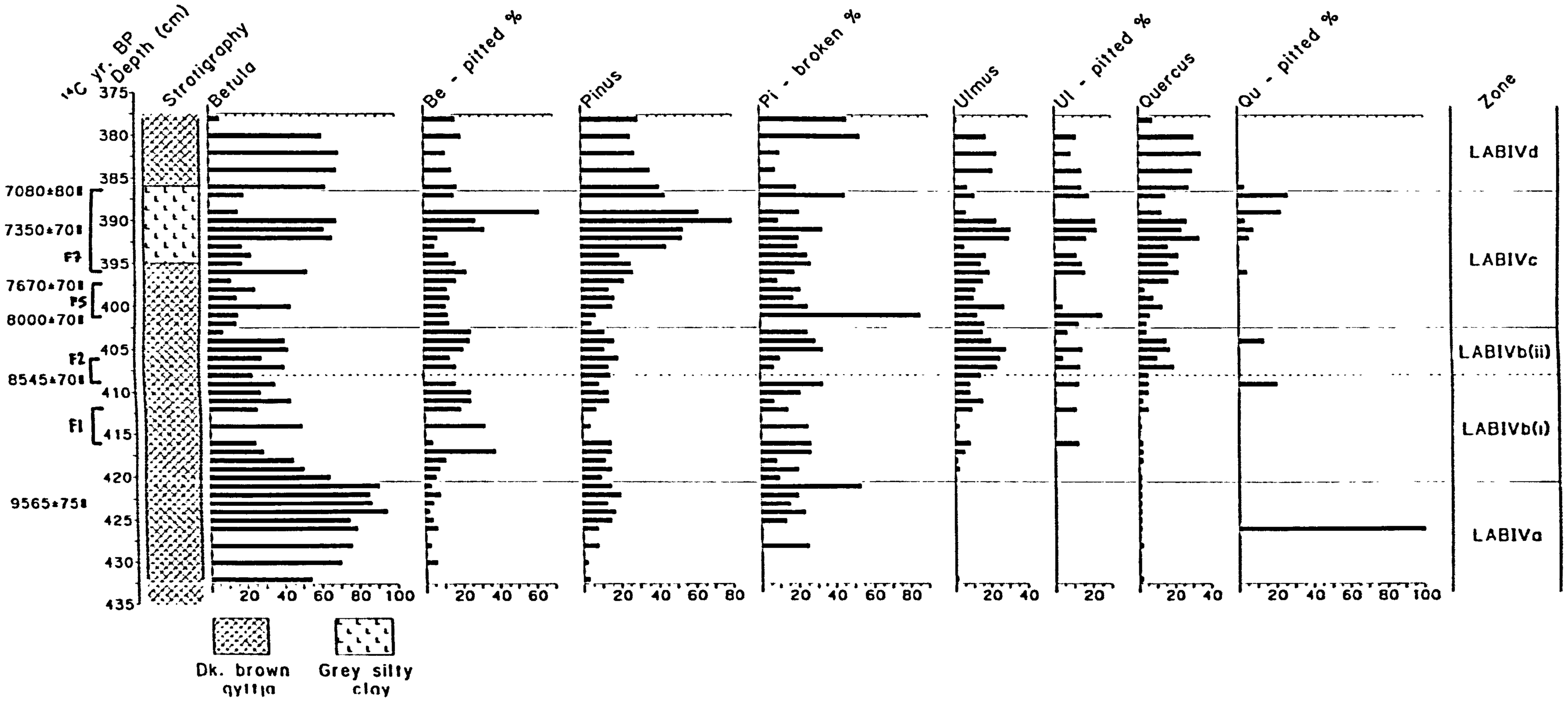


Figure 3.44 continued

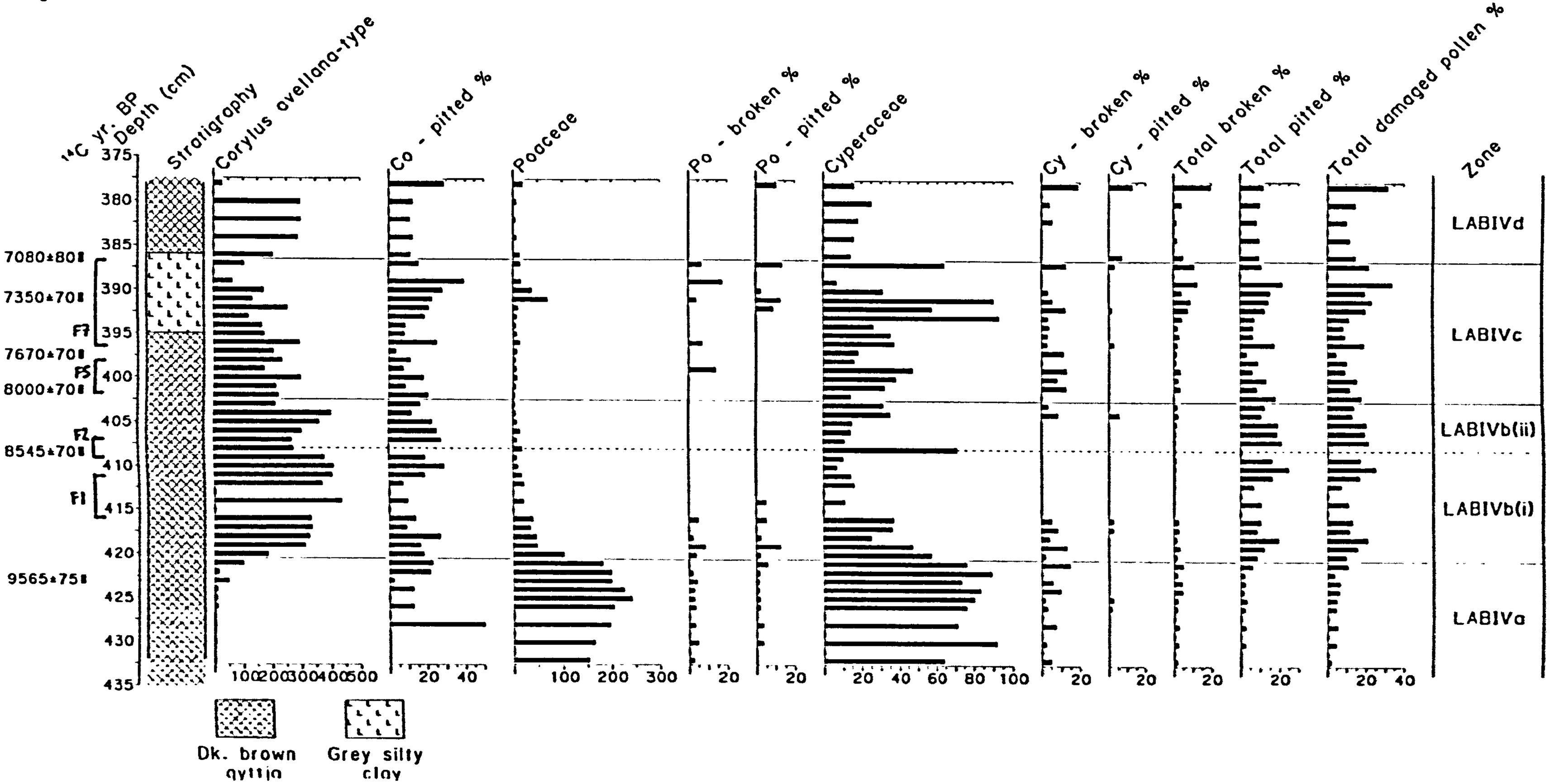


Figure 3.45 Diagram of damaged pollen types for selected taxa from LABV
(Taxon scores presented as raw counts)

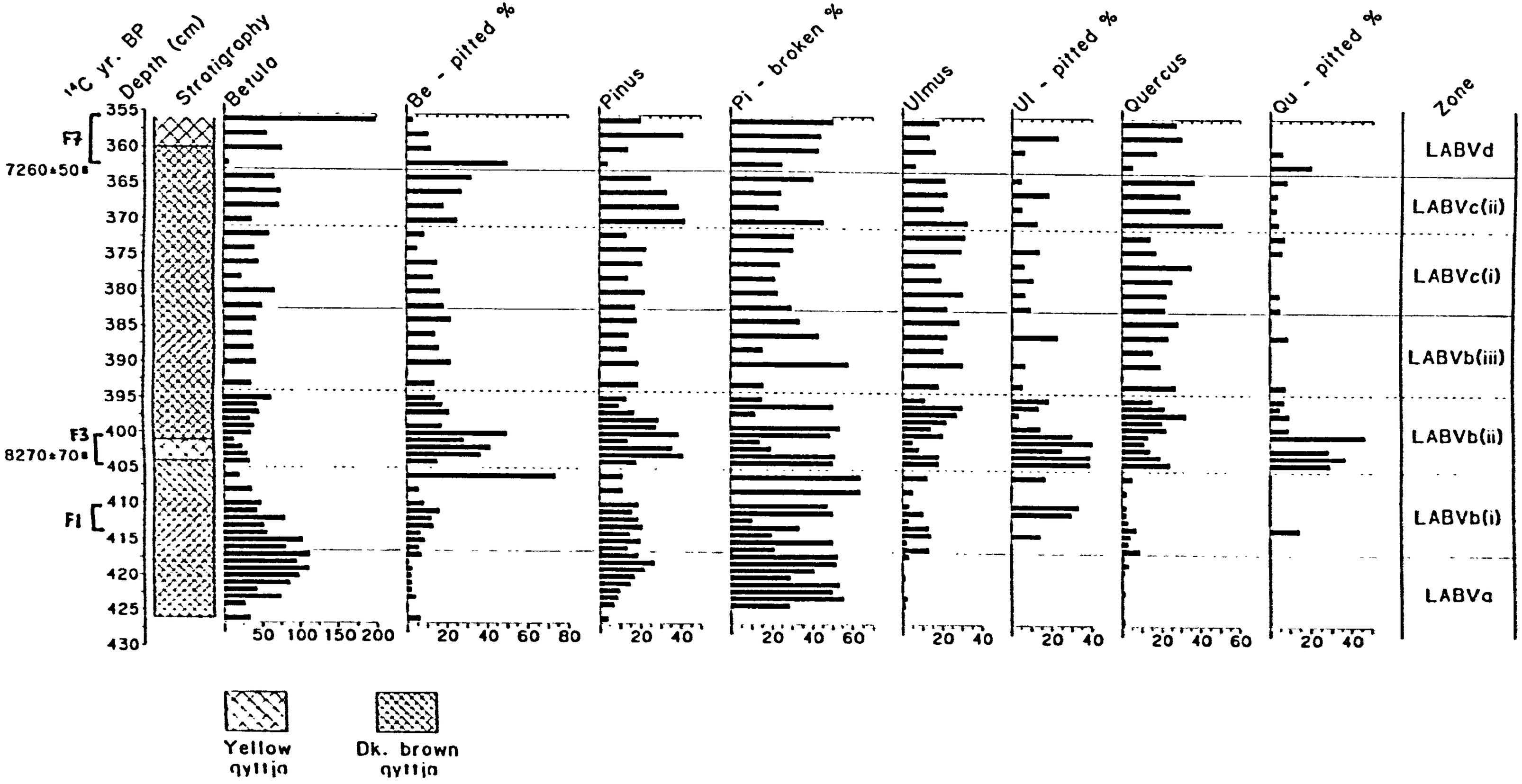


Figure 3.45 continued

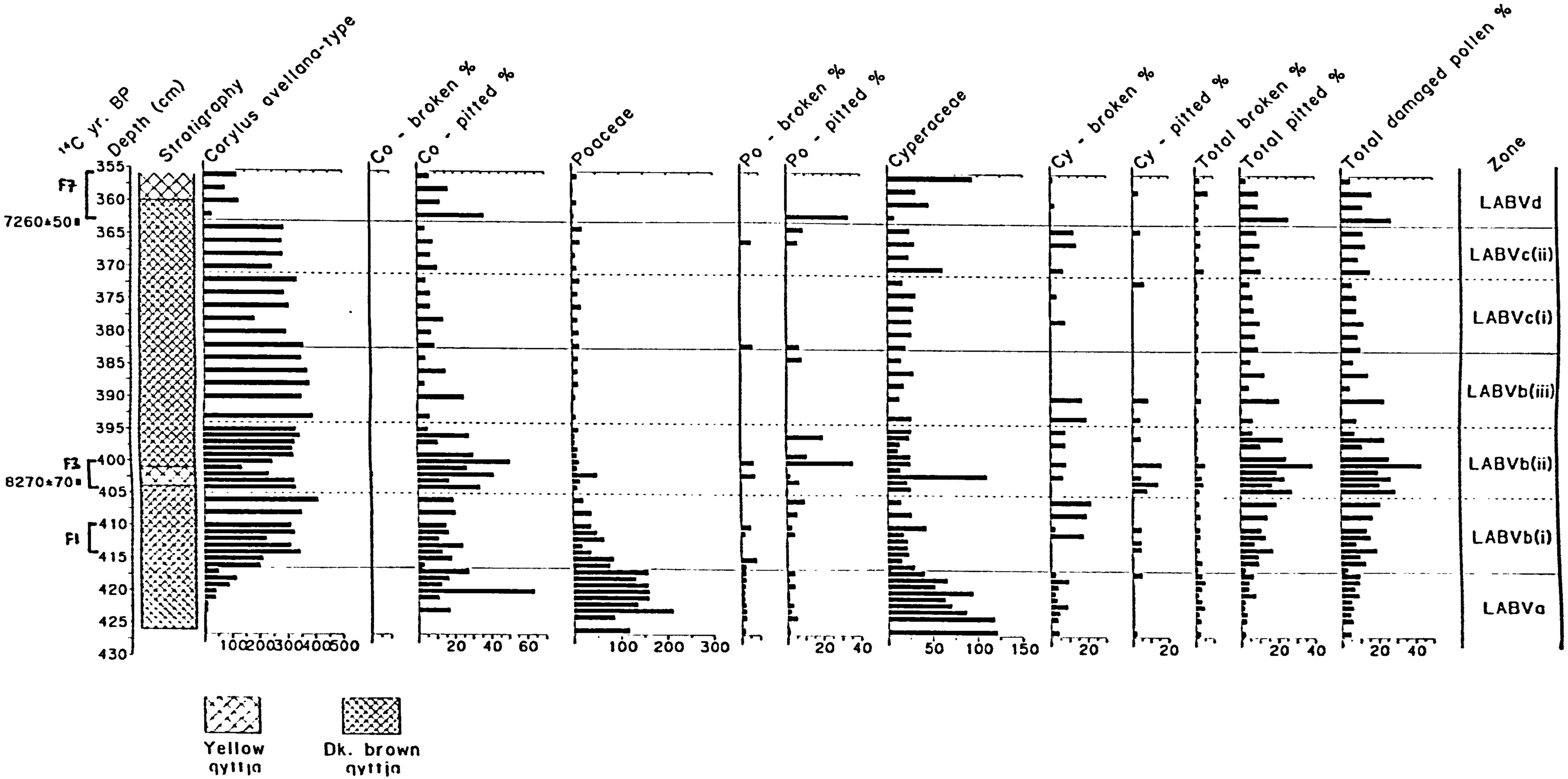
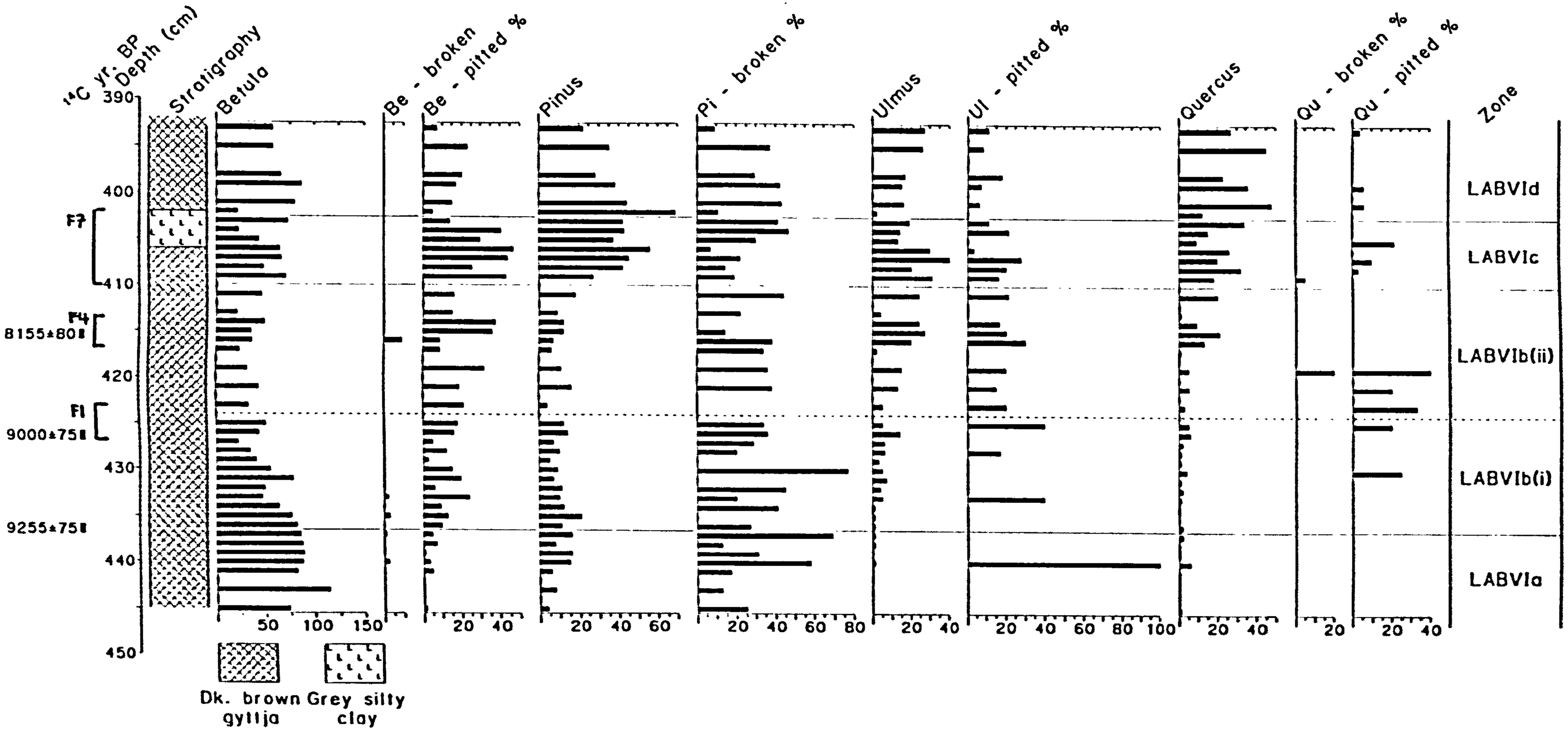


Figure 3.46 Percentage diagram of damaged pollen types for selected taxa from LABVI
(Taxon scores presented as raw counts)



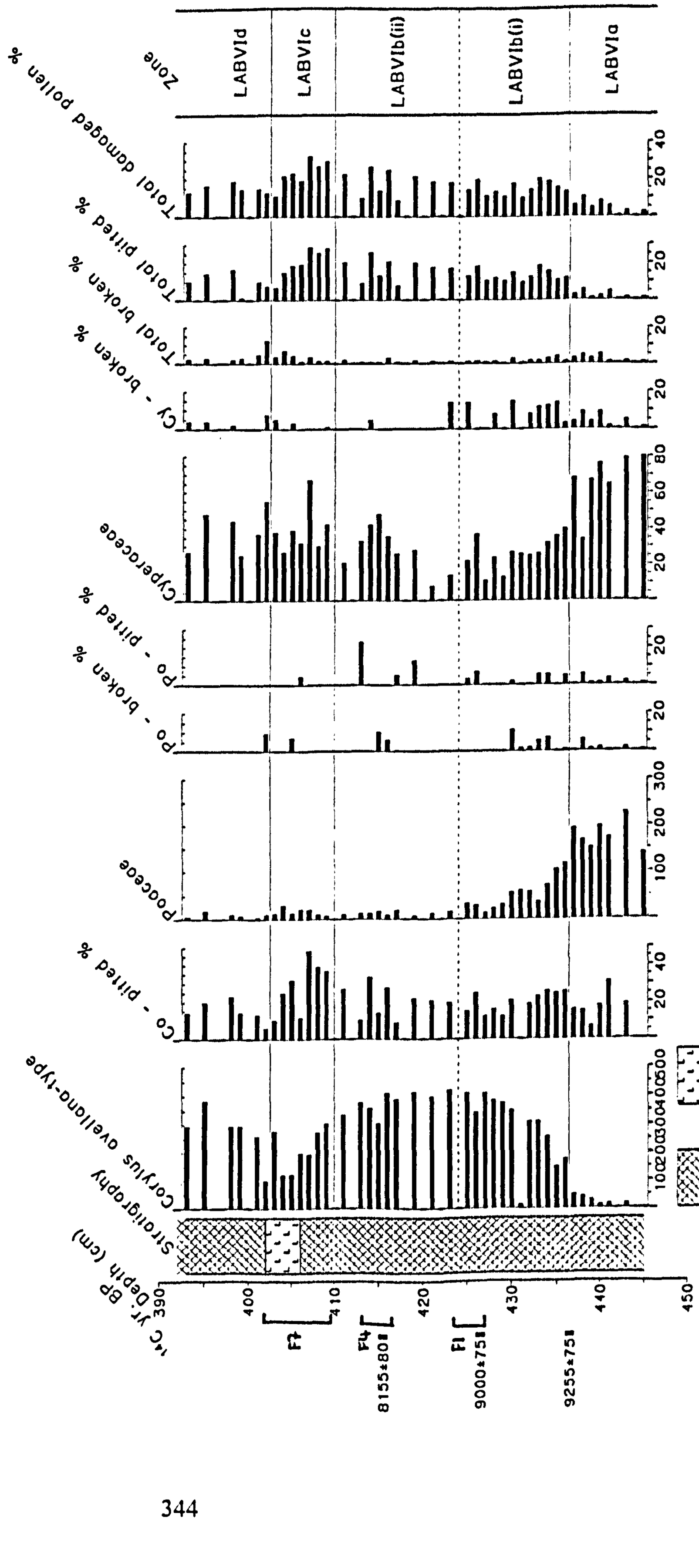


Figure 3.46 continued

Figure 3.47 Percentage diagram of damaged pollen types for selected taxa from LABVII
(Taxon scores presented as raw counts)

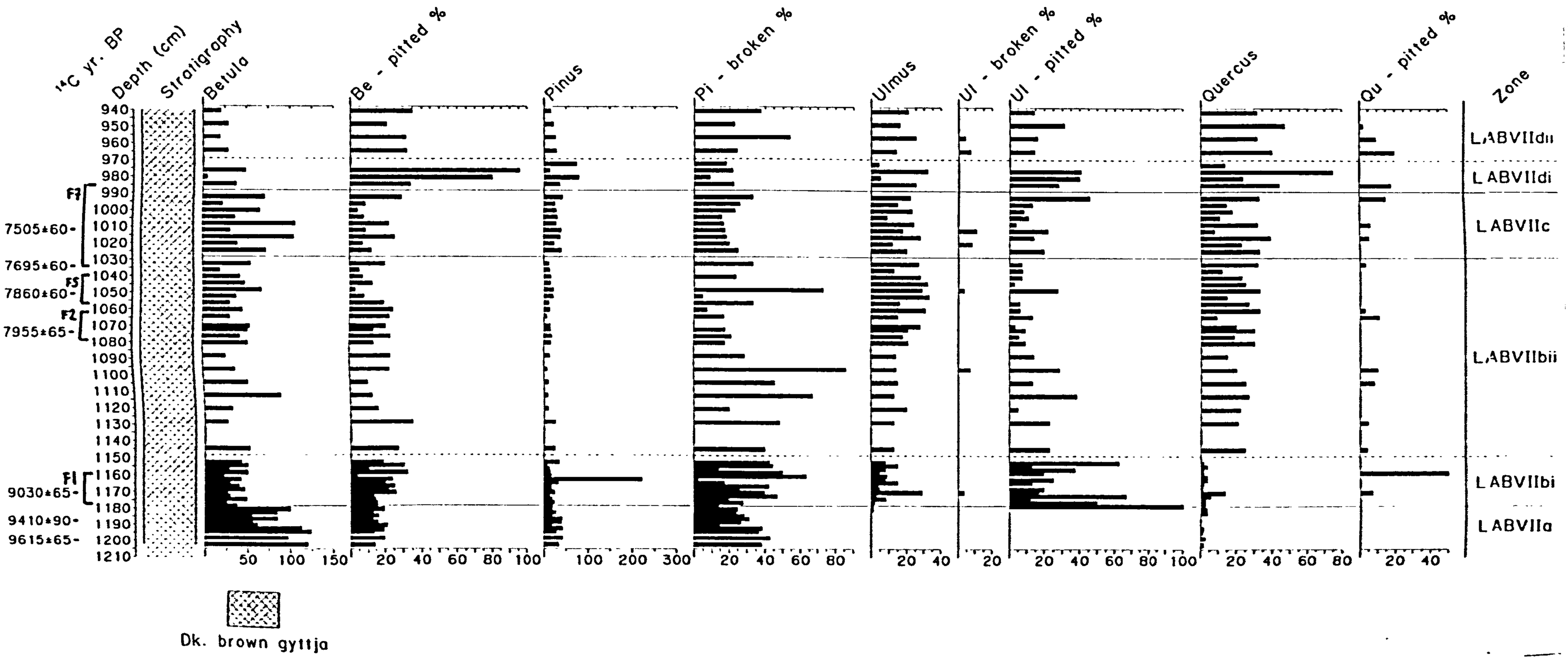


Figure 3.47 continued

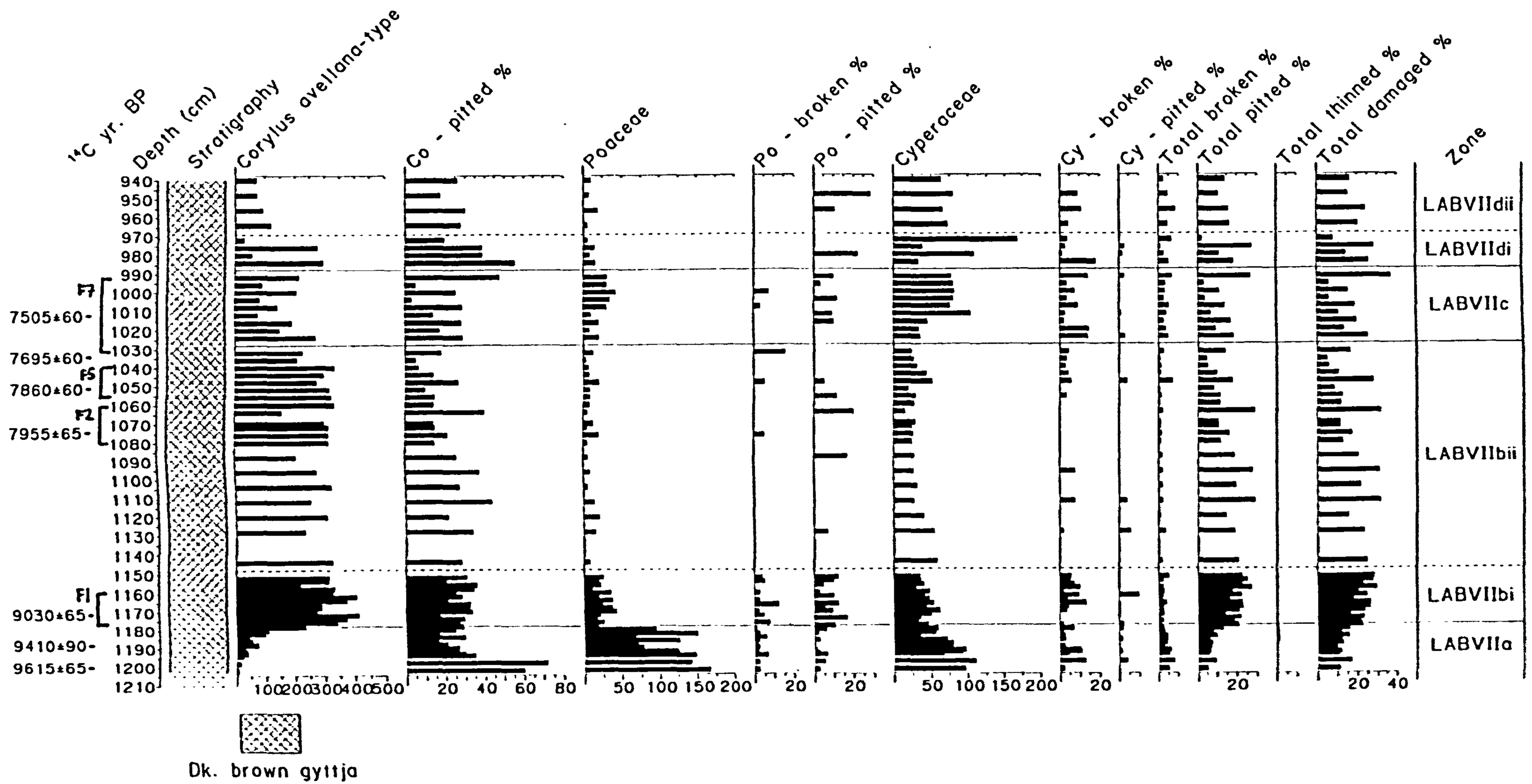
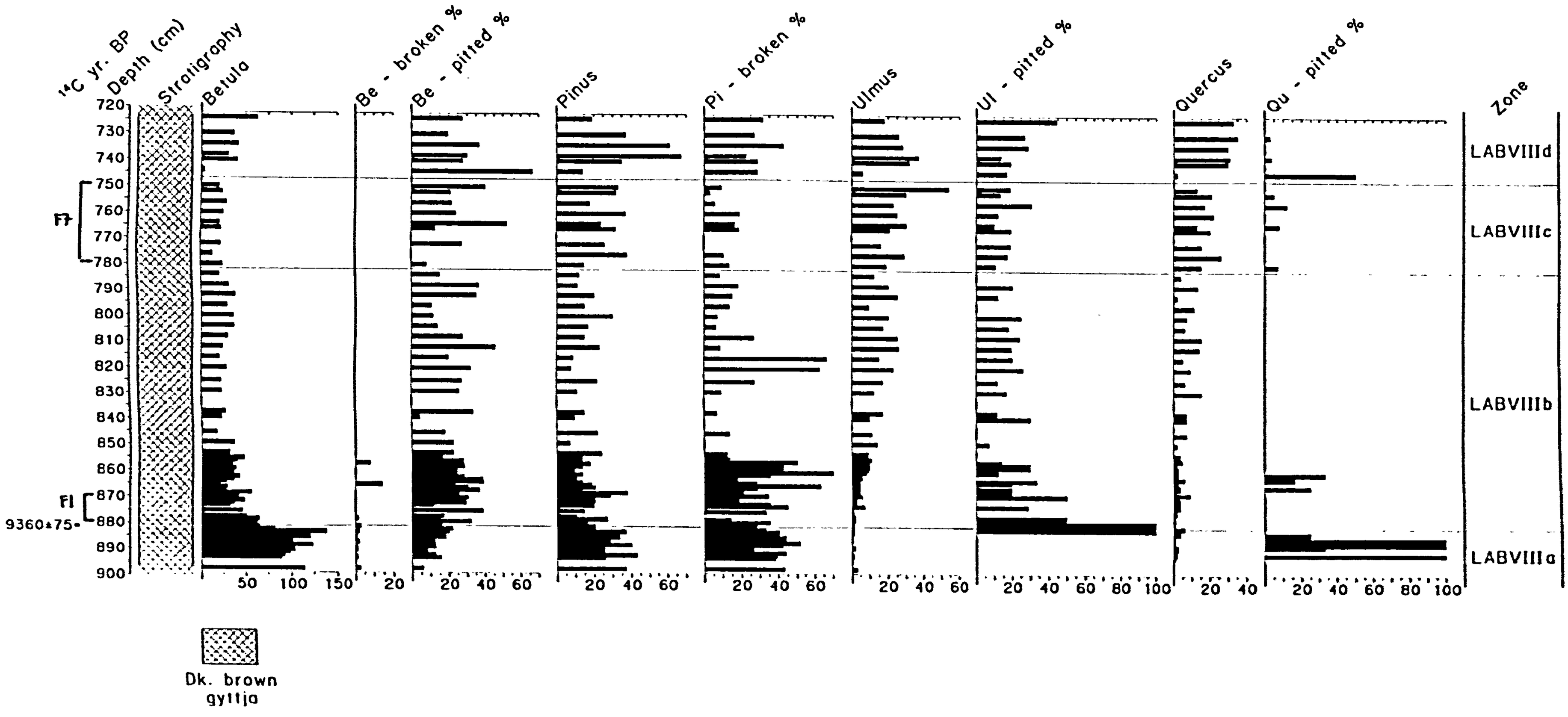


Figure 3.48 Percentage diagram of damaged pollen types for selected taxa from LABVIII
(Taxon scores presented as raw counts)



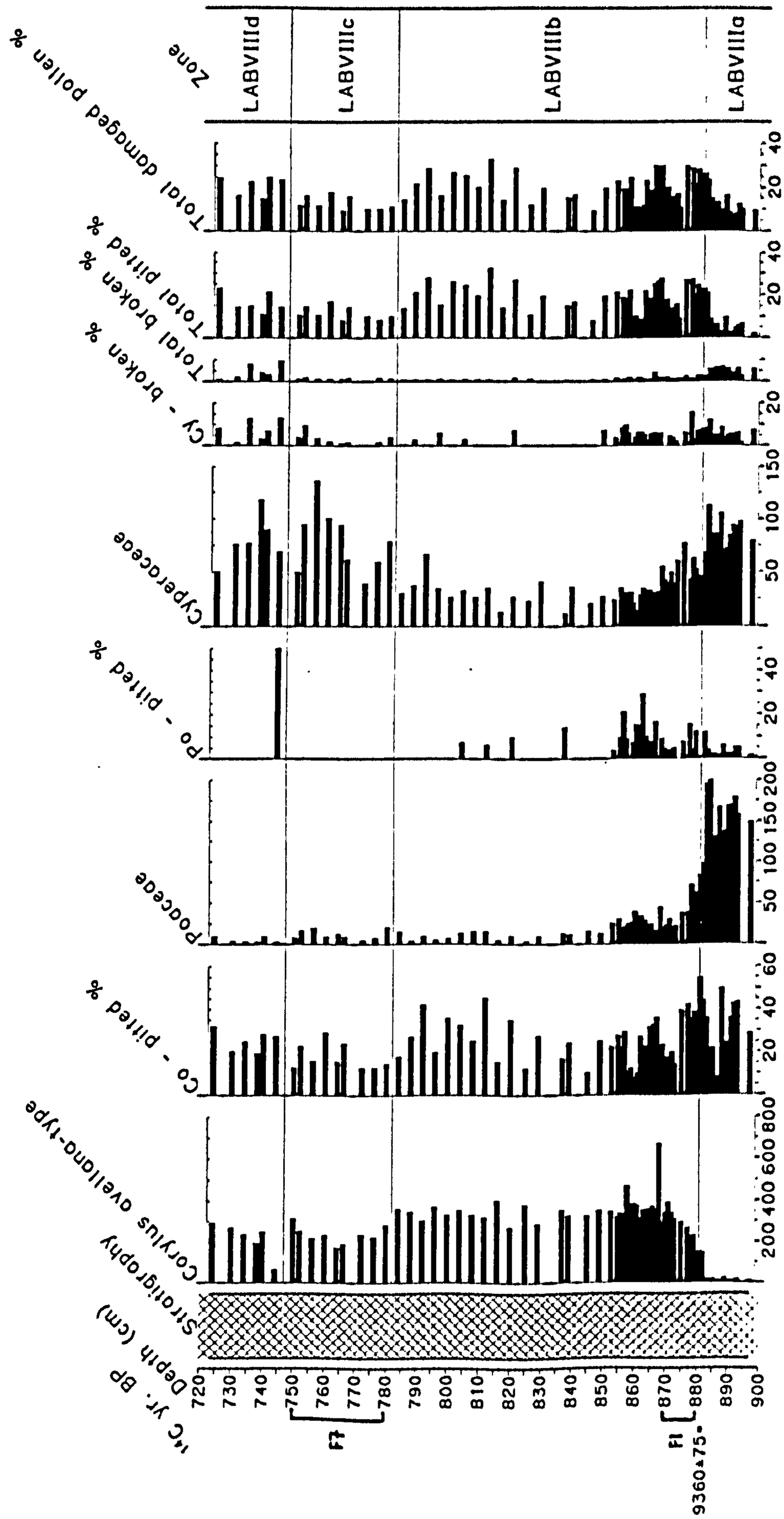


Figure 3.48 continued

Figure 3.49a DCA plot of mean subzone scores, post-*Corylus* rise zones only

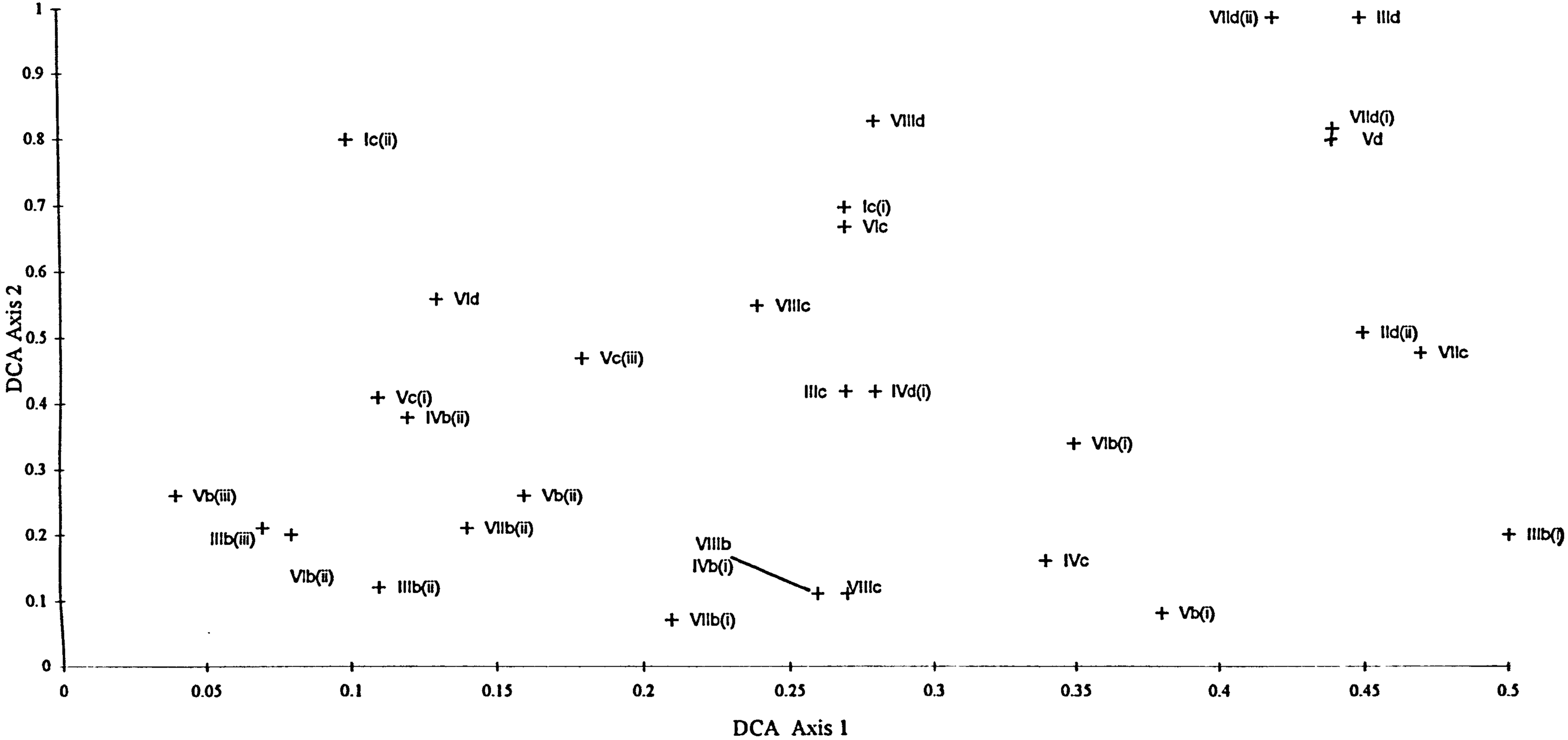


Figure 3.49b DCA plot of zones c and d for the Loch a'Bhogaidh profiles

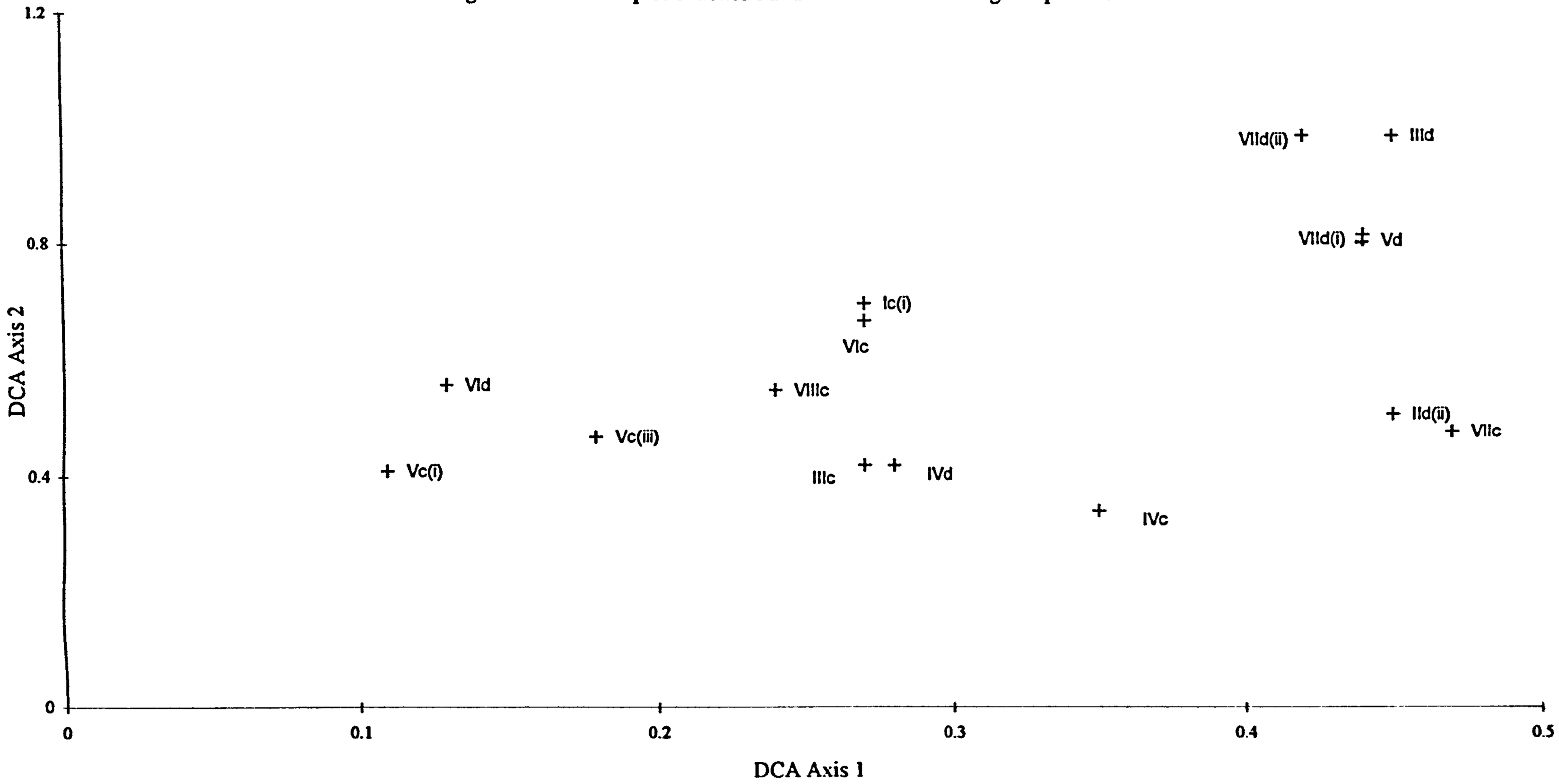
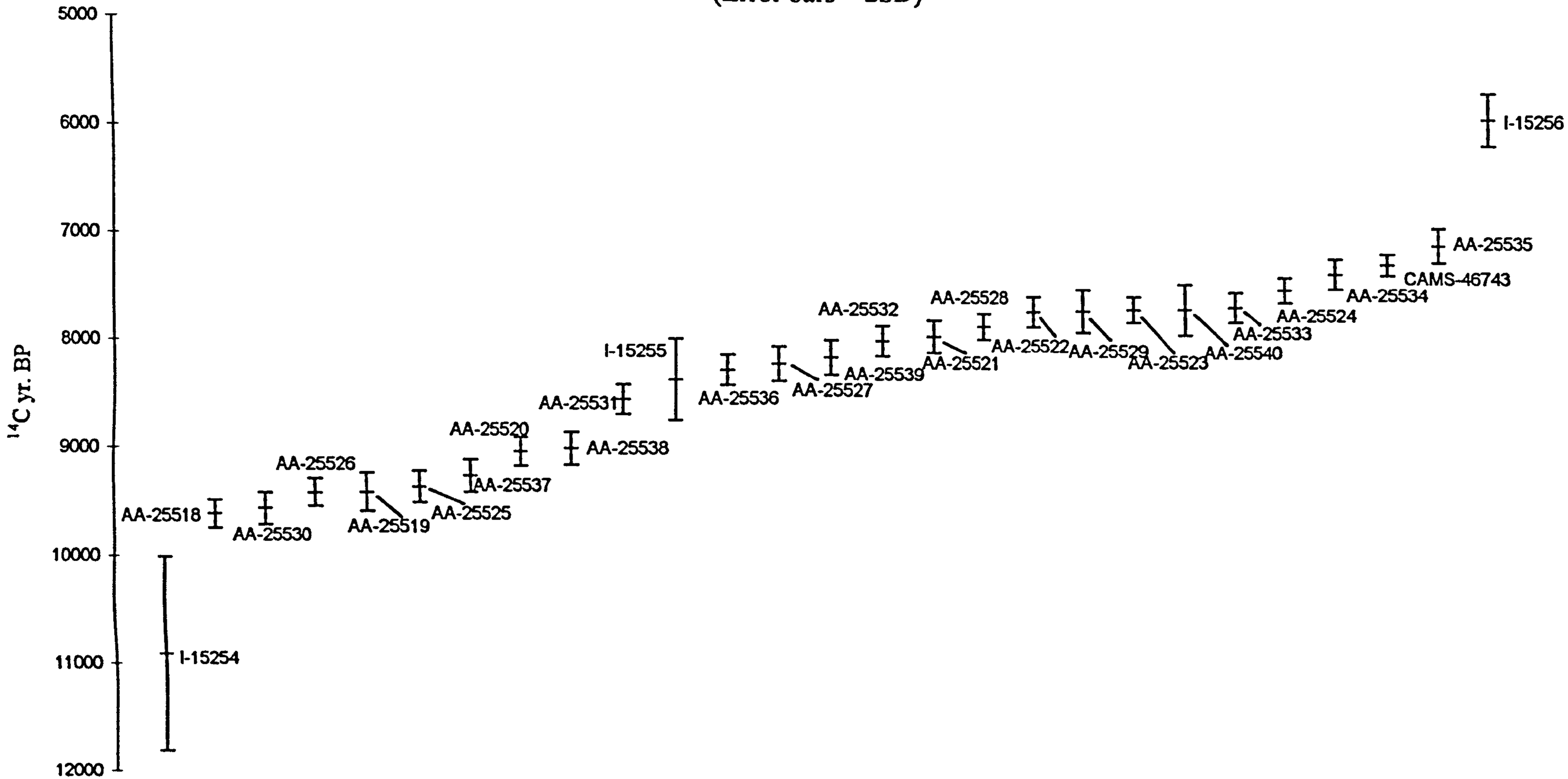


Figure 3.50a Spread of ^{14}C dates from the Loch a'Bhogaidh profiles
(Error bars = 2SD)



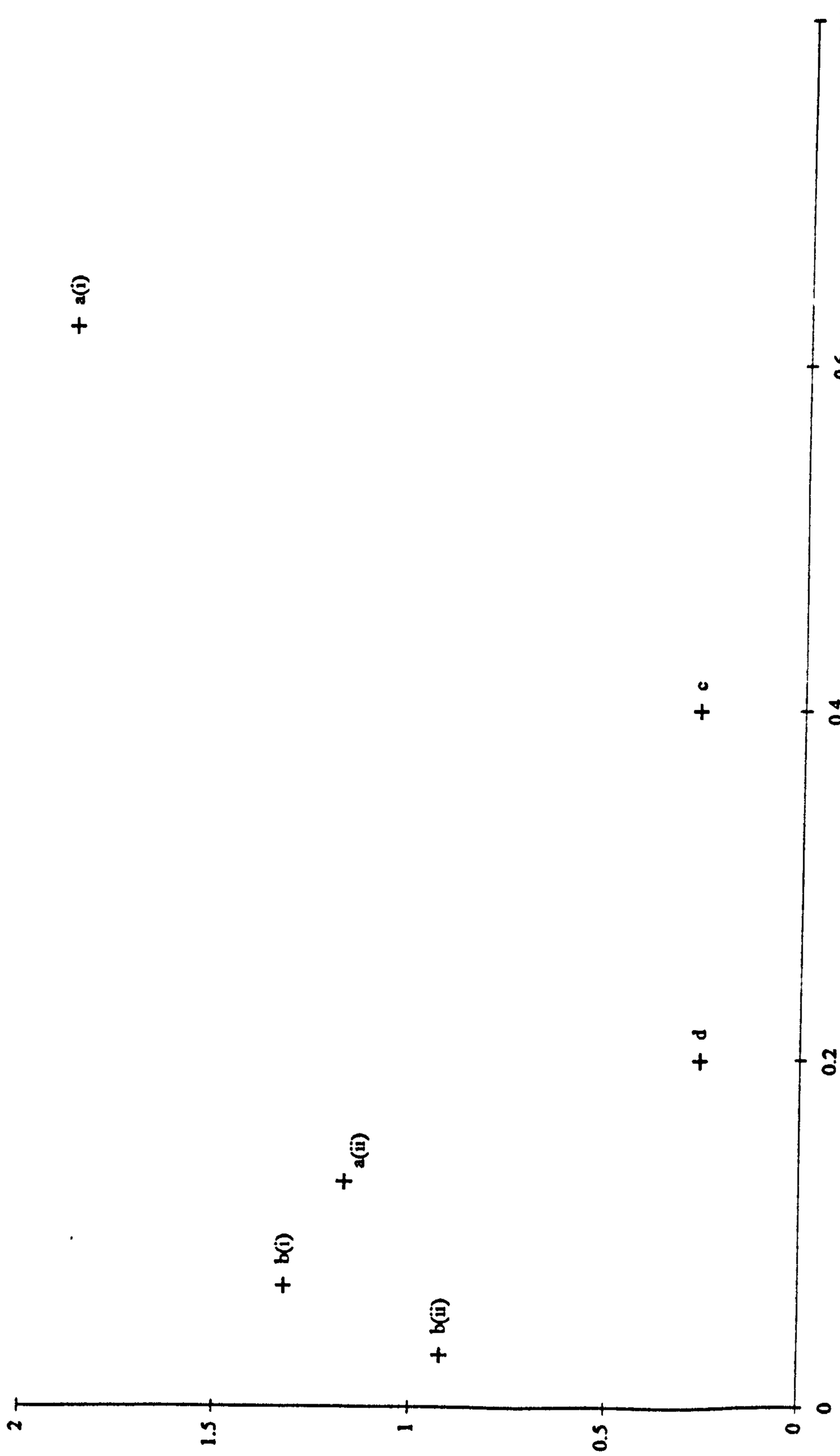


Figure 4.11 DCA plot of subzone mean scores for 2LS

Figure 3.50b ^{14}C dates from Loch a'Bhogaidh grouped by site

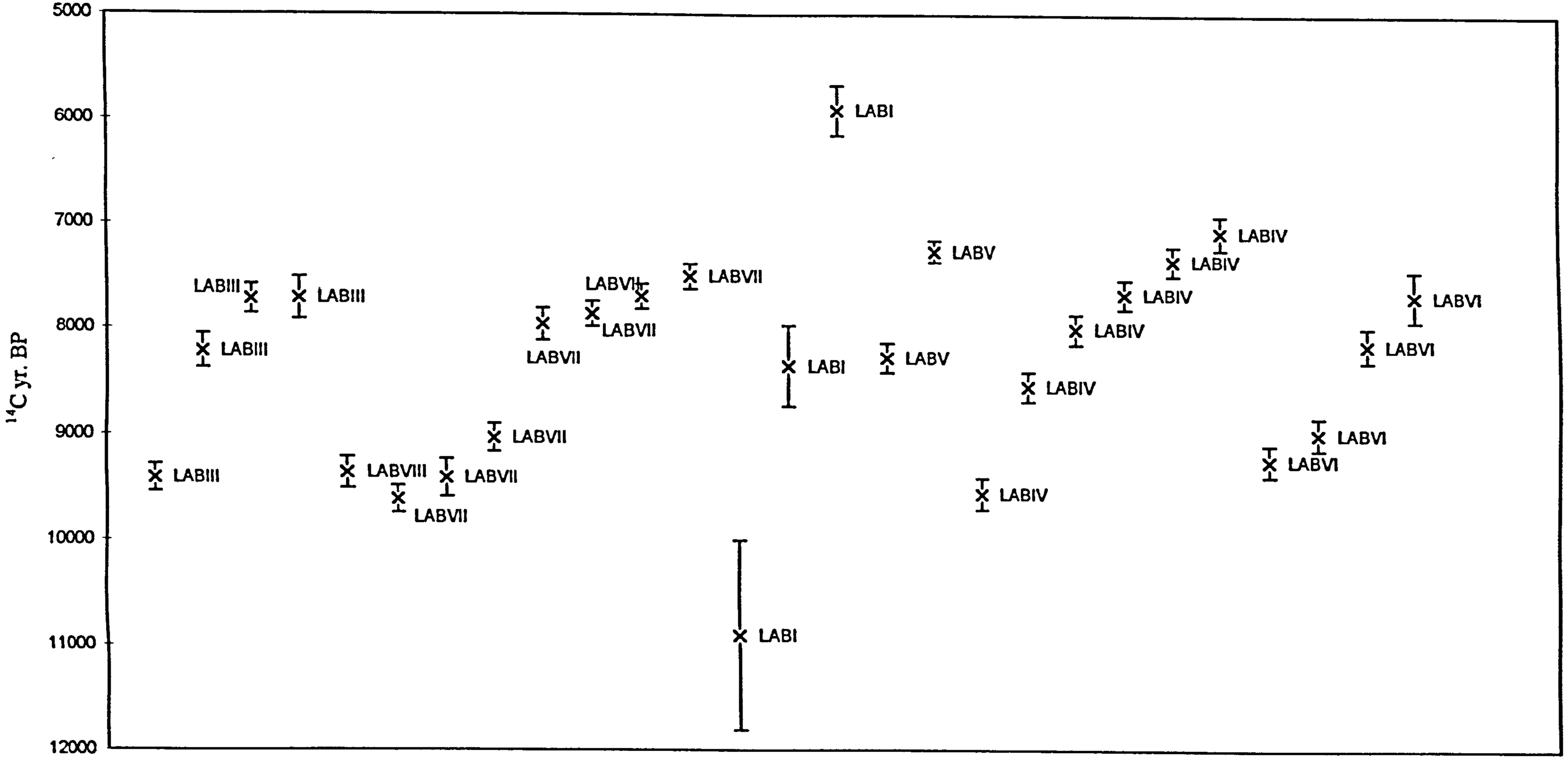
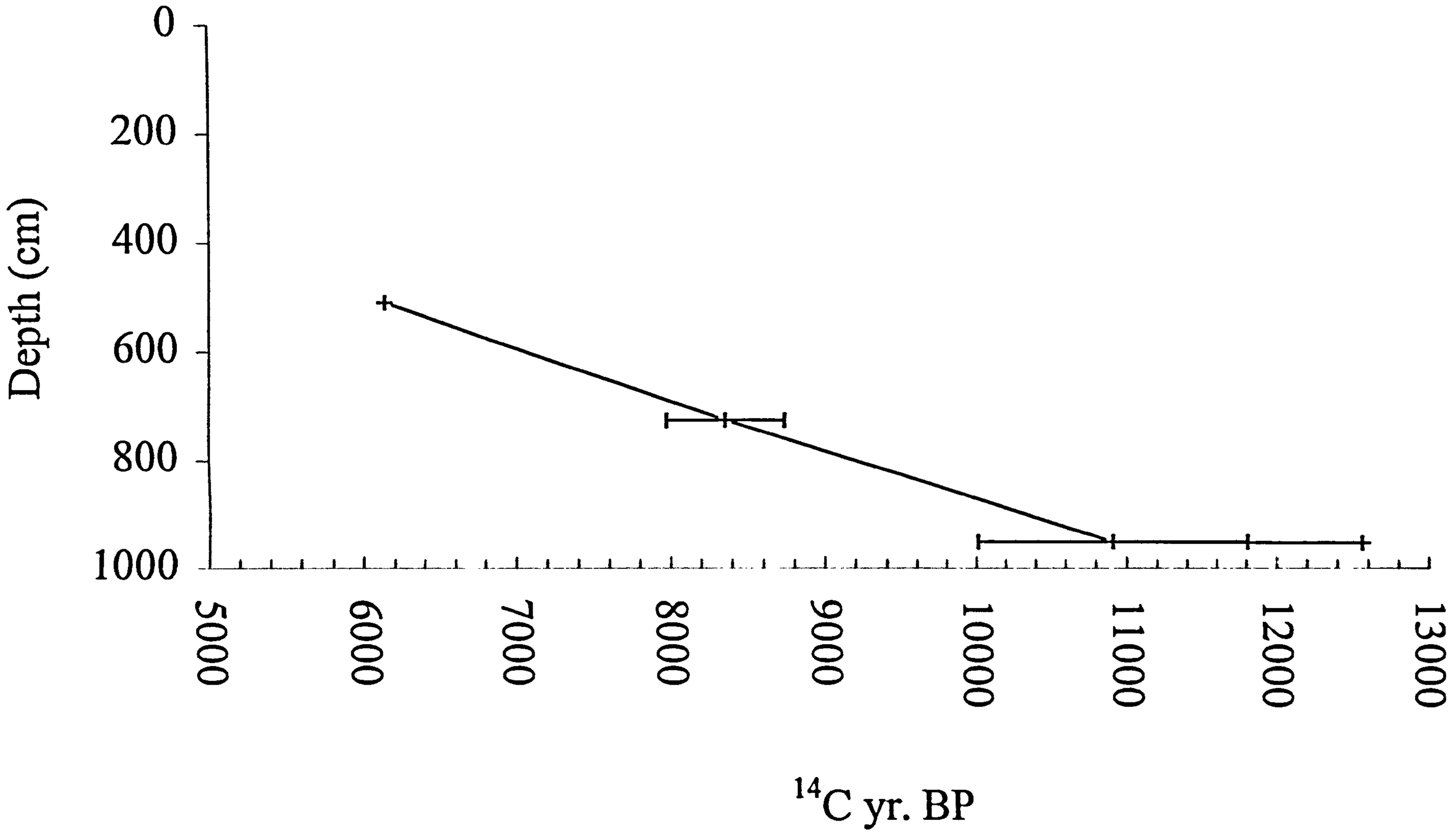


Figure 3.51 Age-depth curve for LABI (after Edwards and Berridge, 1994)



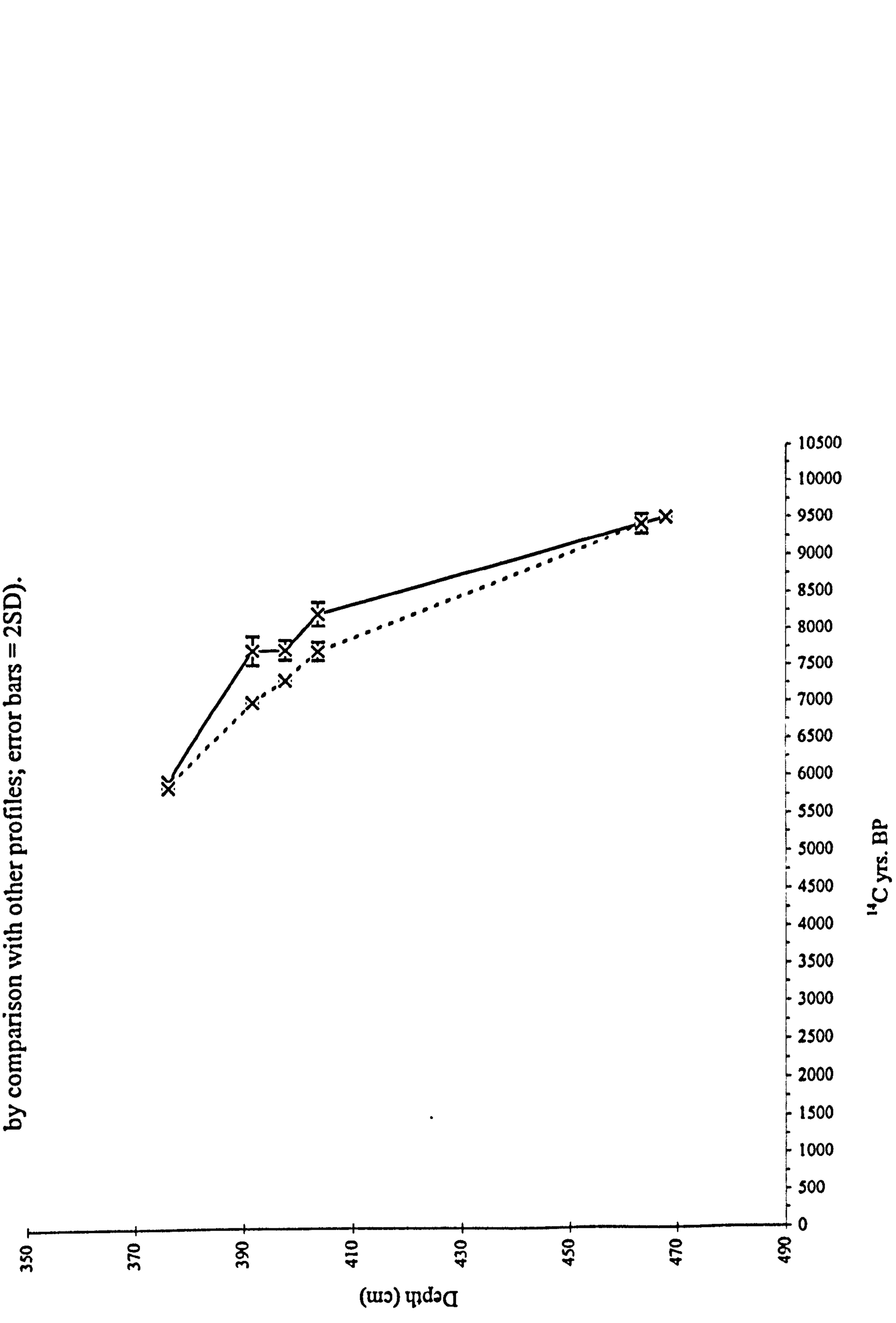


Figure 3.52 - Age-depth curves for LABIII (Dashed line = dates assumed by comparison with other profiles; error bars = 2SD).

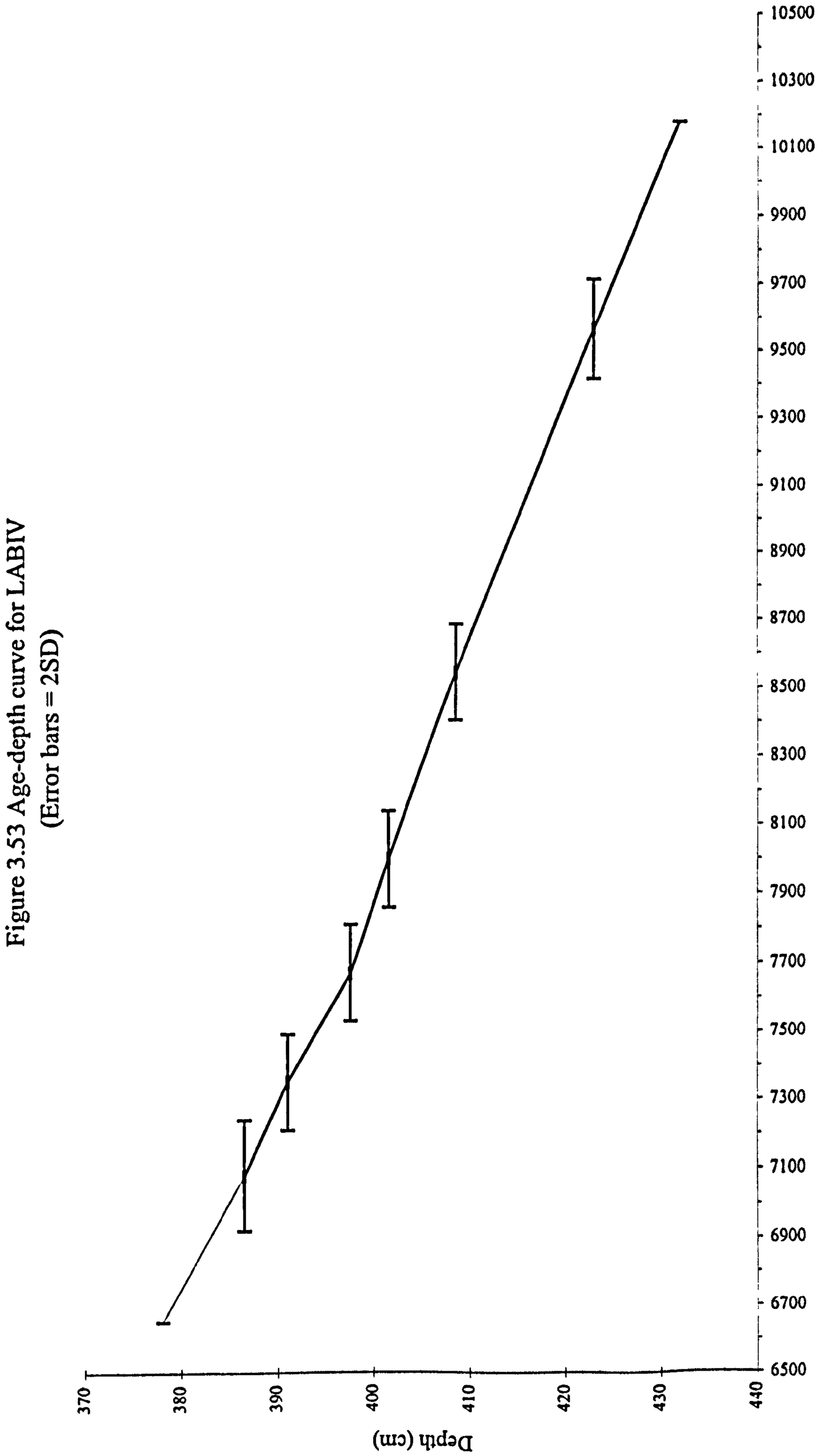


Figure 3.53 Age-depth curve for LABIV
(Error bars = 2SD)

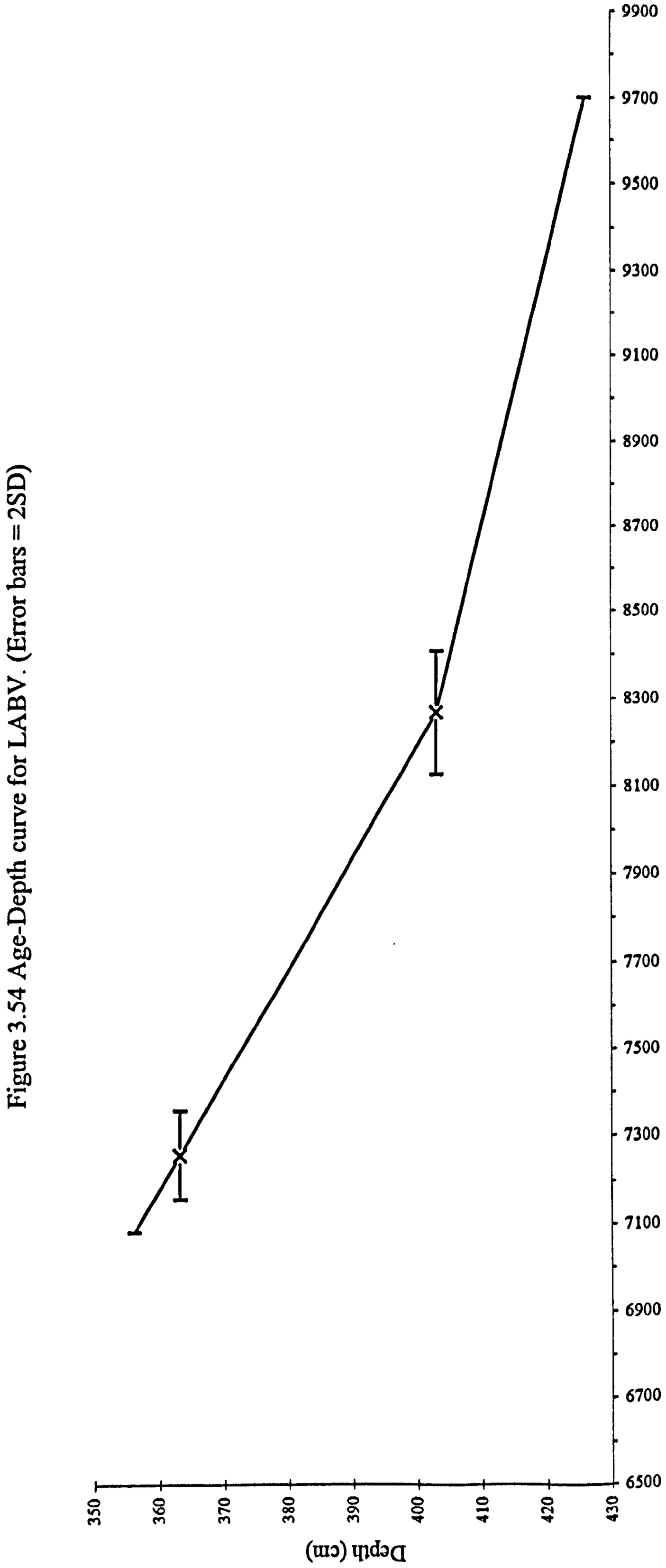


Figure 3.54 Age-Depth curve for LABV. (Error bars = 2SD)

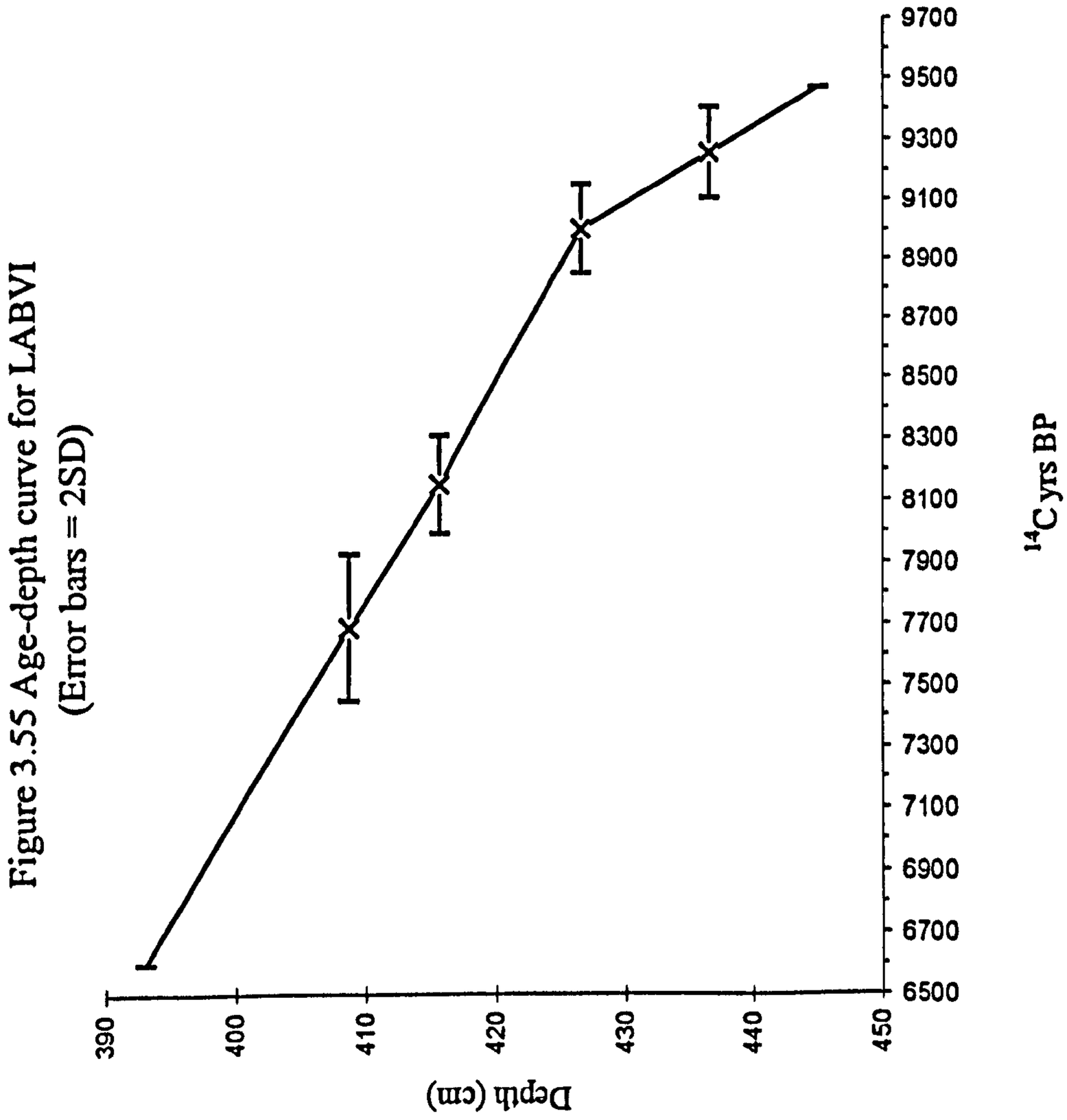
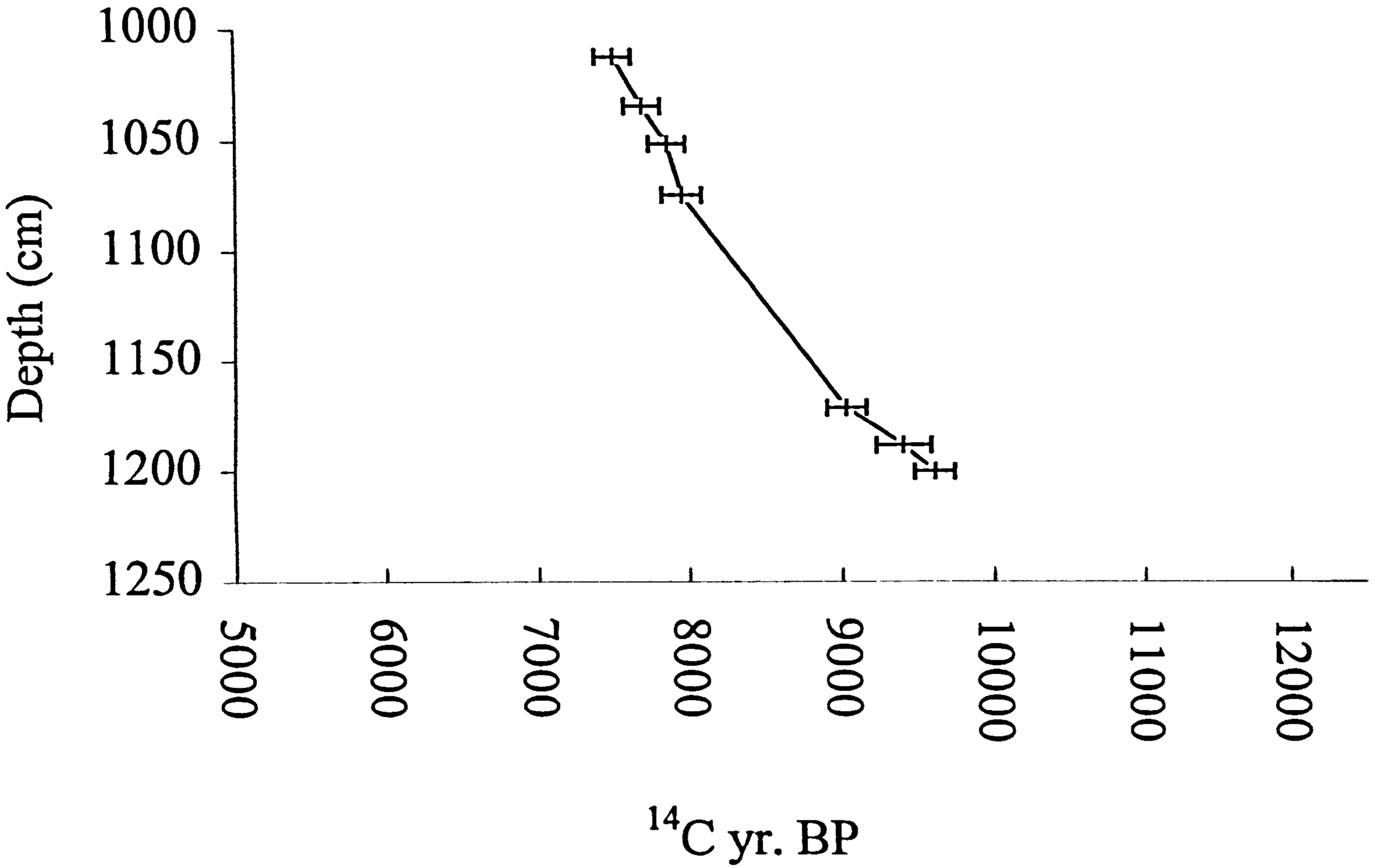


Figure 3.55 Age-depth curve for LABVI
(Error bars = 2SD)

Figure 3.56 Age-depth curve for LABVII



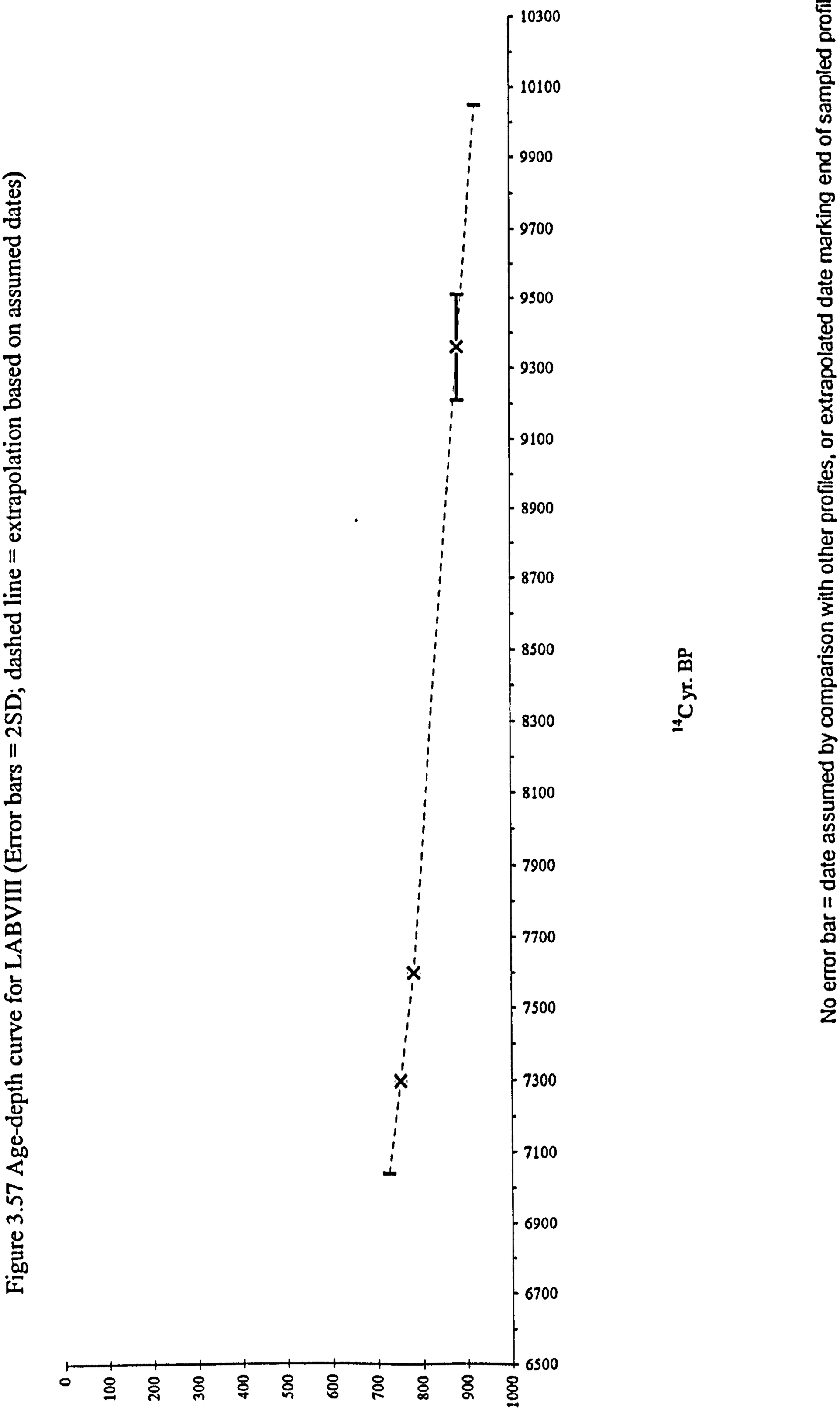


Figure 3.57 Age-depth curve for LABVIII (Error bars = 2SD; dashed line = extrapolation based on assumed dates)

Figure 3.58 Percentage Corylus curves from the Loch a'Bhogaidh profiles, c. 7700 - 7000 BP

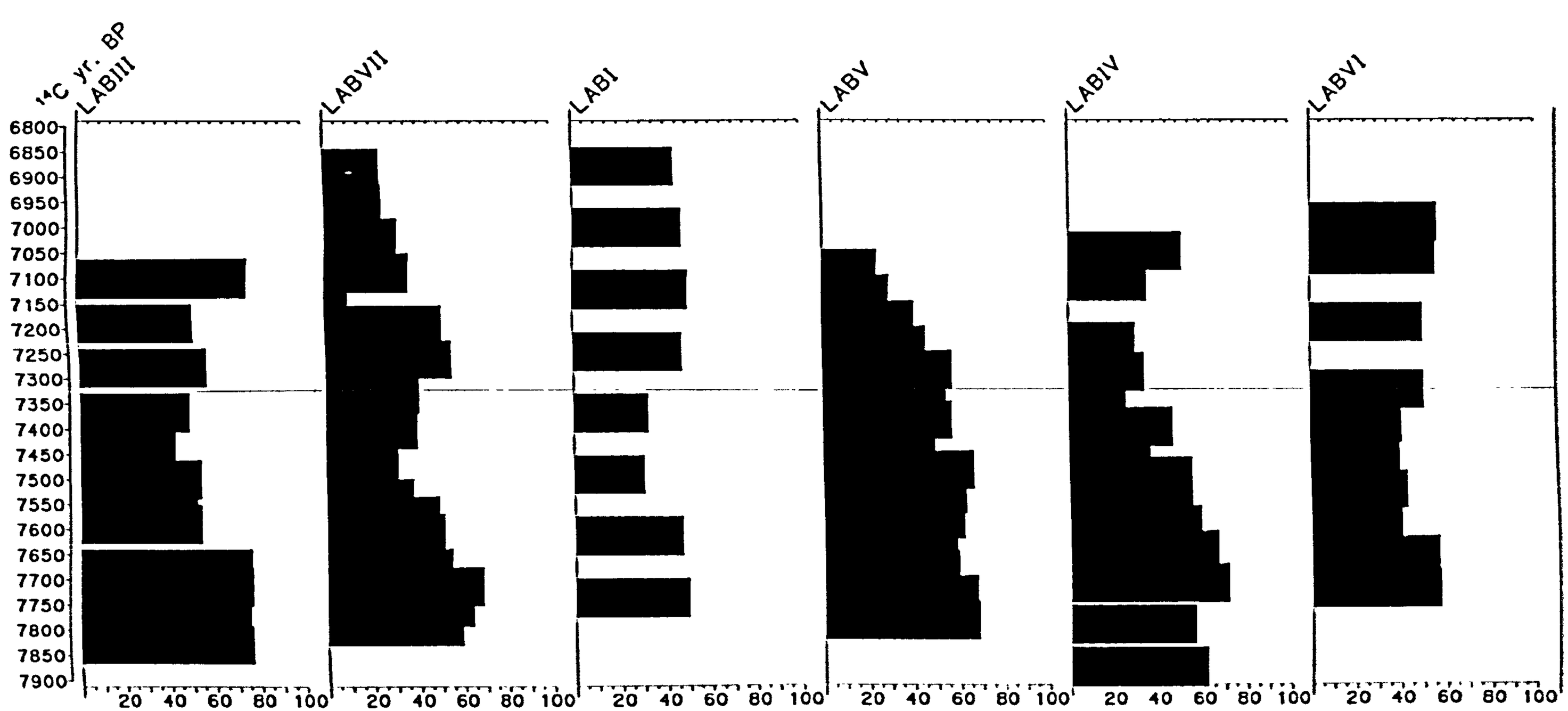
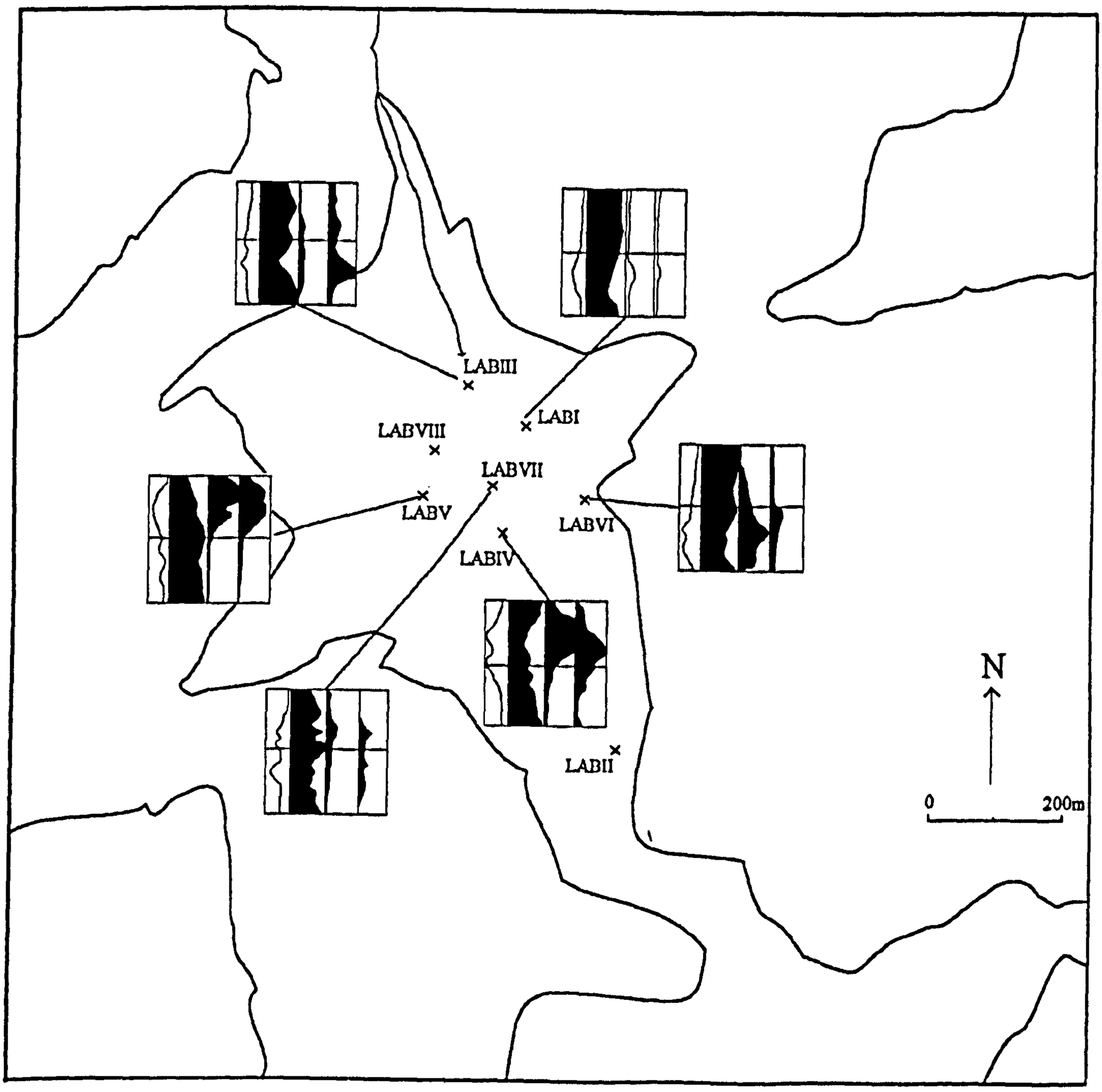


Figure 3.59 Map showing summary diagrams of the Loch a'Bhogaidh profiles, c. 7700 - 7000 BP (6600 - 5870 cal. BC)



Diagrams read left to right: LOI (%), Corylus avellana-type (%), Isoetes lacustris (%), Ch:P. Base of diagram = c. 7700 BP (6660 cal. BC), dividing line = c. 7300 BP (6190 cal. BC), top of diagram = c. 7000 BP (5910 cal. BC).

LABVIII and LABII are excluded due to lack of radiocarbon dates on these profiles.

Figure 3.60 Diagram showing the relationships between profile subzones for Loch a'Bhogaidh

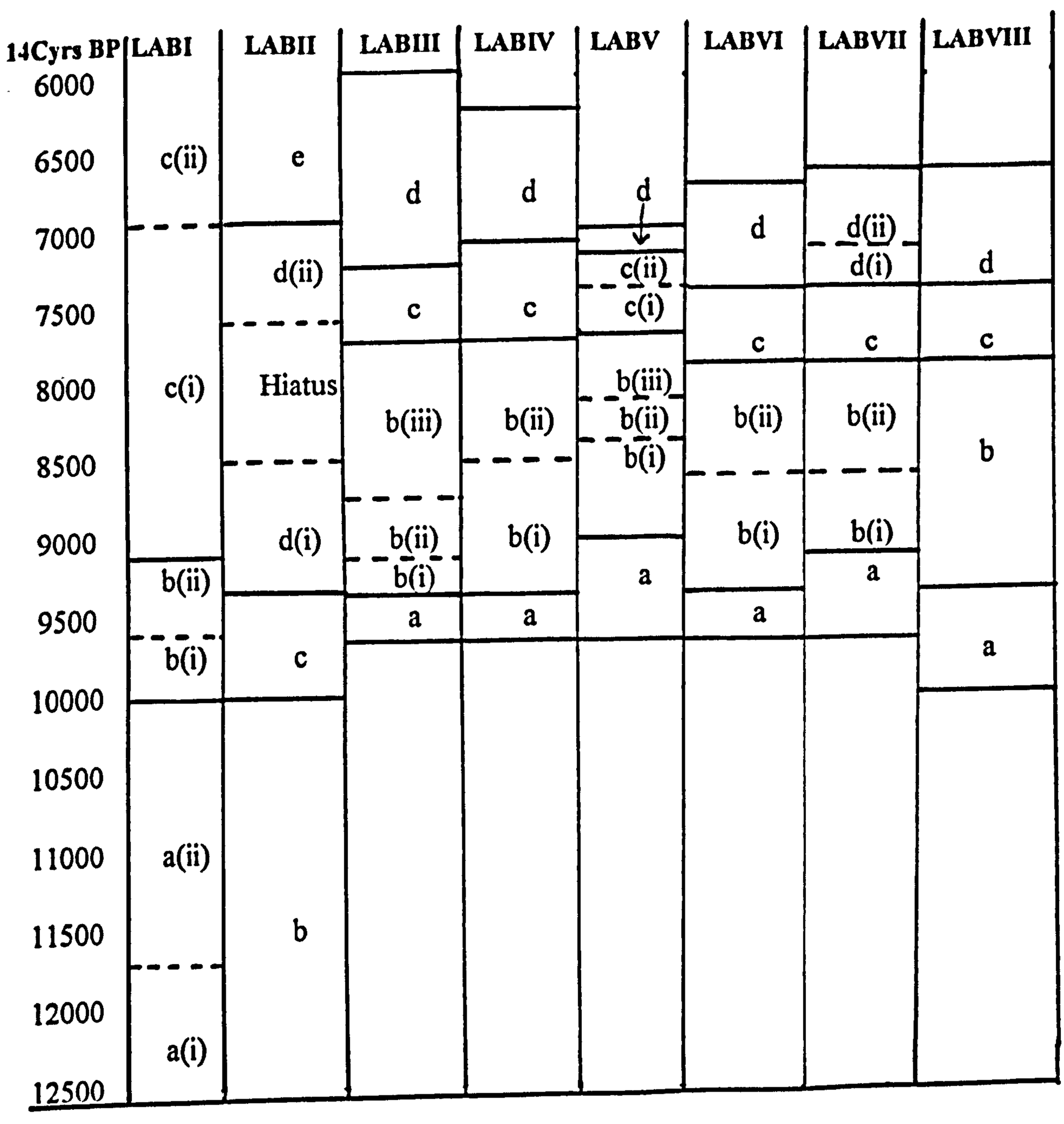


Figure 3.61 Diagram comparing estimated dates for peat initiation in the Loch a'Bhogaidh profiles

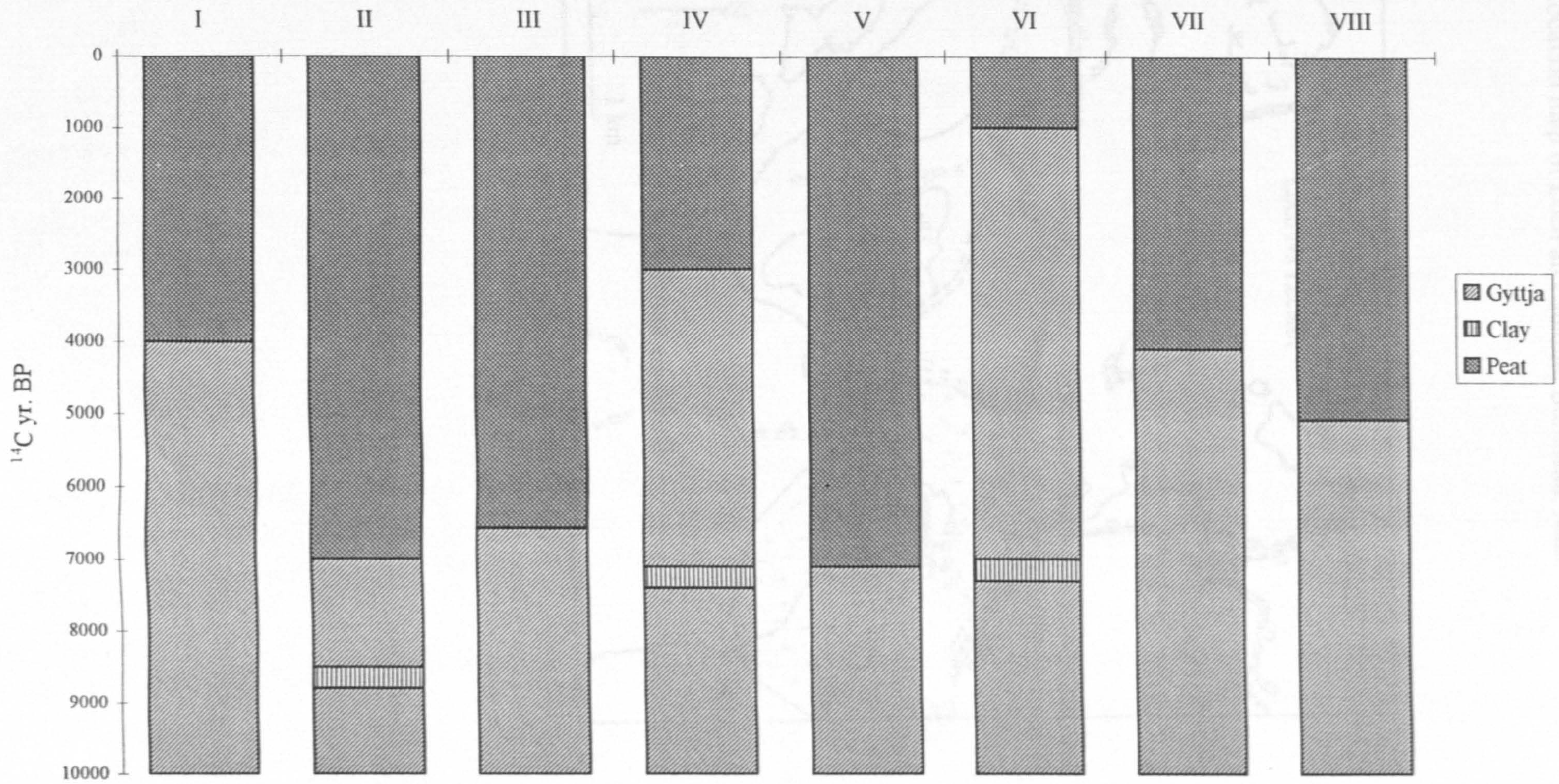


Figure 4.1 Location map of Loch an t'Suidhe, Bunessan, Mull.

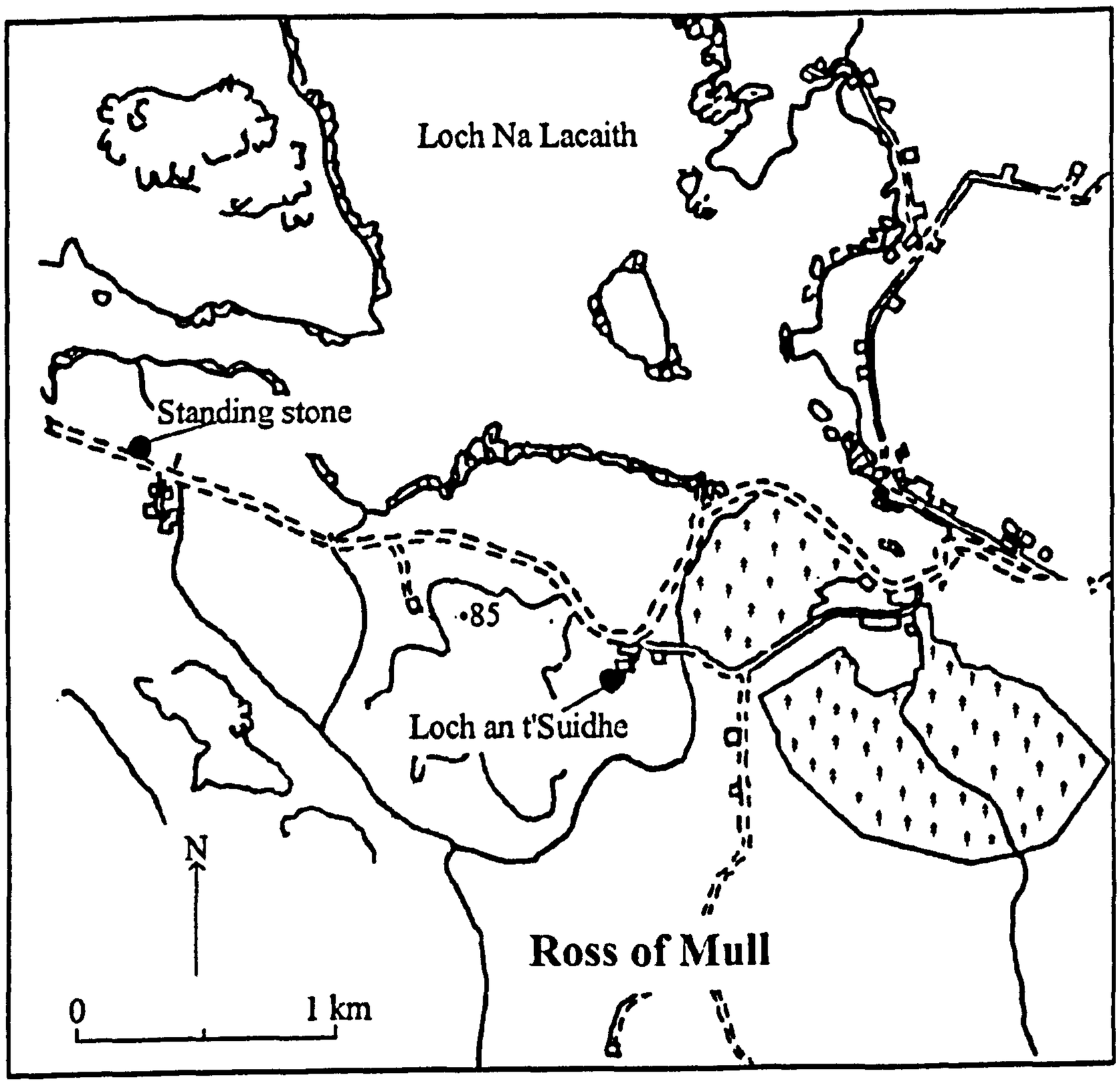
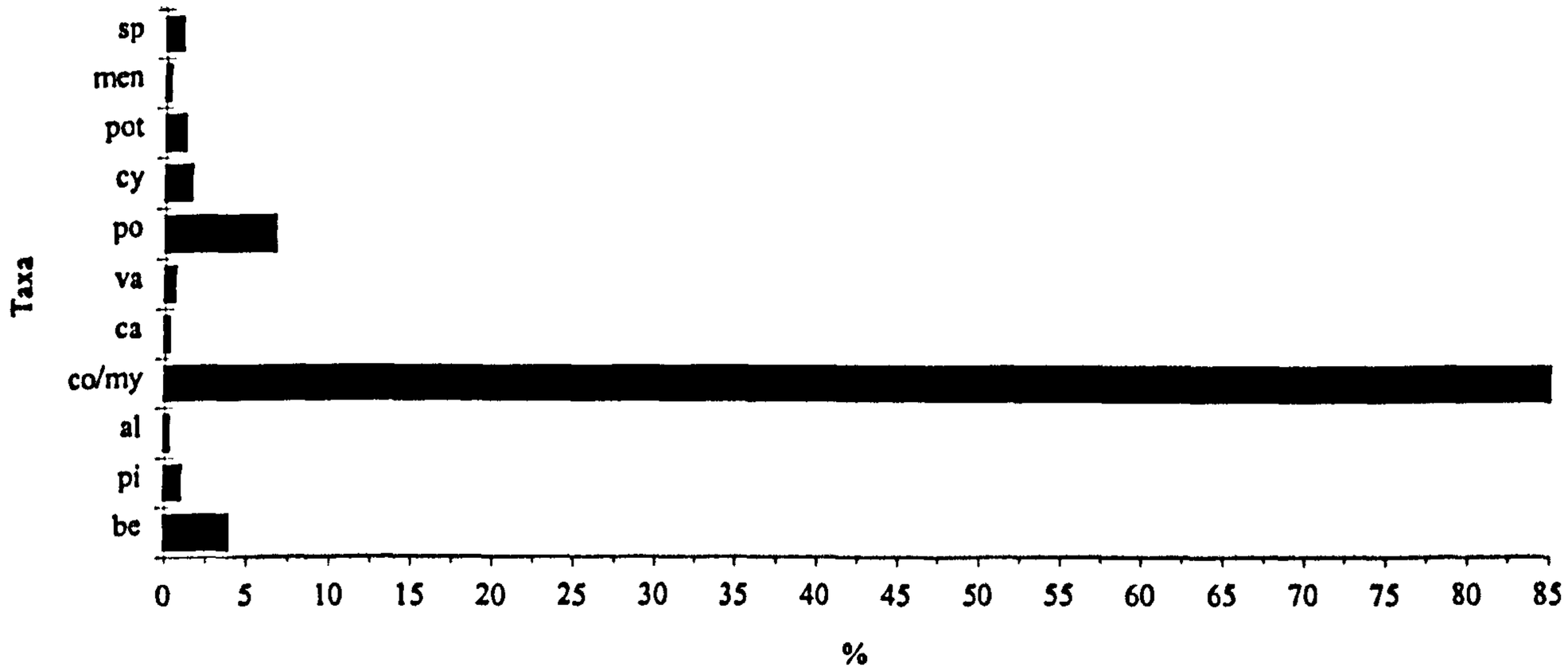


Figure 4.2 Pollen and spore percentages for a surface sample from Loch an t'Suidhe, Mull (% based on TLP sum)



Key to taxa

be = *Betula*; pi = *Pinus*; al = *Alnus*; co/my = *Corylus/Myrica*; ca = *Calluna*; va = *Vaccinium*-type; po = Poaceae; cy = Cyperaceae; pot = *Potentilla*-type; men = *Menyanthes trifoliata*; sp = *Sphagnum*

Figure 4.3 Original percentage diagram for Loch an t'Suidhe (Lowe and Walker, 1986a)

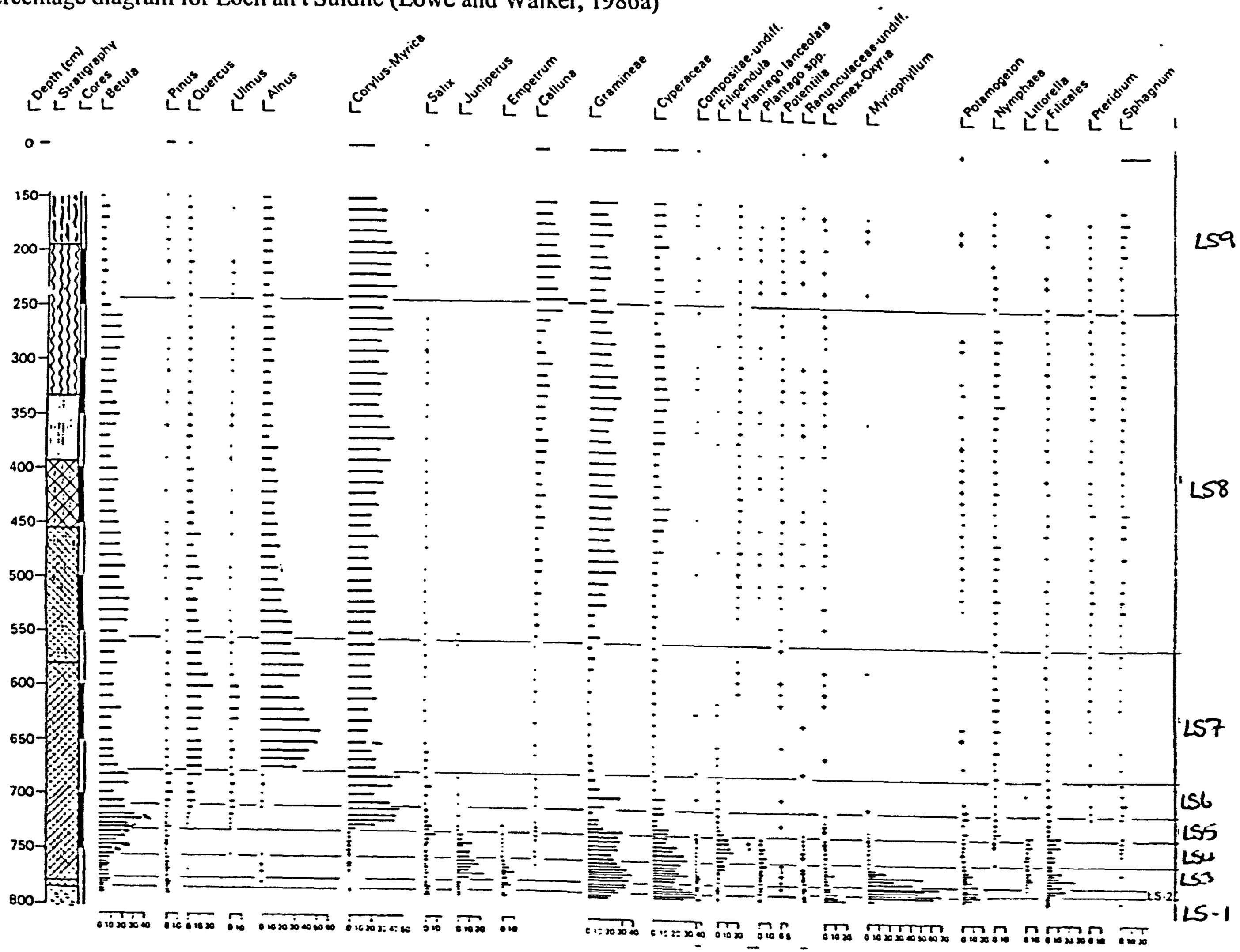


Figure 4.4 Detail of zones LS4, LS5, LS6 and LS7 from the original Lowe and Walker (1986b) profile

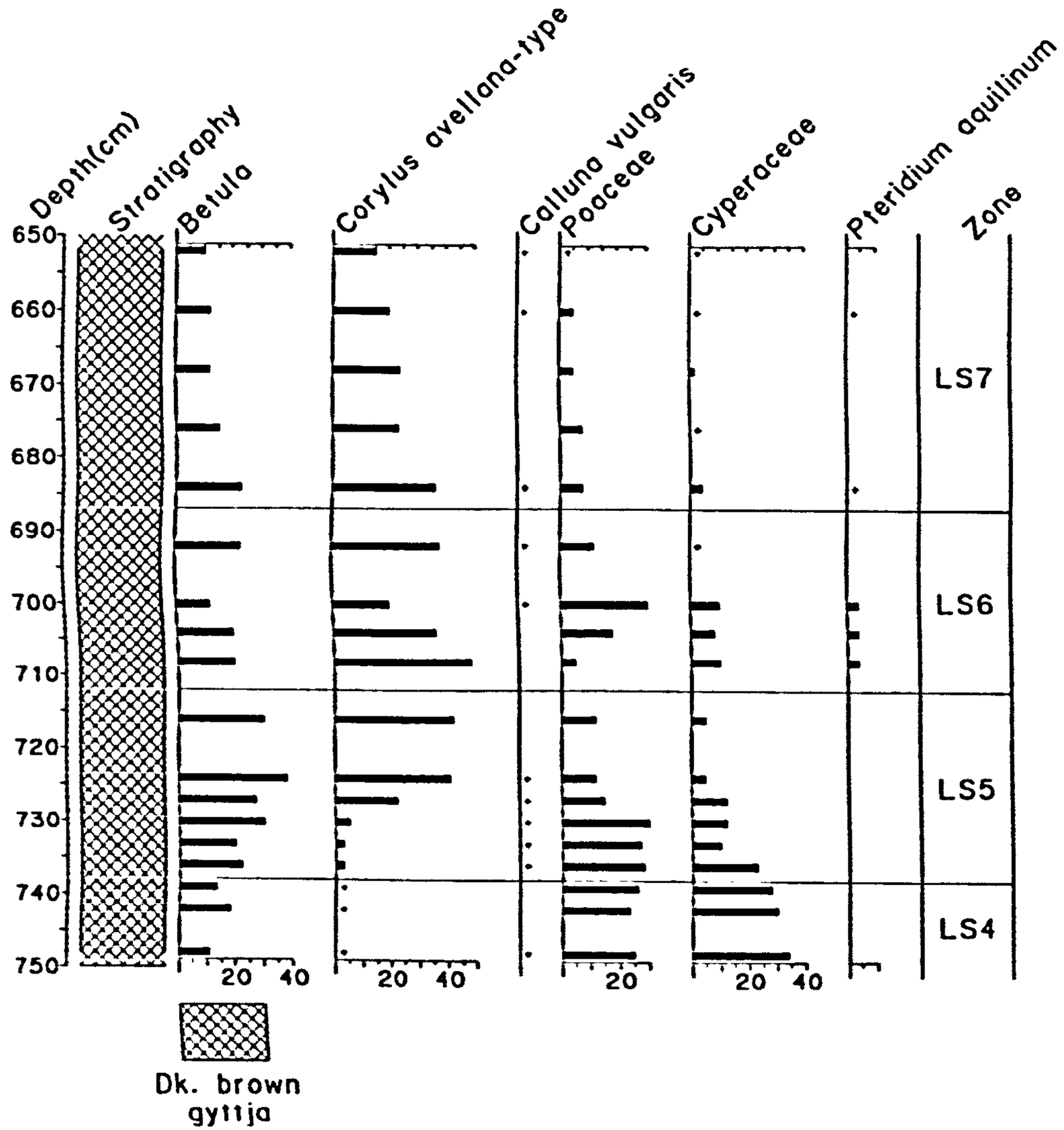


Figure 4.5 Pollen and spore percentage diagram for 2LS, Loch an t'Suidhe
(Circle symbol = < 2% TLP)

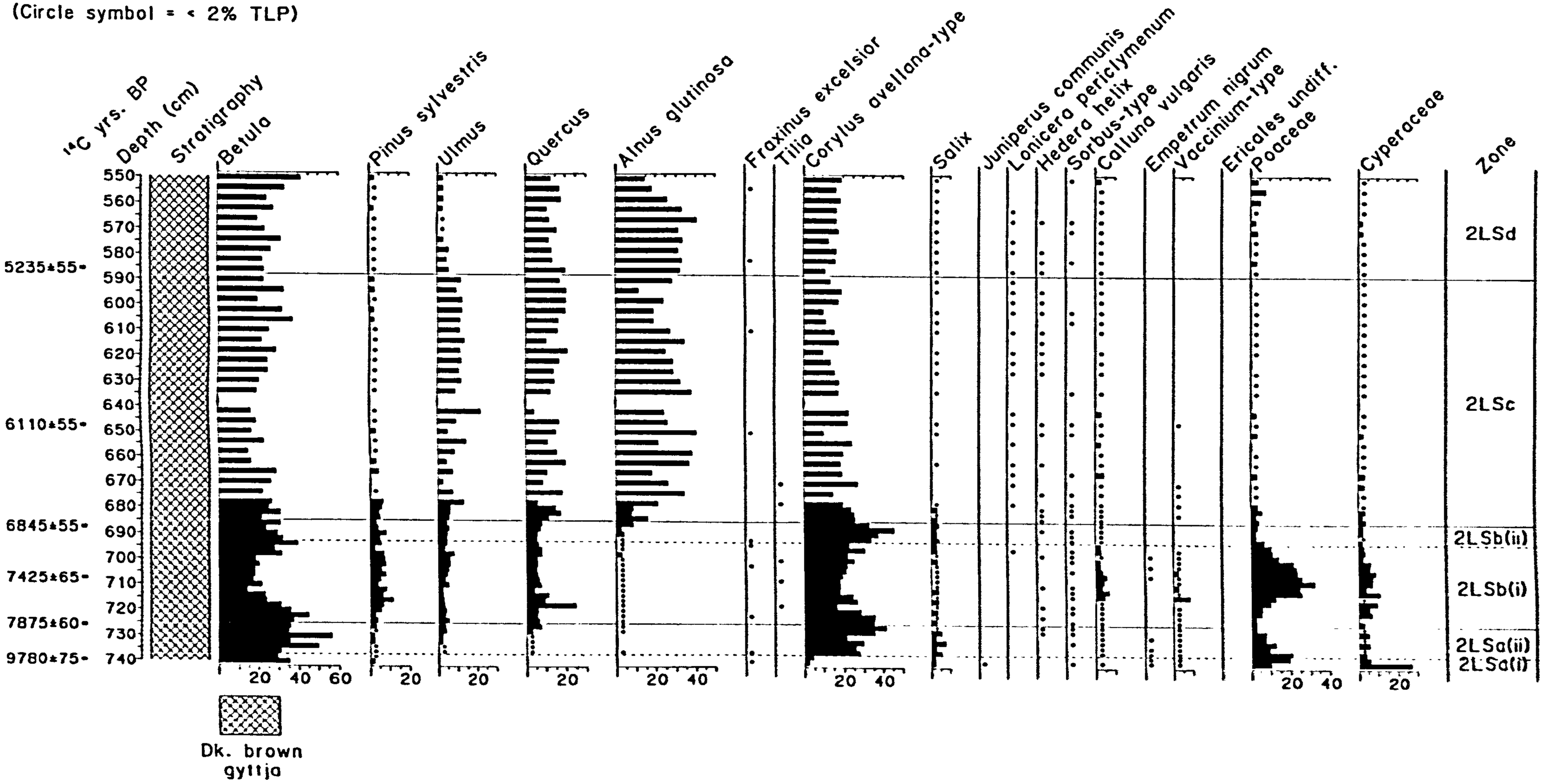


Figure 4.5 continued

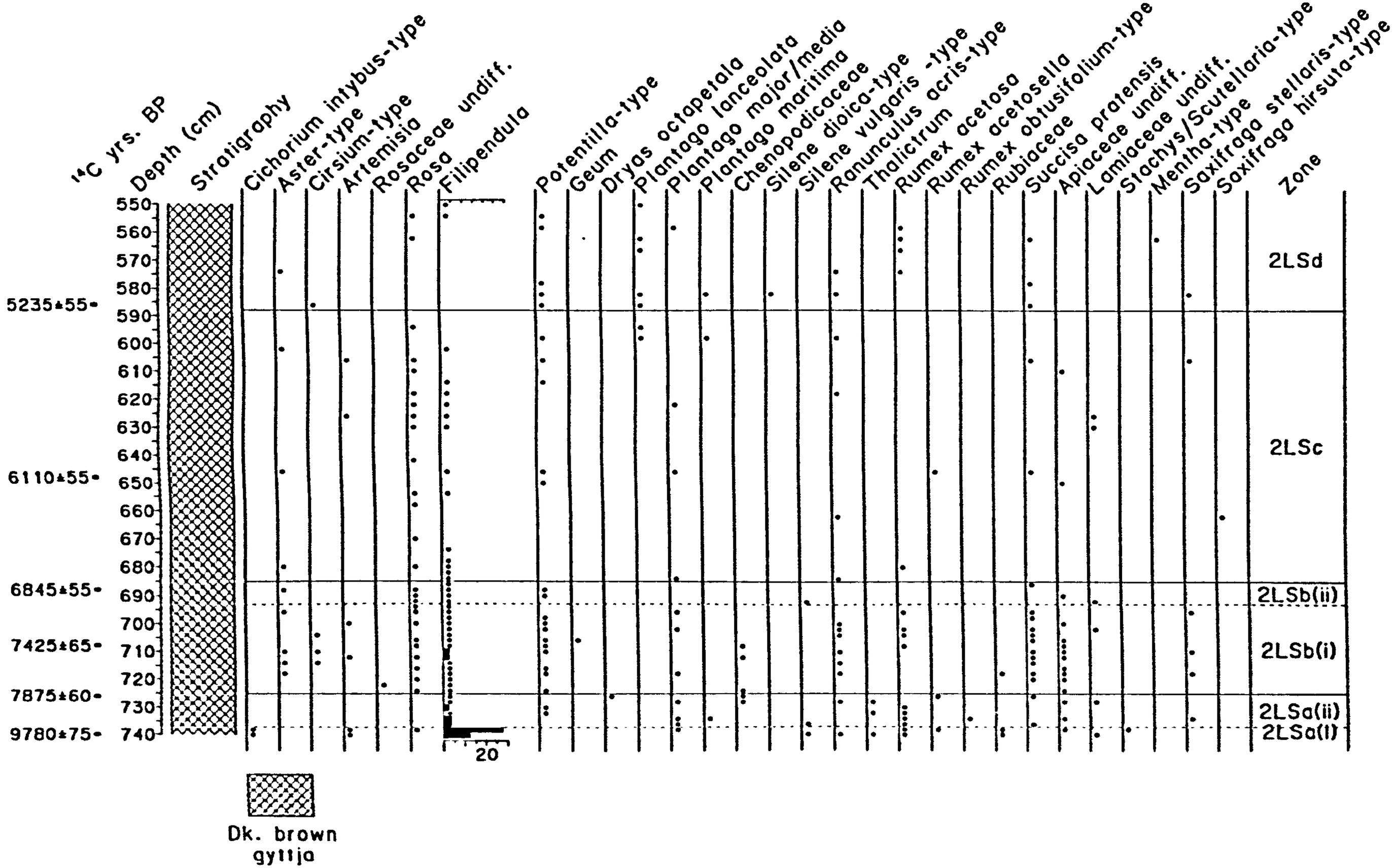


Figure 4.5 continued

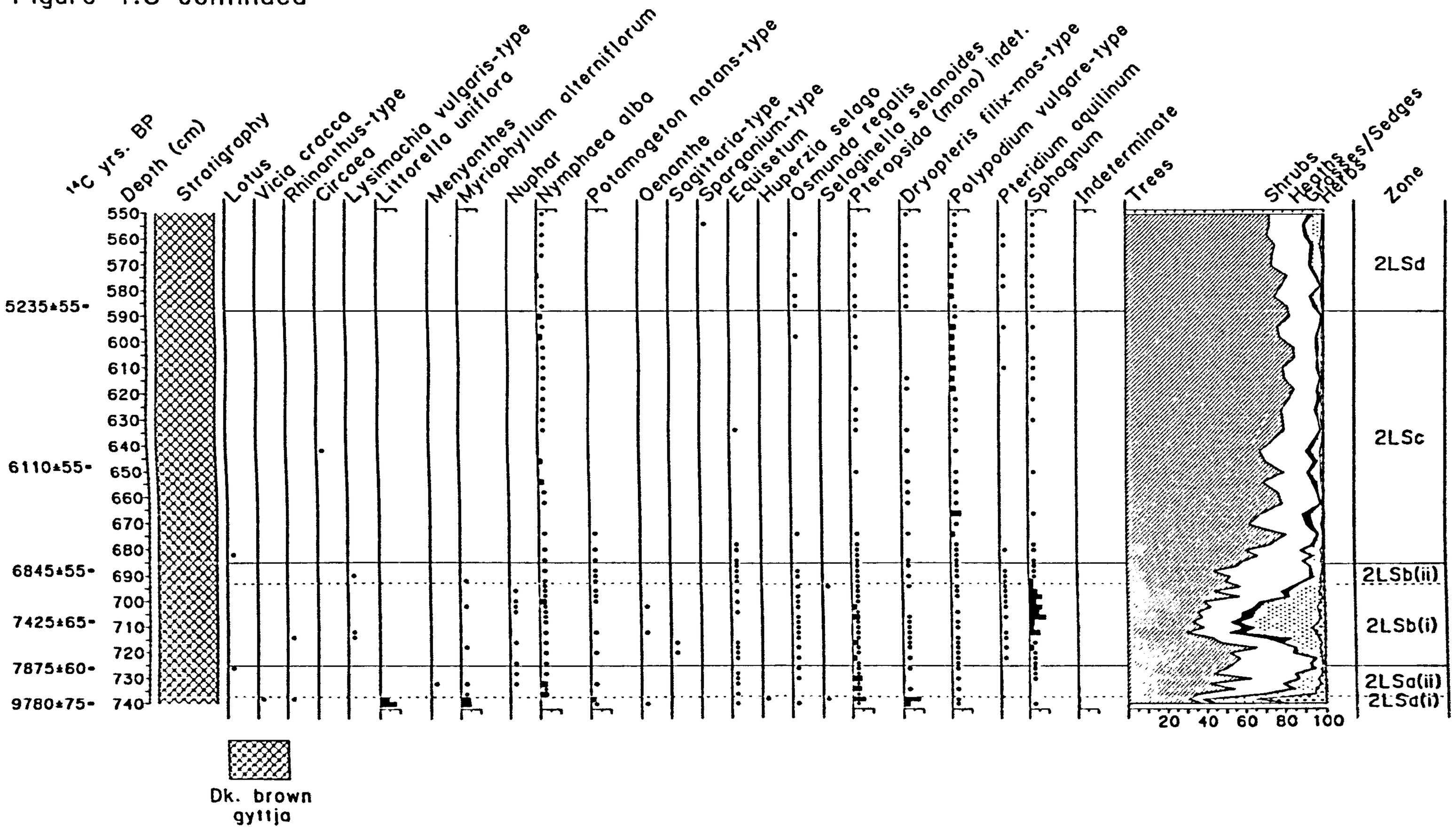


Figure 4.6 Summary diagram of LOI, charcoal, TLP concent influx, sediment accumulation and damaged pollen for 2LS.

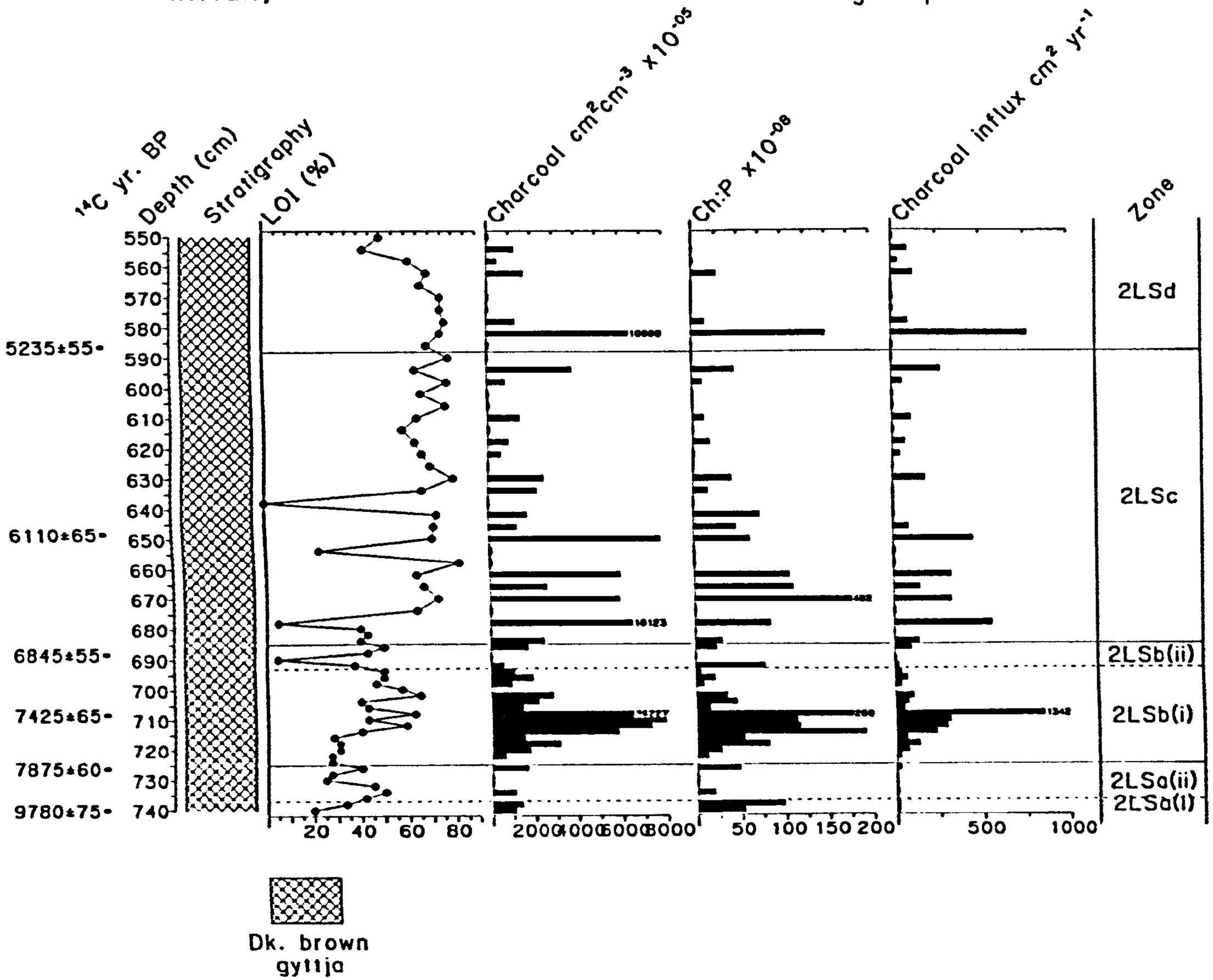
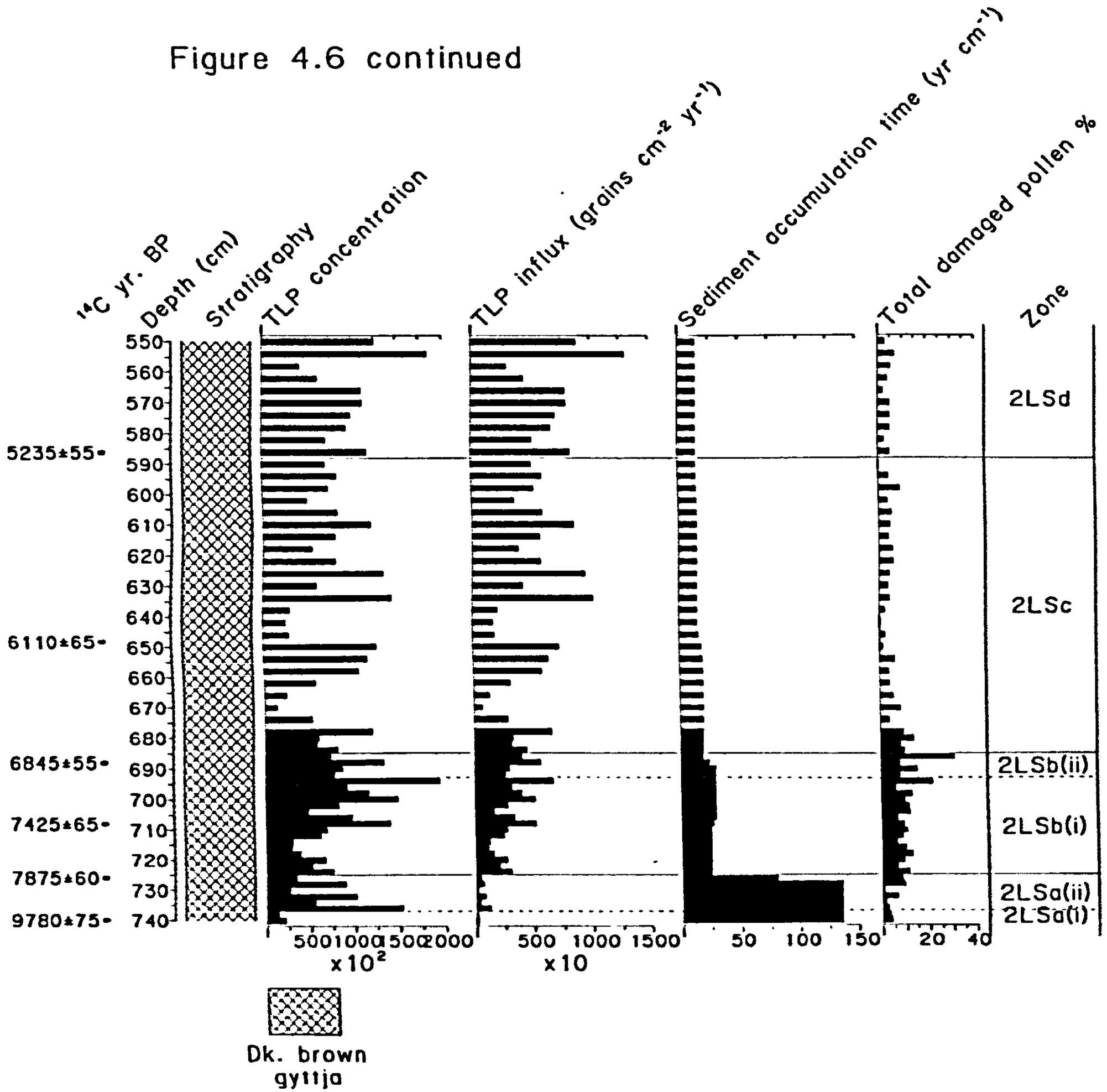


Figure 4.6 continued



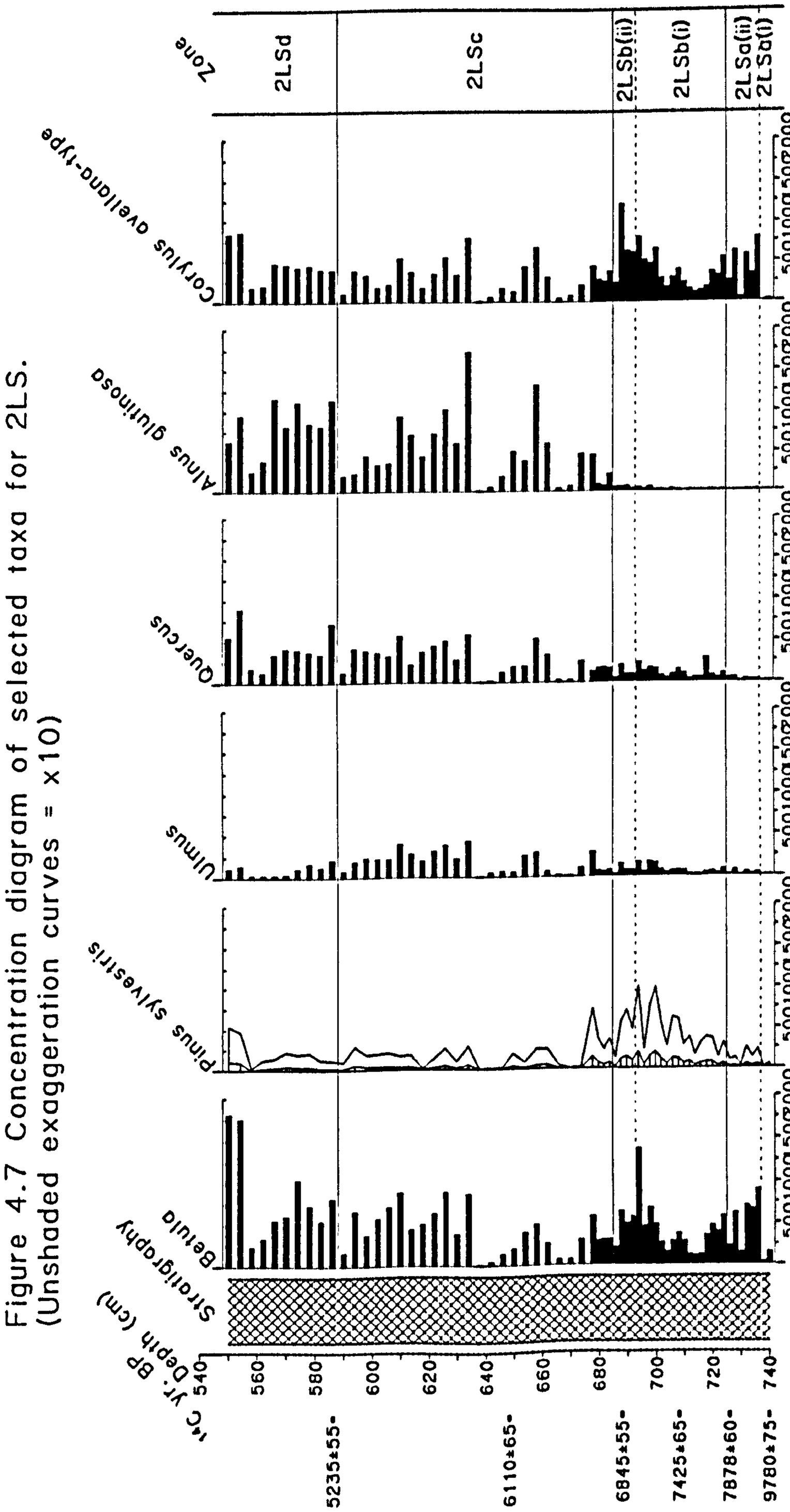


Figure 4.7 Concentration diagram of selected taxa for 2LS.
(Unshaded exaggeration curves = x10)

Figure 4.7 continued

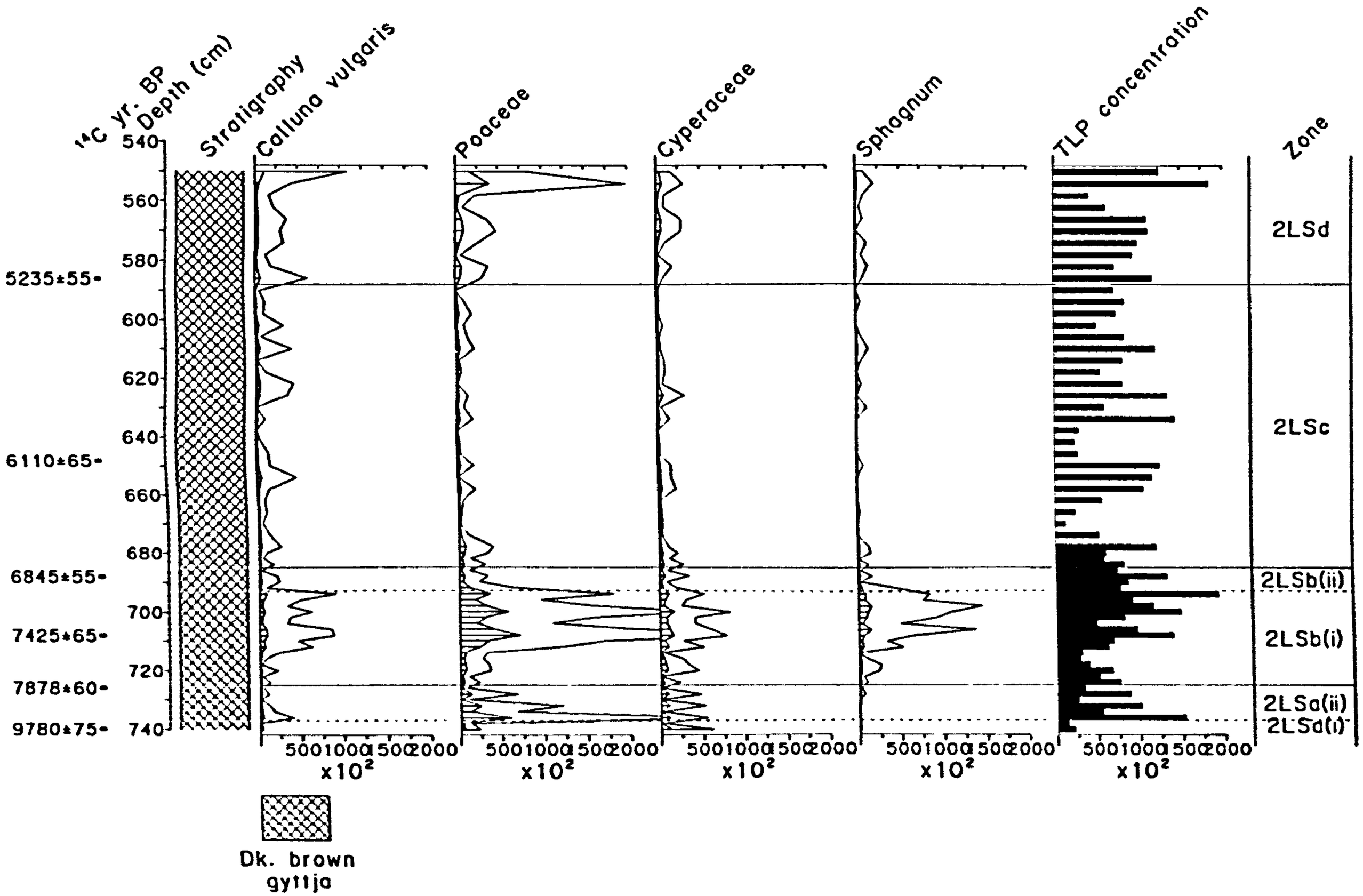
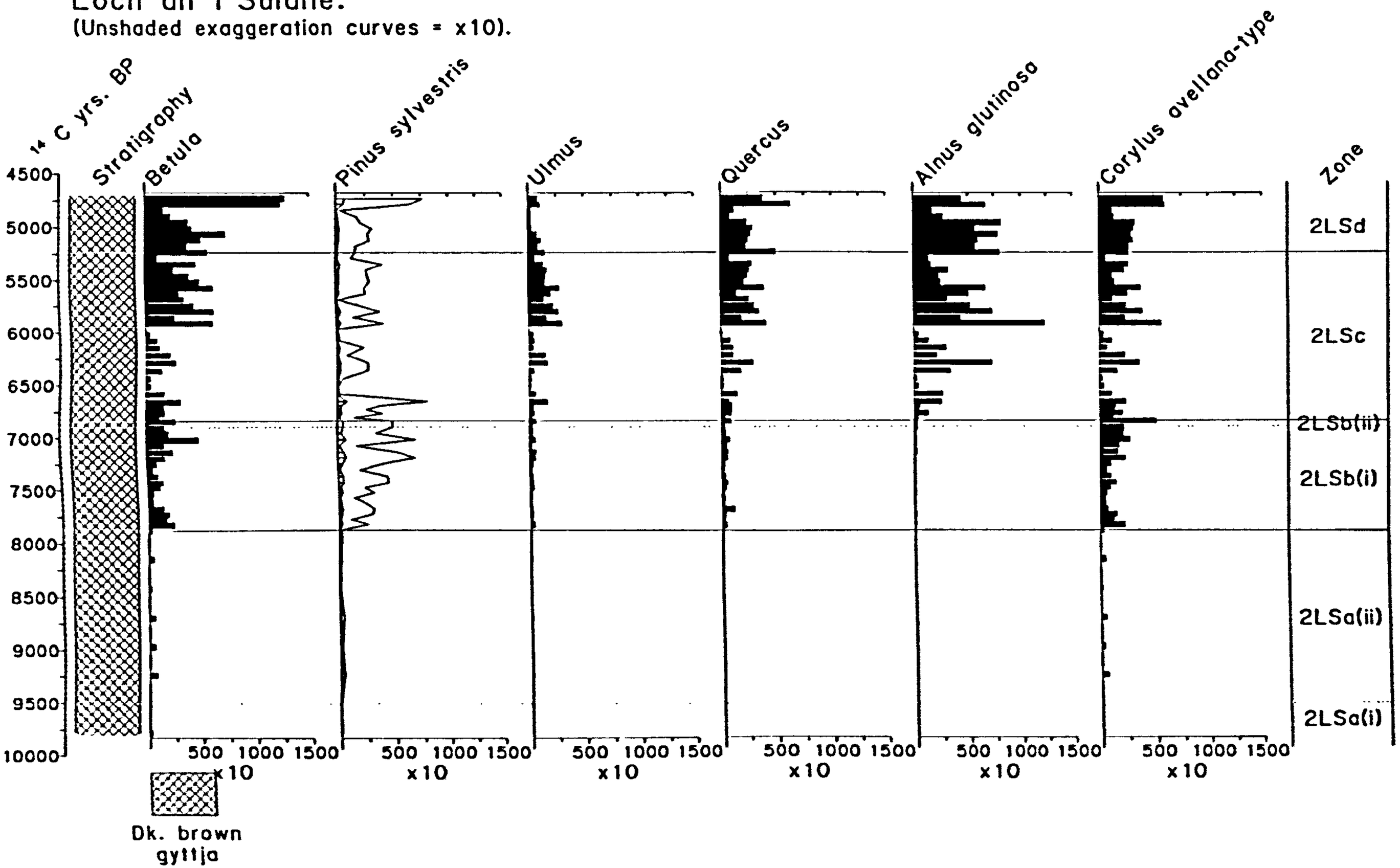


Figure 4.8 Pollen and spore influx diagram for selected taxa at 2LS, Loch an t'Suidhe.
(Unshaded exaggeration curves = x10).



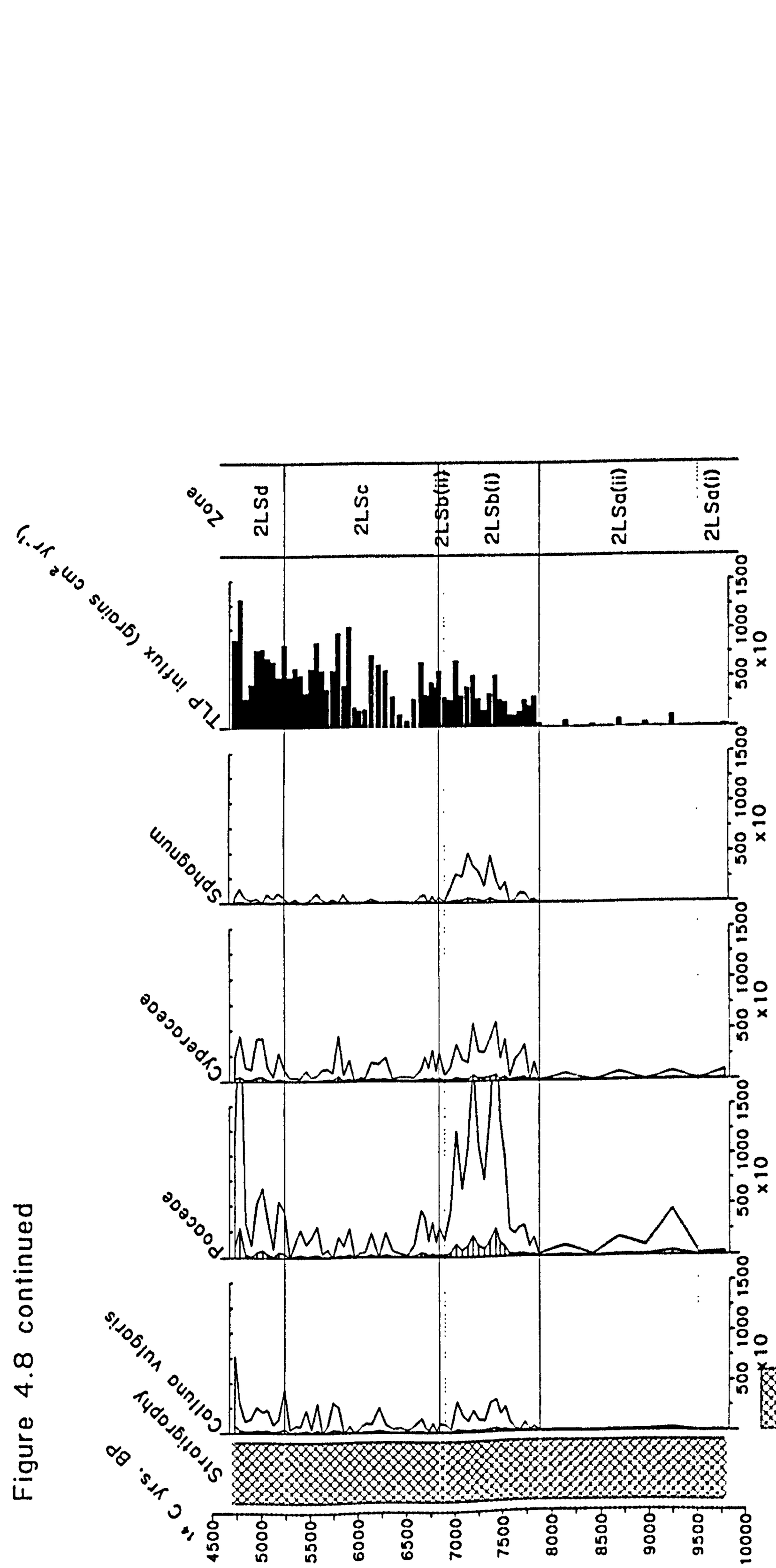


Figure 4.8 continued

Figure 4.9 Percentage diagram of damaged pollen types for selected taxa, 2LS.
(Taxon scores presented as raw counts)

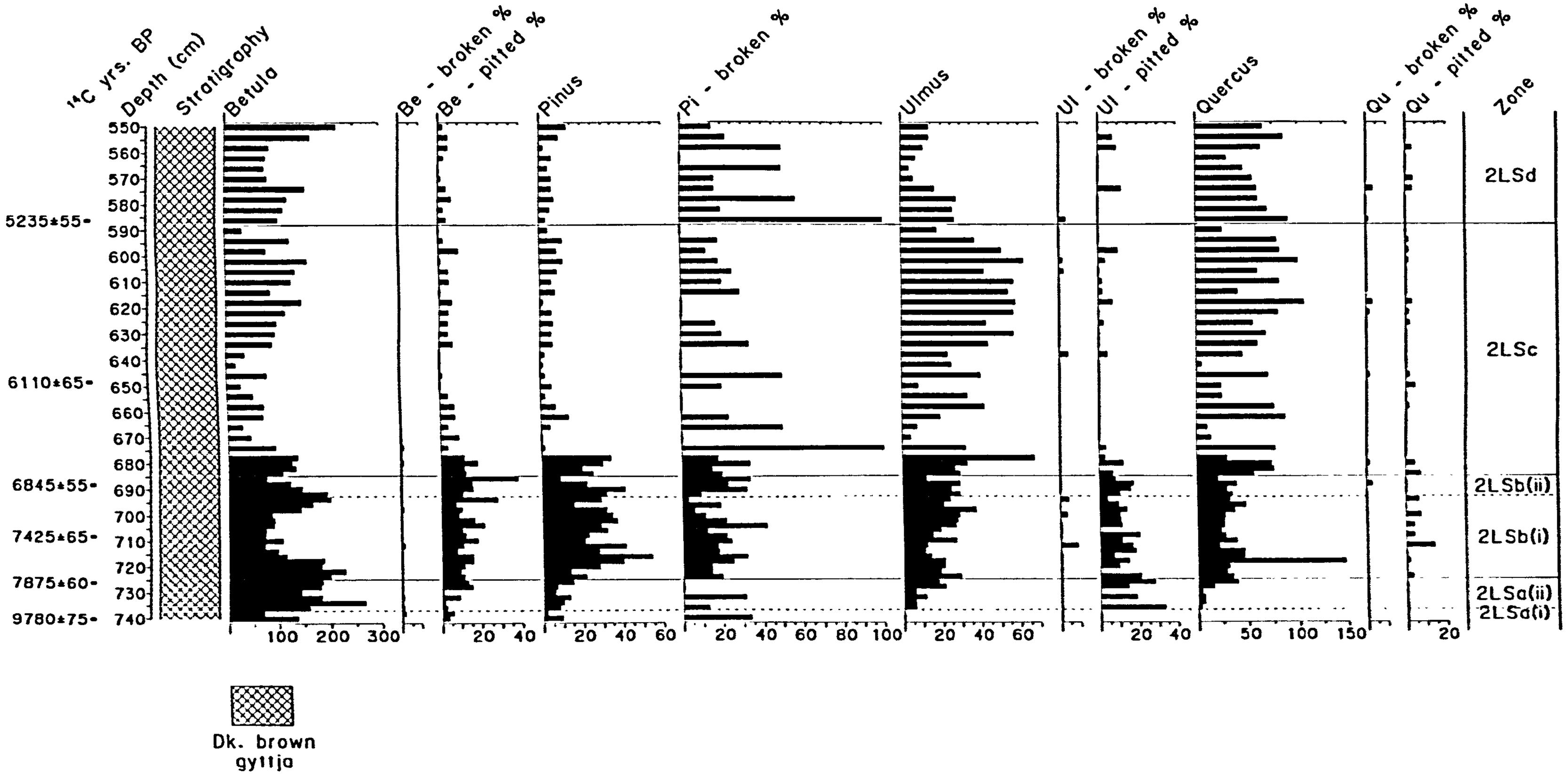


Figure 4.9 continued

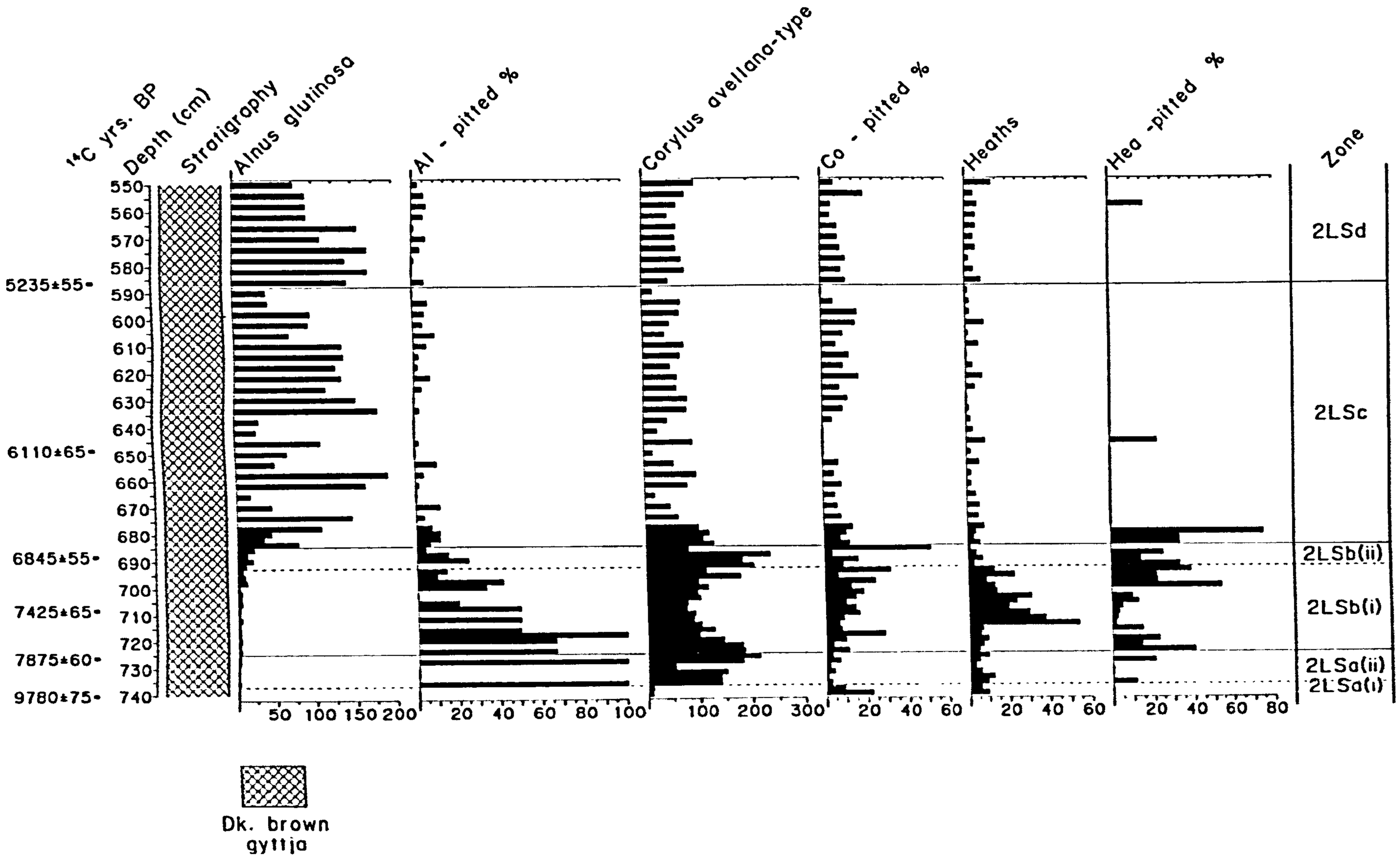


Figure 4.9 continued

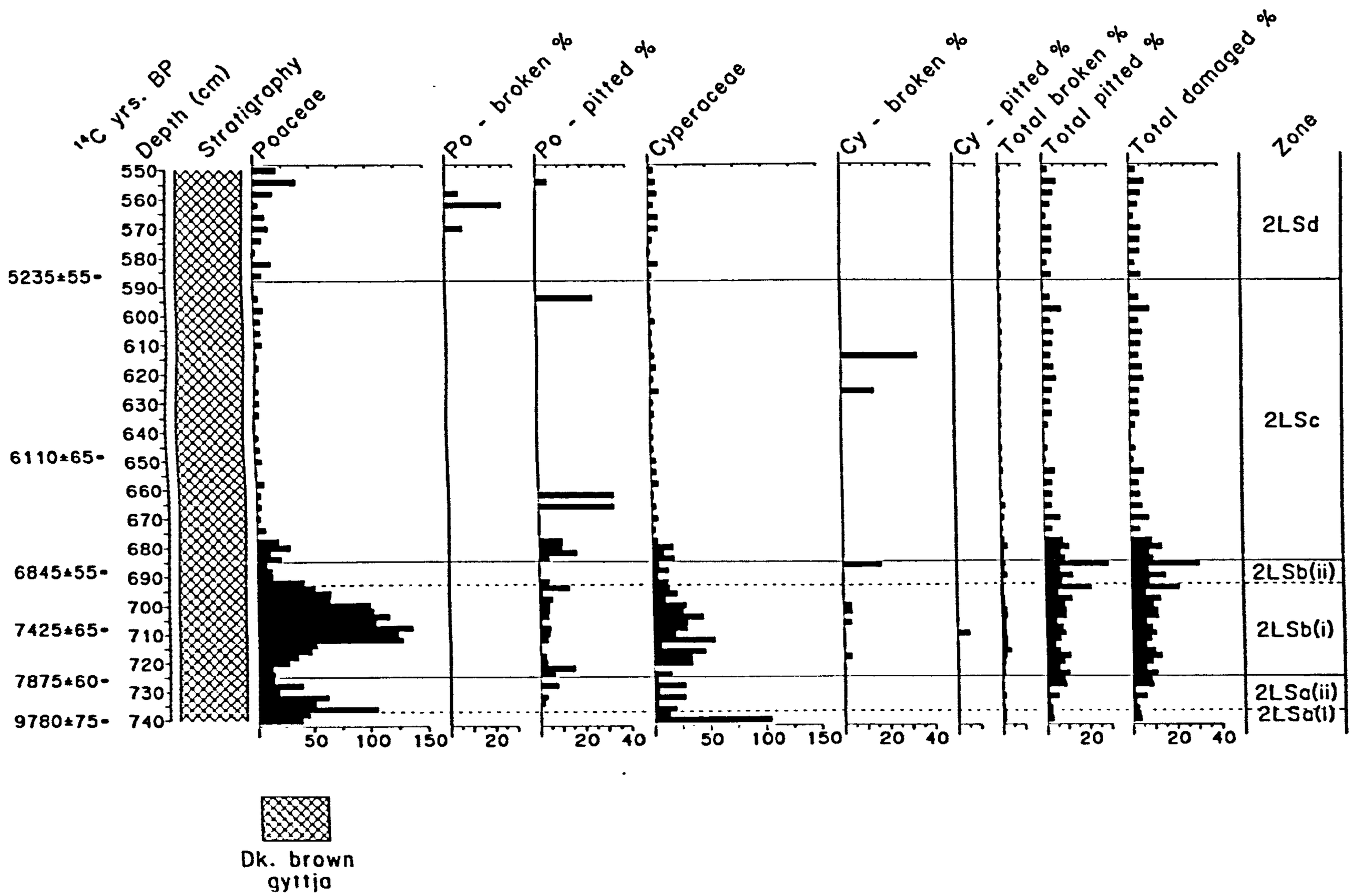


Figure 4.10 Age-depth curve for 2LS. (Error bars = 2SD)

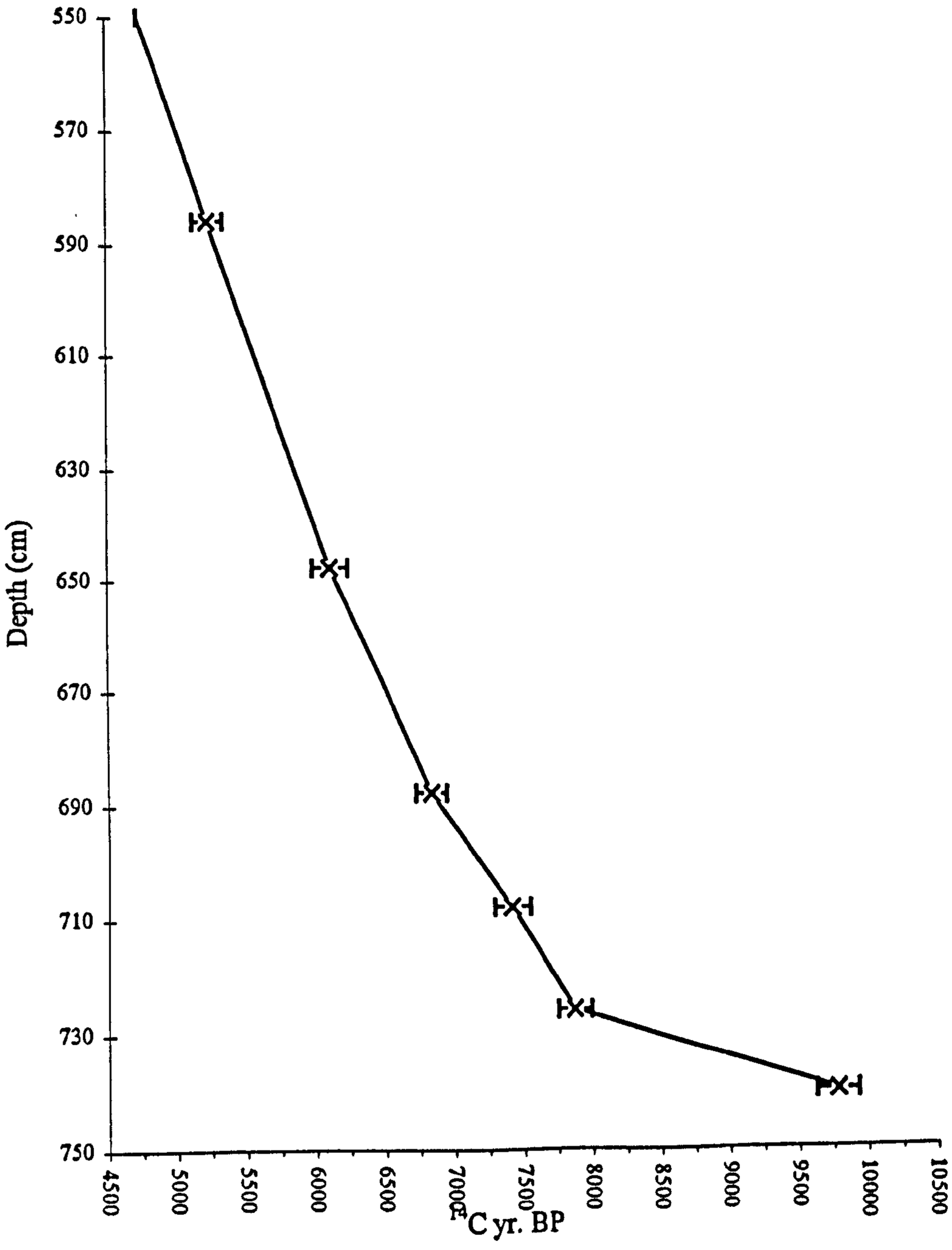
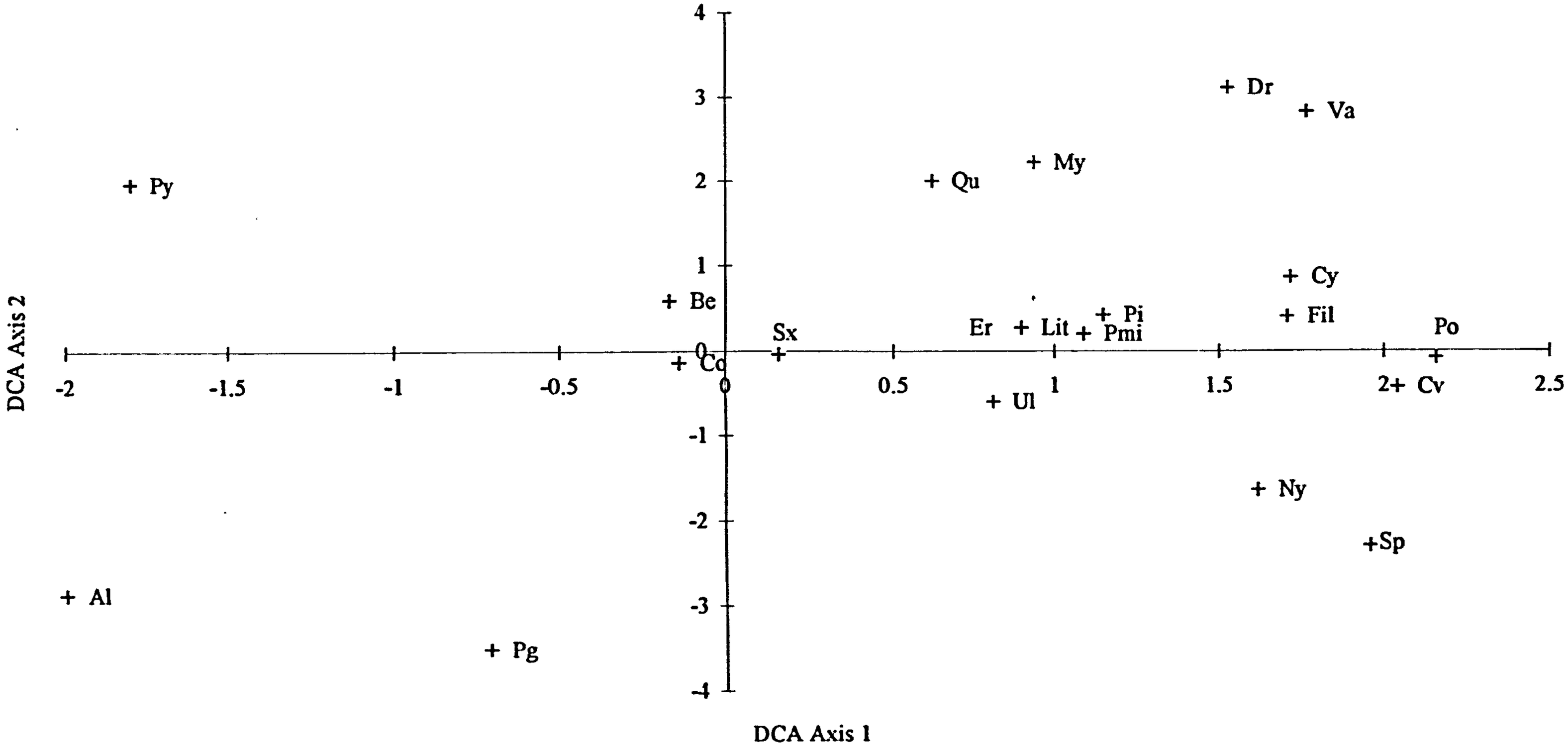
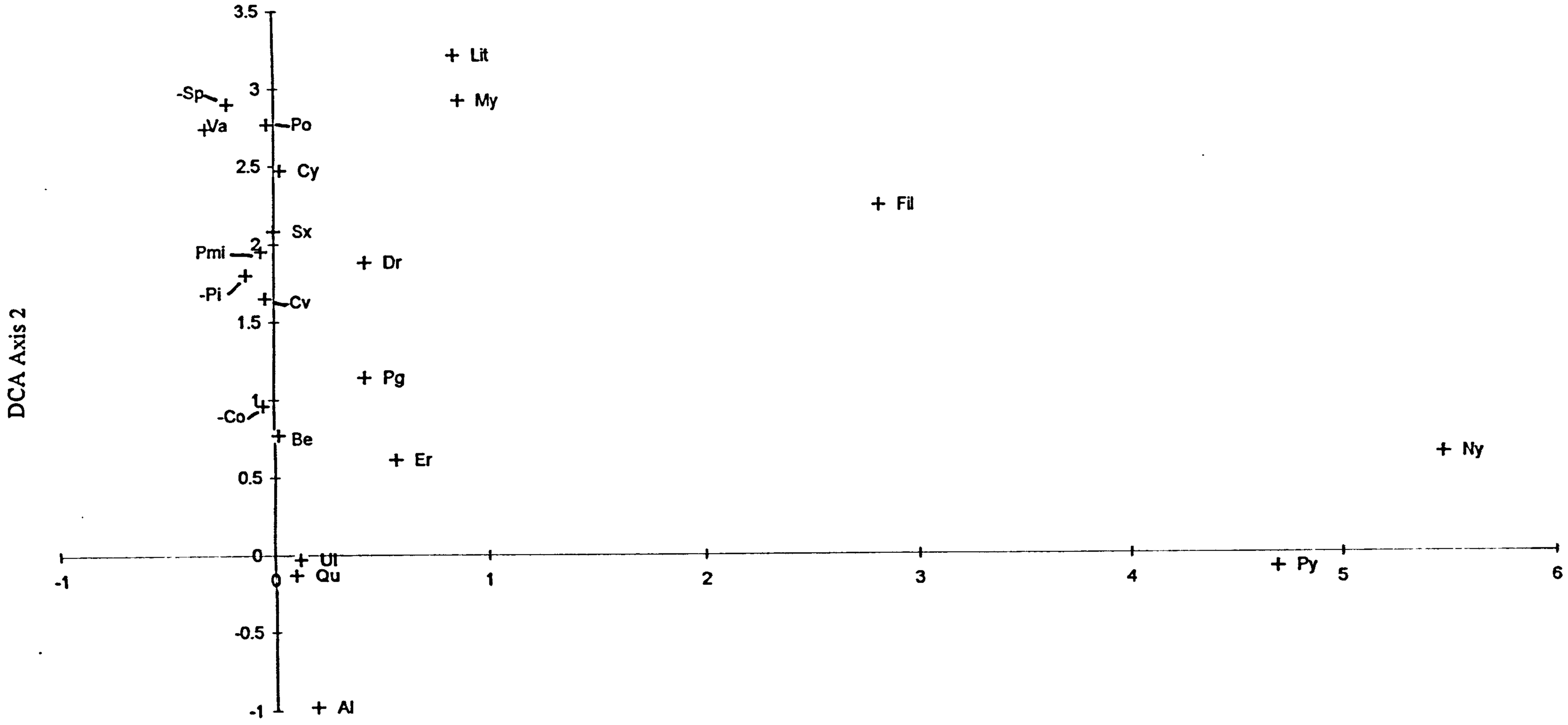


Figure 4.12 DCA plot of taxon scores for zone 2LSb



Be = *Betula*, Pi = *Pinus*, Ul = *Ulmus*, Qu = *Quercus*, Al = *Alnus*, Co = *Corylus*, Sx = *Salix*, Cv = *Calluna vulgaris*, Va = *Vaccinium*-type, Er = Ericales undiff., Po = Poaceae, Cy = Cyperaceae, Fil = *Filipendula*, Lit = *Littorella uniflora*, My = *Myriophyllum alterniflorum*, Ny = *Nymphaea*, Pg = *Potamogeton*, Dr = *Dryopteris*, Py = *Polypodium*, Pmi = Pteropsida (mono) indet., Sp = *Sphagnum*

Figure 4.13 DCA plot of taxon variable scores for profiles 2LS



Be = *Betula*, Pi = *Pinus*, Ul = *Ulmus*, Qu = *Quercus*, Al = *Alnus*, Co = *Corylus*, Sx = *Salix*, Cv = *Calluna vulgaris*,
Va = *Vaccinium*-type, Er = Ericales undiff., Po = Poaceae, Cy = Cyperaceae, Fil = *Filipendula*,
Lit = *Littorella uniflora*, My = *Myriophyllum alterniflorum*, Ny = *Nymphaea*, Pg = *Potamogeton*, Dr = *Dryopteris*,
Py = *Polypodium*, Pmi = Pteropsida (mono) indet., Sp = *Sphagnum*

Figure 5.1 Map showing the locations of A'Chrannag bog and Livingstone's Cave bog, Ulva, bog transects, and coring sites

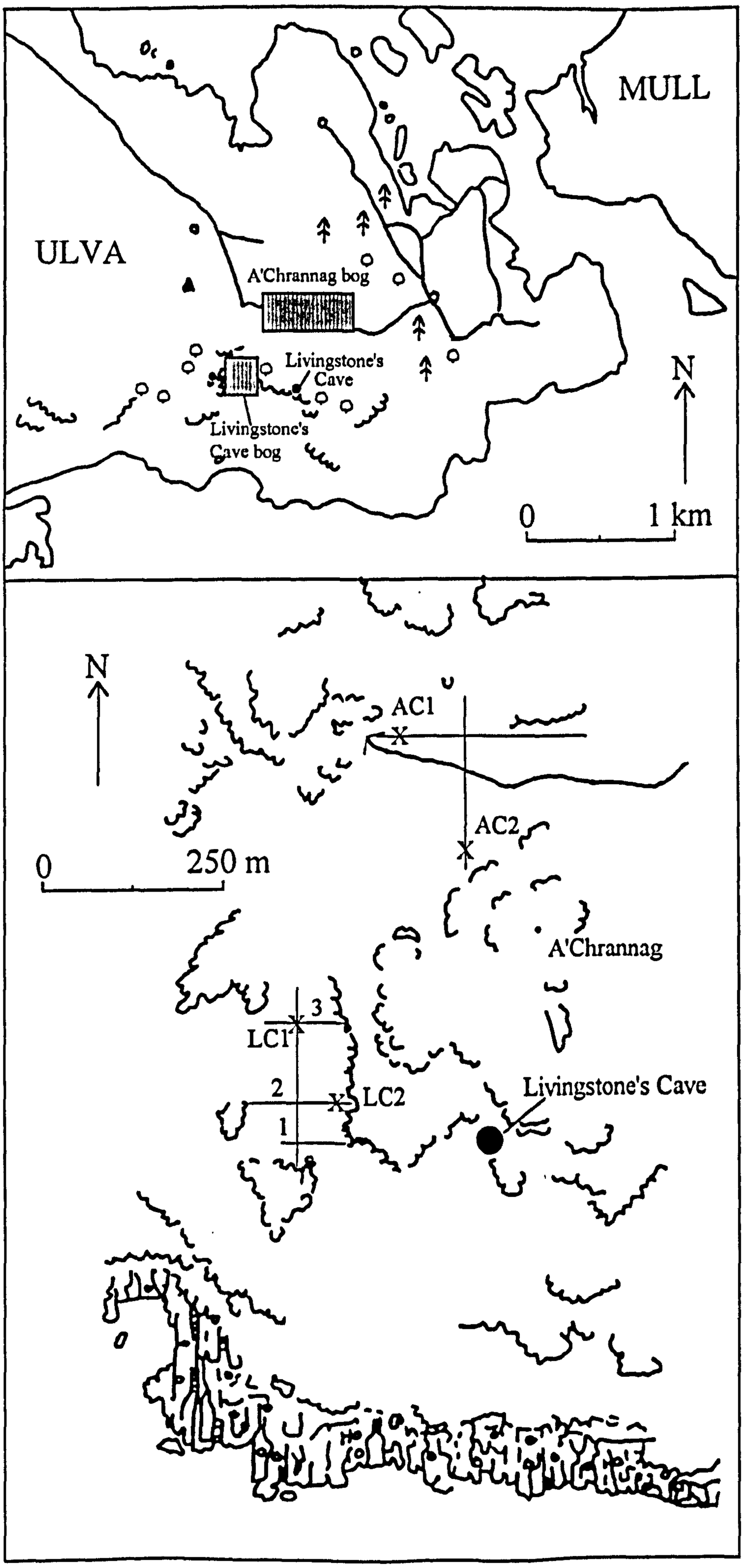


Figure 5.2 Transects across A'Chrannag bog showing core locations.

(— — = measured base of peat)

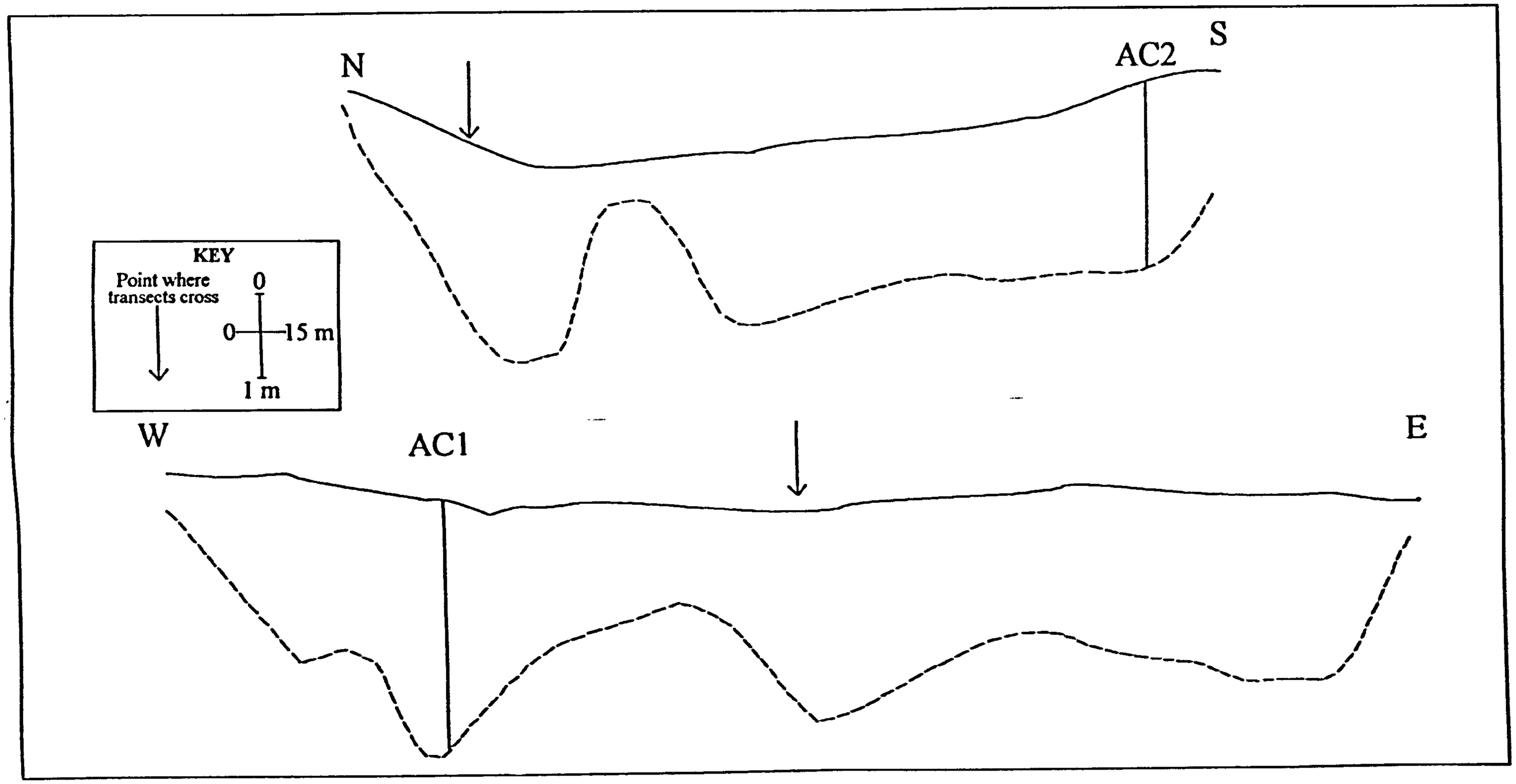


Figure 5.3 Transects from Livingstone's Cave bog showing the locations of cores LC1 and LC2.
(— — — = measured depth of peat)

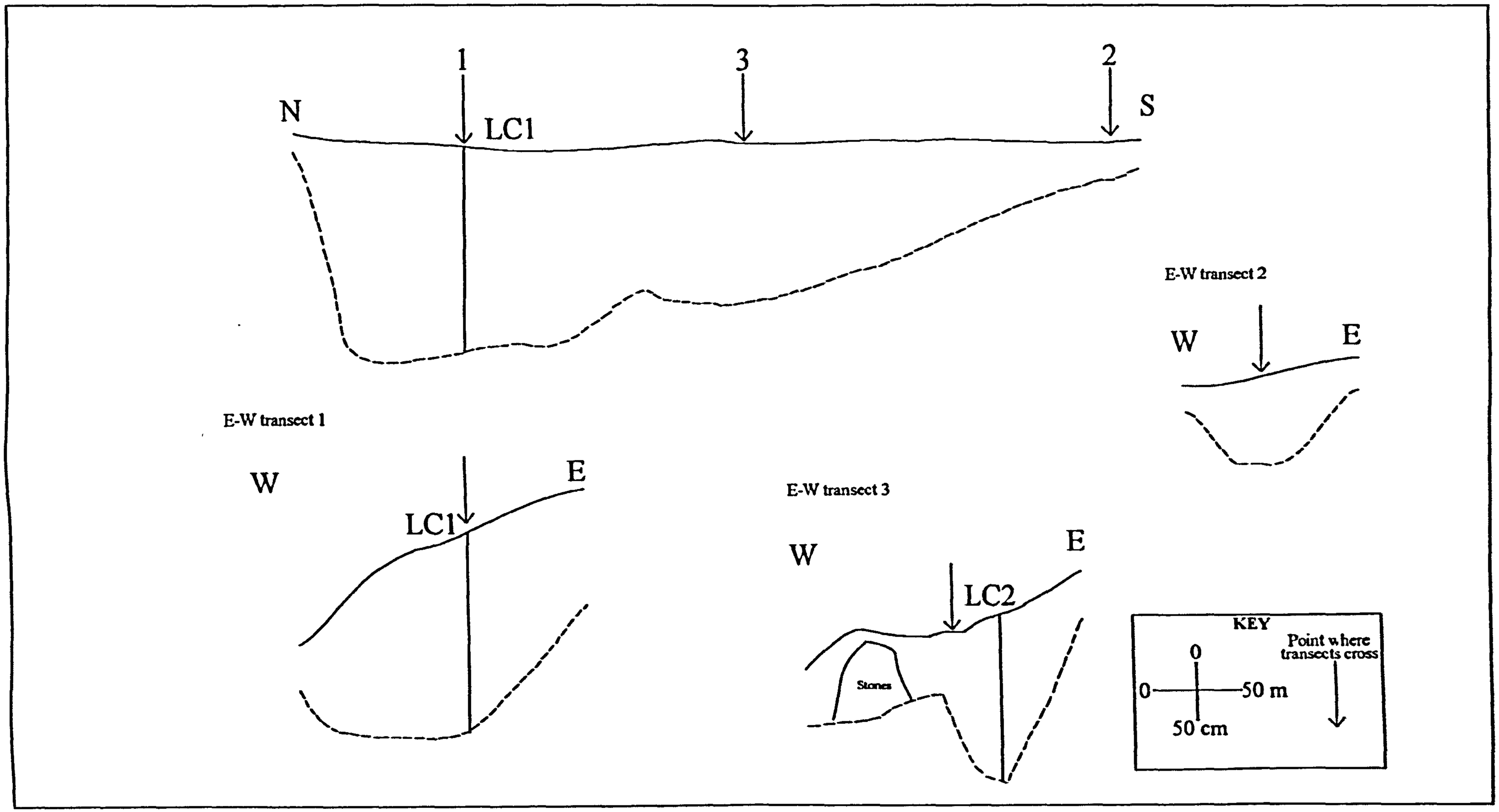


Figure 5.4 Age-depth curve for AC1 (Error bars = 2SD)

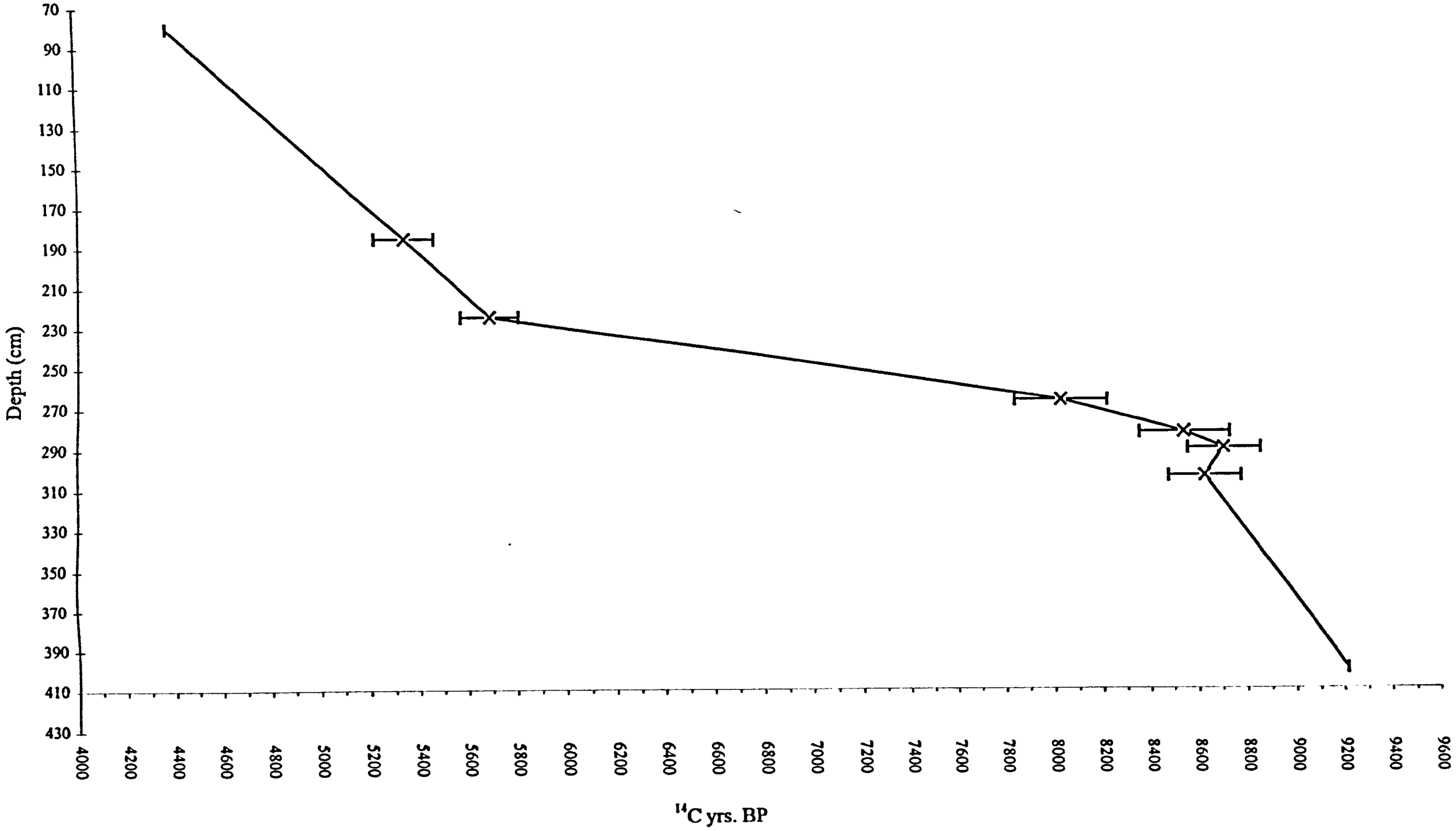


Figure 5.5 Age-depth curve for AC2 (Error bars = 2SD)

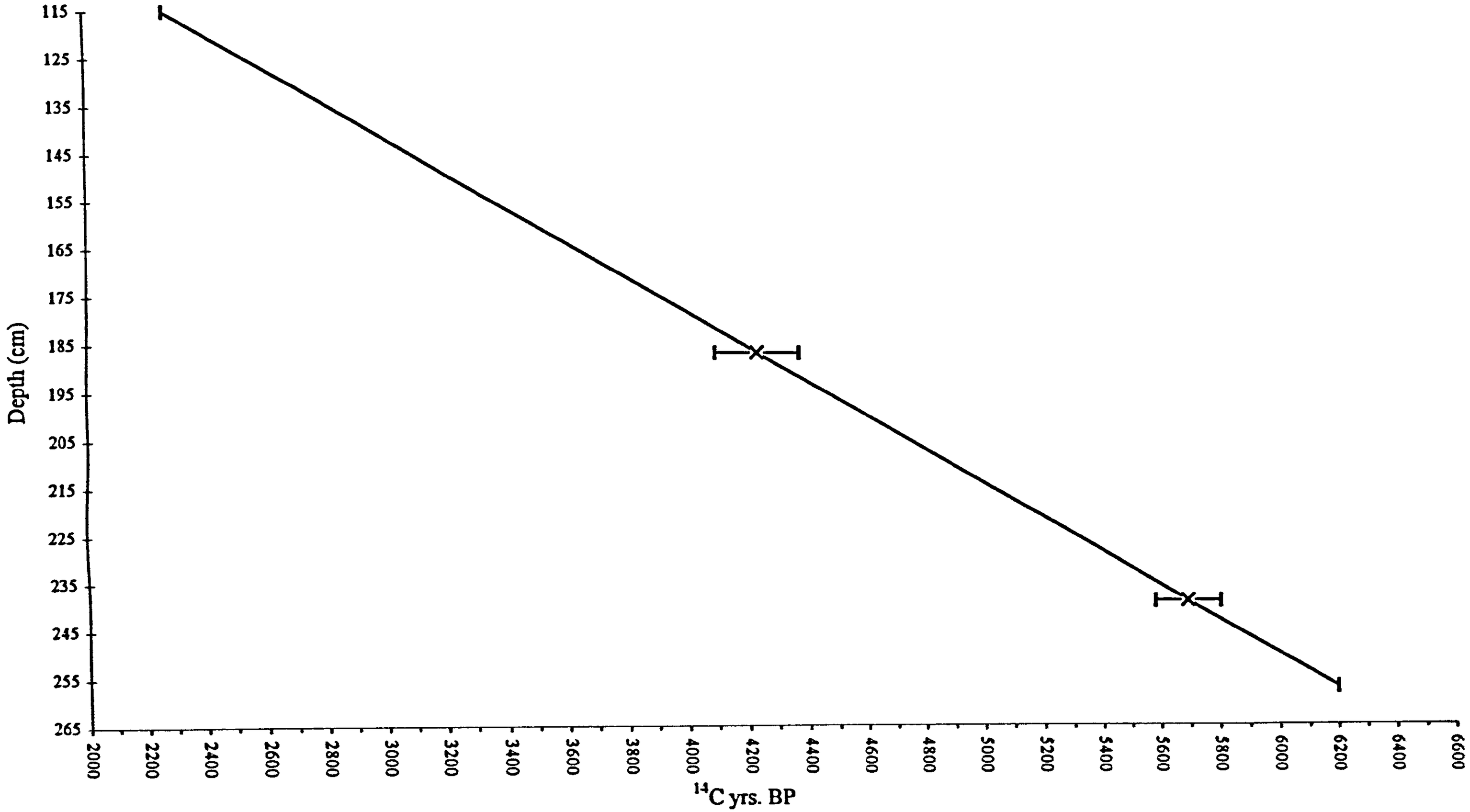


Figure 5.6a Spread of radiocarbon dates from the Ulva profiles (Error bars = 2SD)

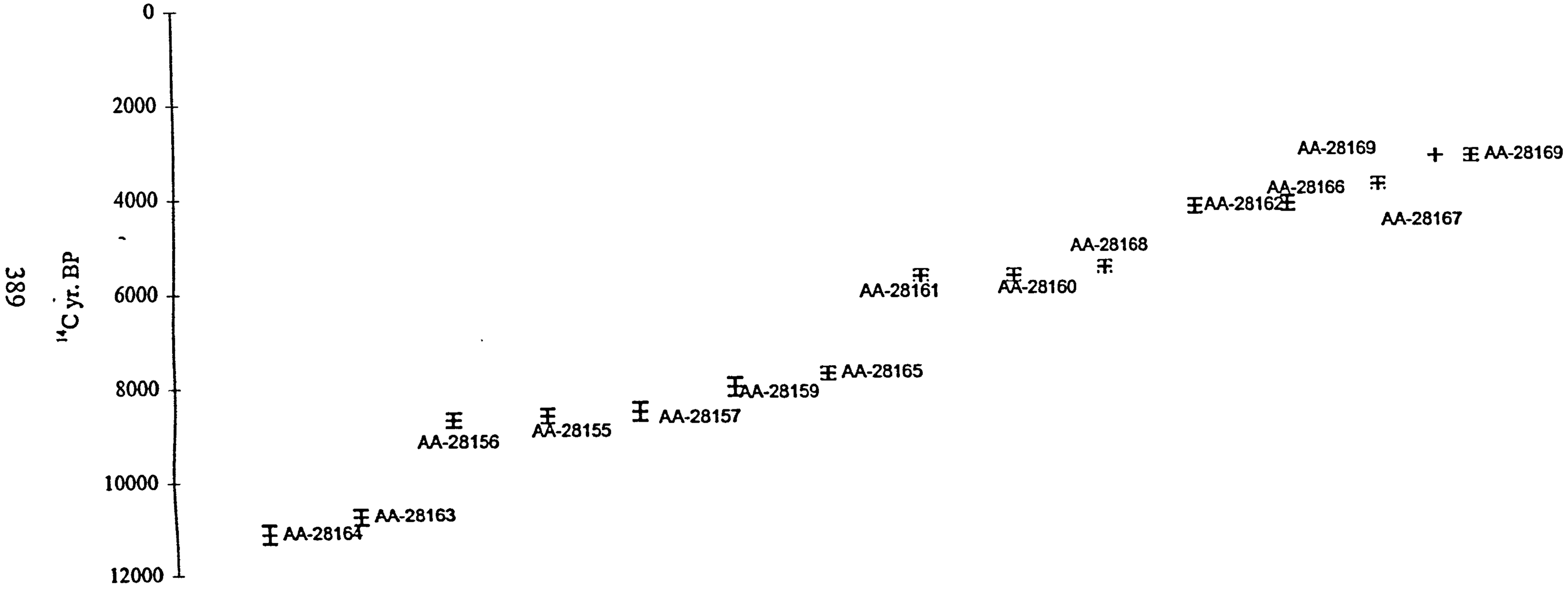


Figure 5.6b 14C dates from Ulva grouped according to profile (Error bars = 2SD)

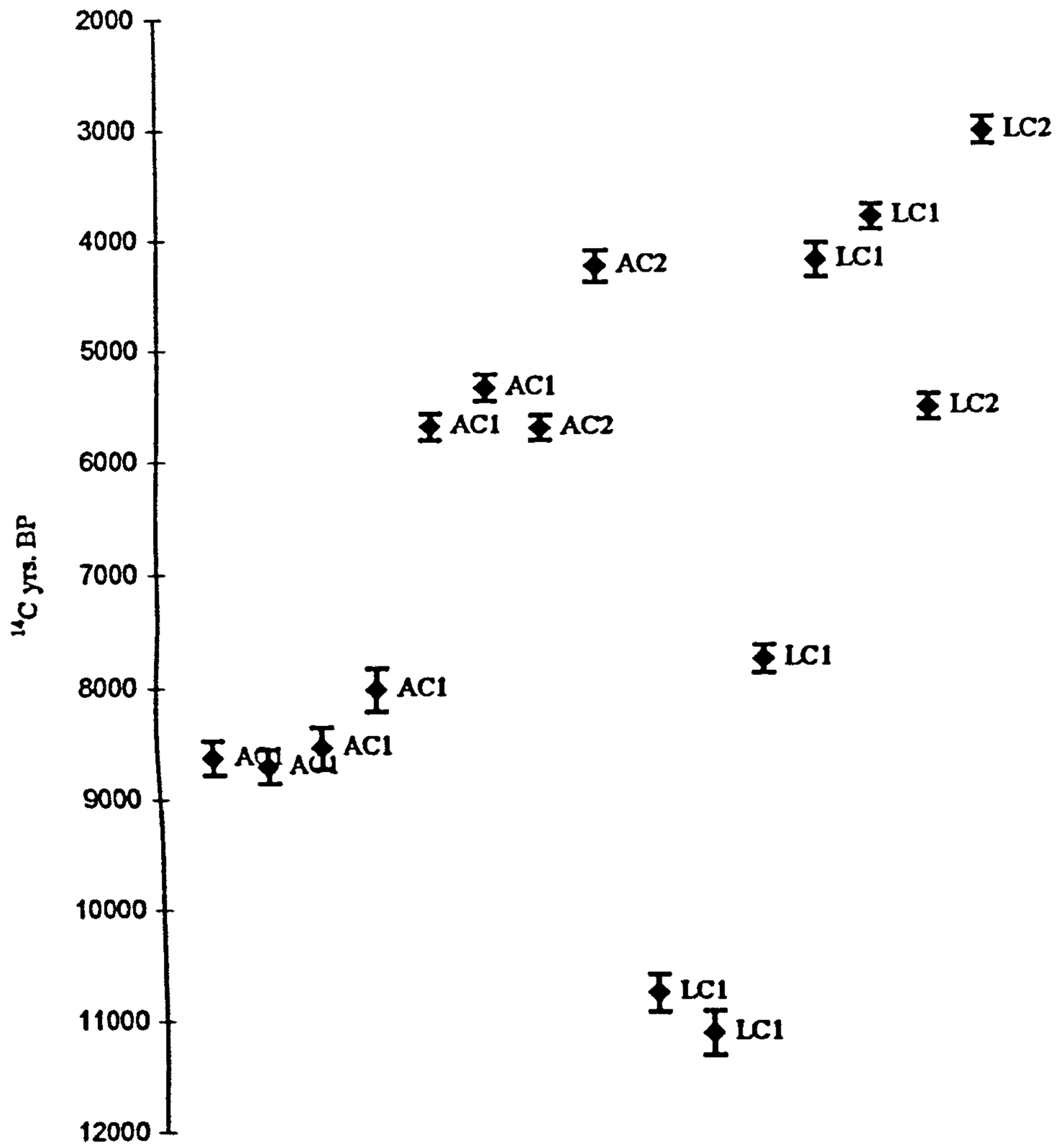
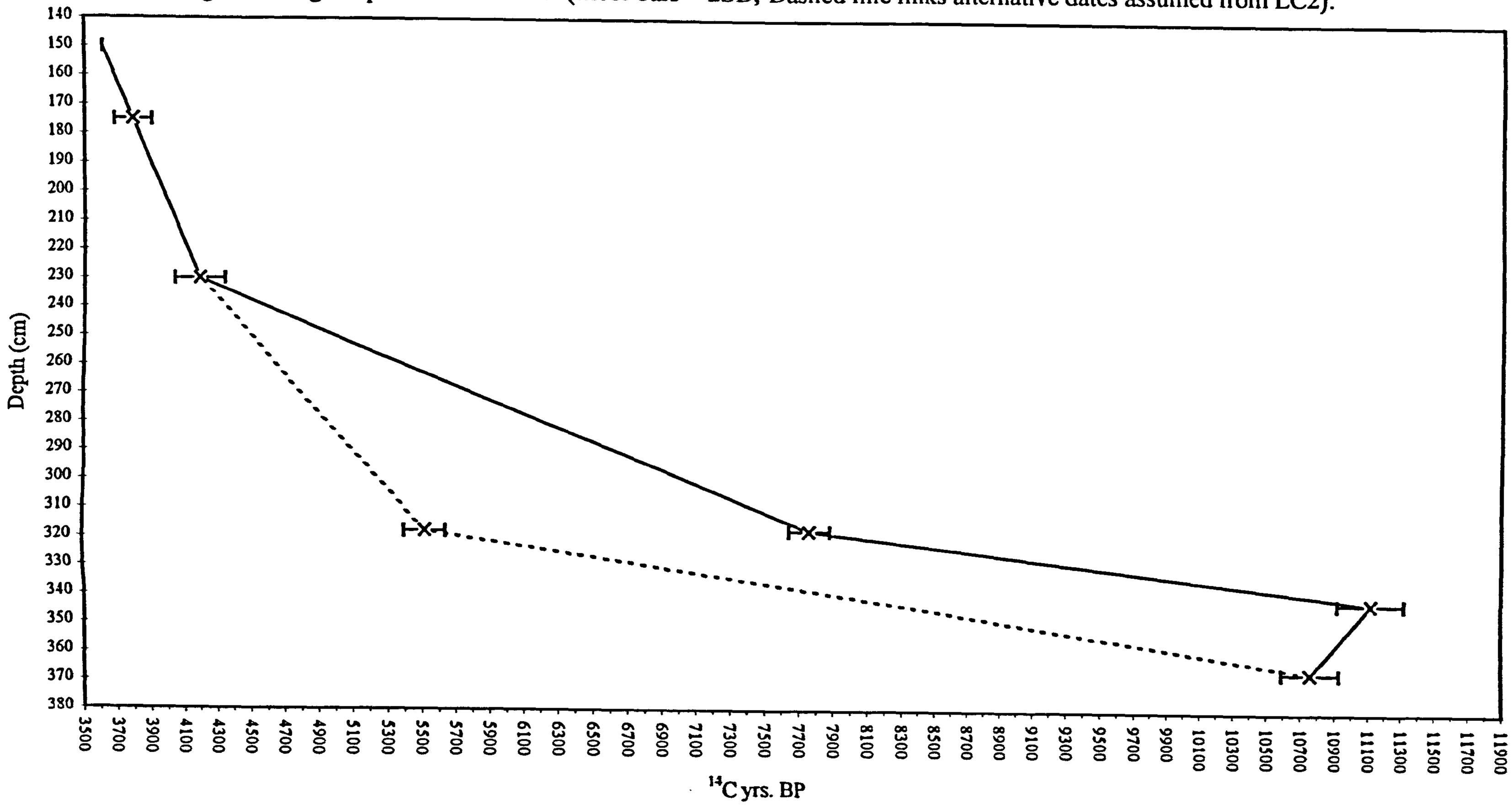


Figure 5.7 Age-depth curve for LC1. (Error bars = 2SD; Dashed line links alternative dates assumed from LC2).



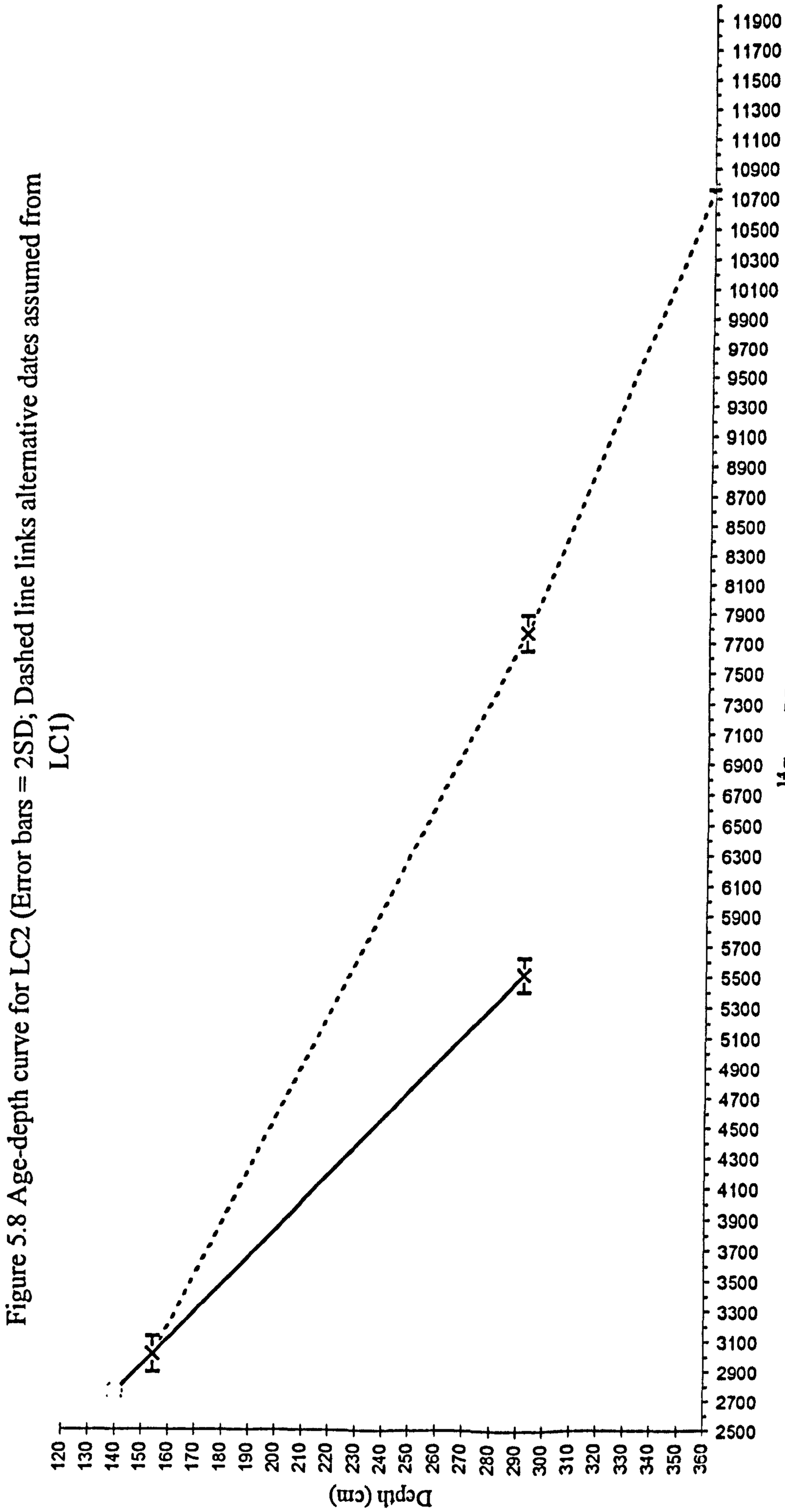
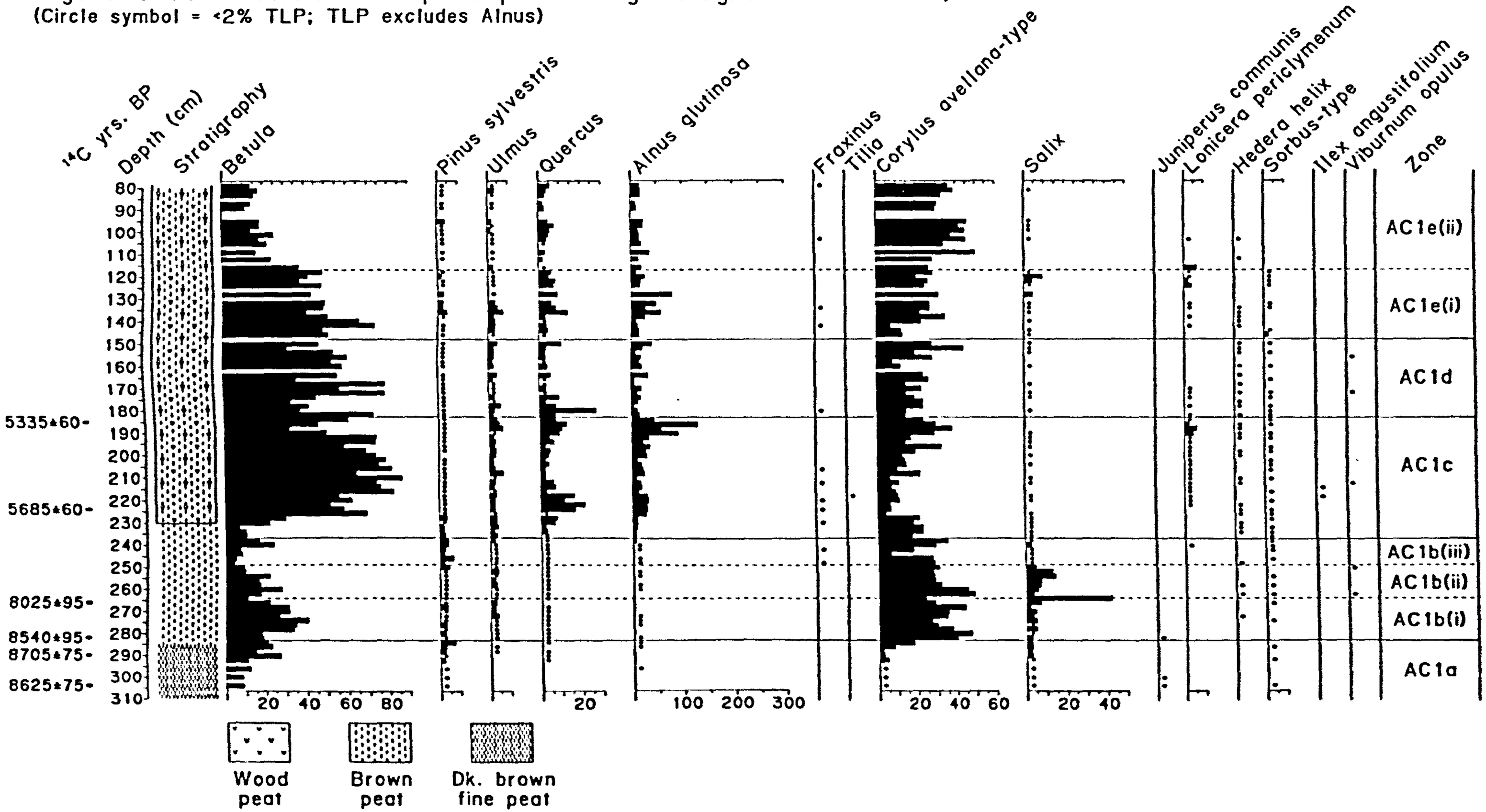


Figure 5.8 Age-depth curve for LC2 (Error bars = 2SD; Dashed line links alternative dates assumed from LC1)

Figure 5.10 Pollen and spore percentage diagram from AC1, Ulva
(Circle symbol = <2% TLP; TLP excludes Alnus)



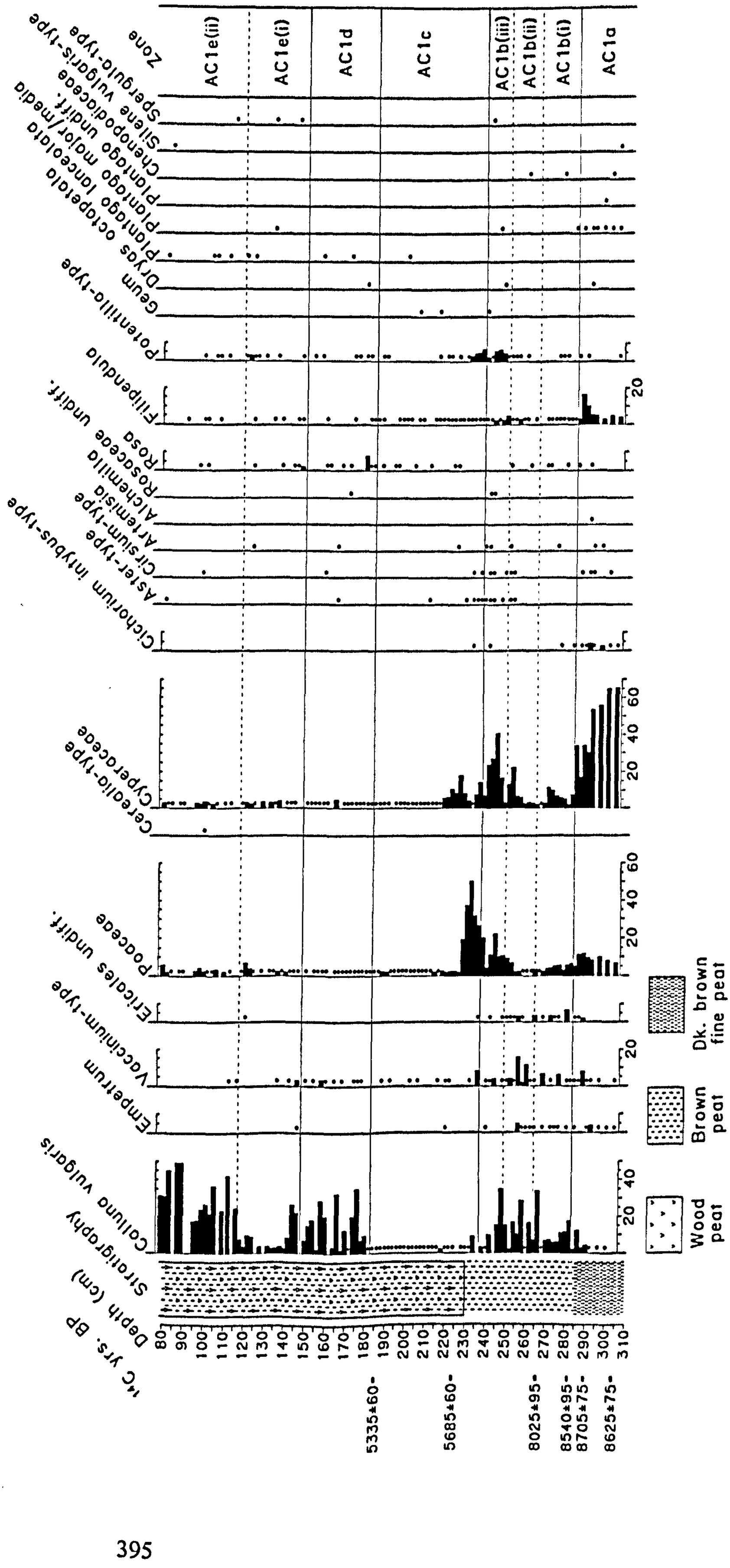
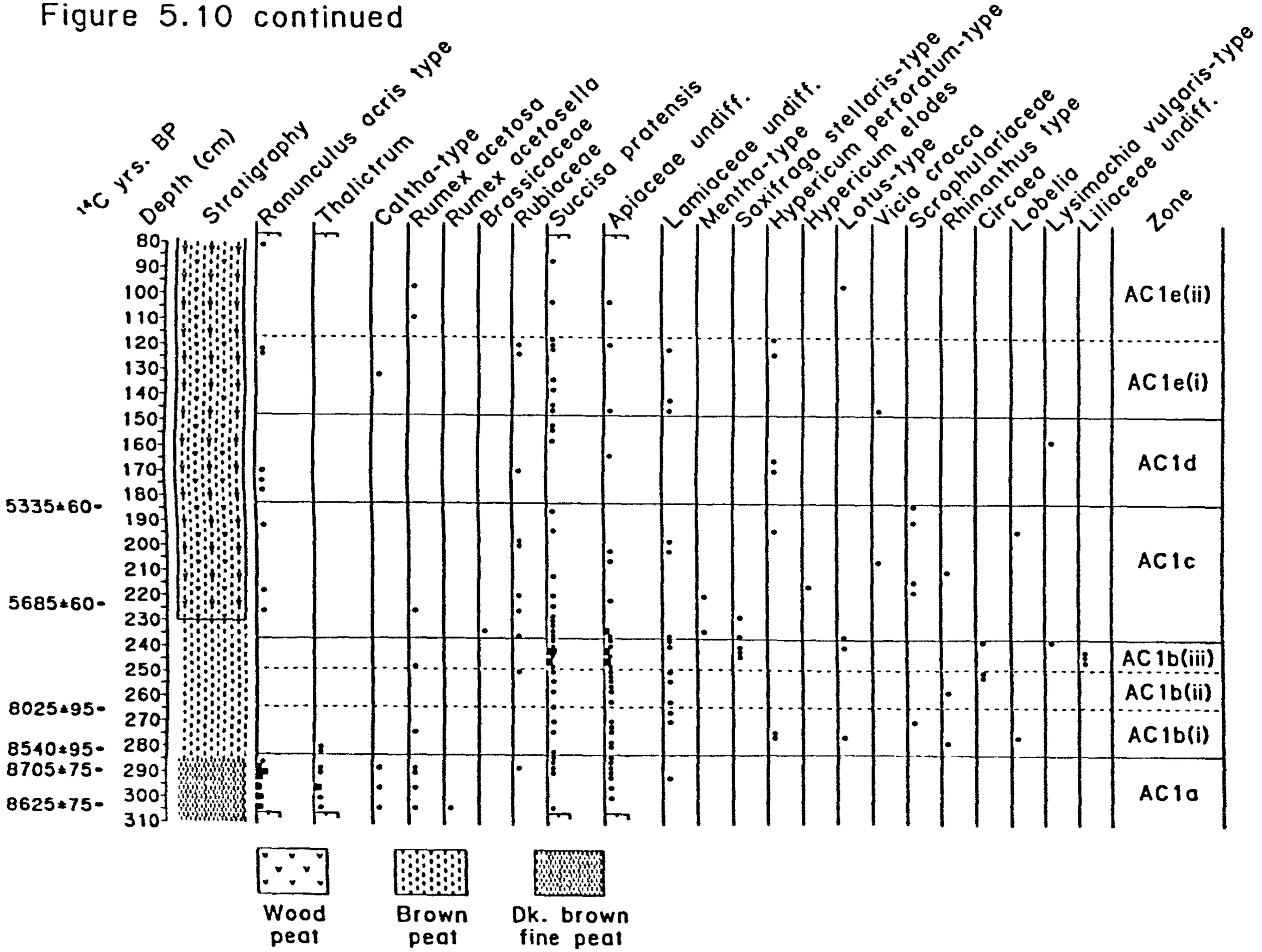


Figure 5.10 continued

Figure 5.10 continued



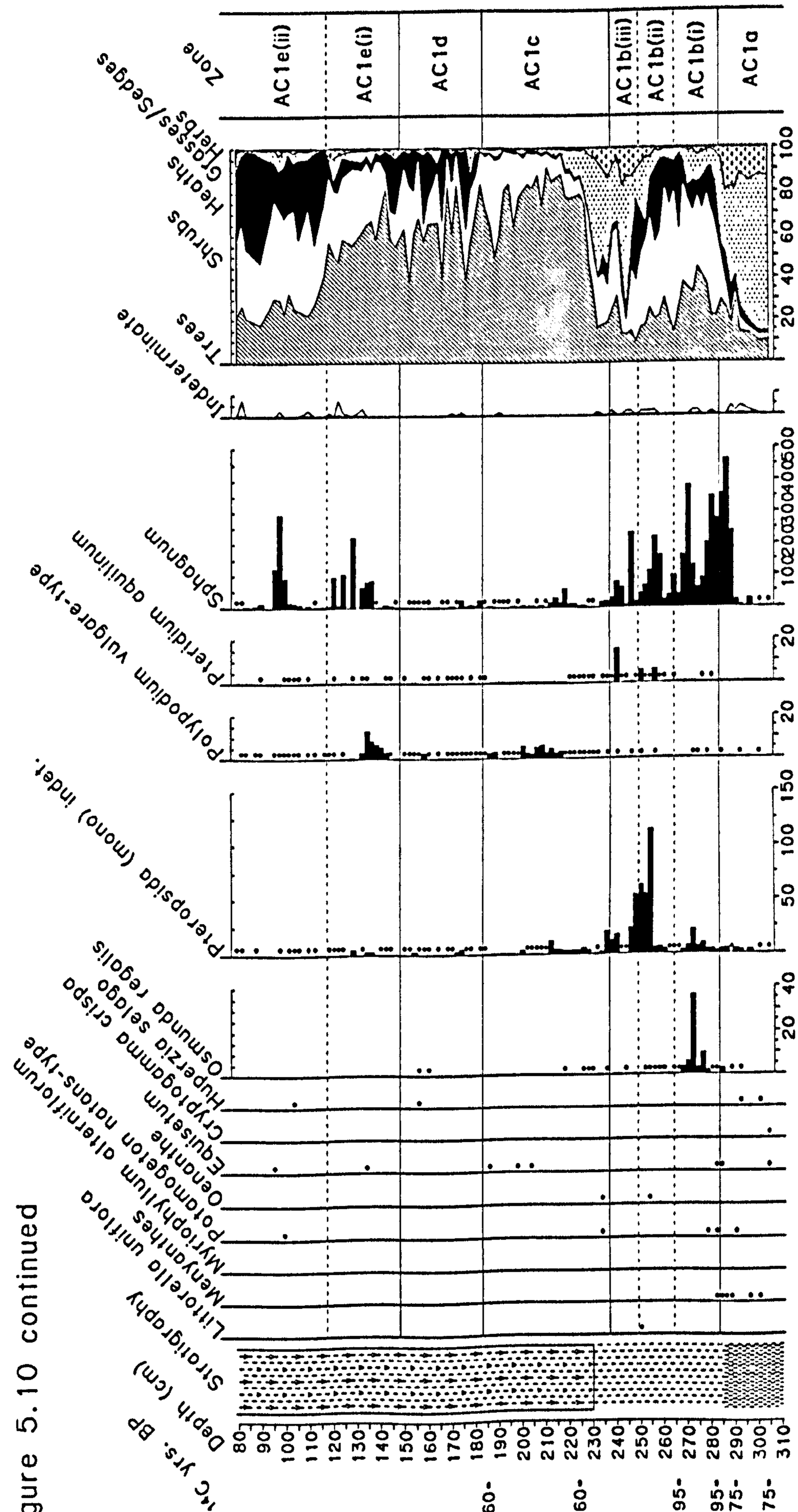

Zone
AC1e(ii)
AC1e(i)
AC1d
AC1c
AC1b(iii)
AC1b(ii)
AC1b(i)
AC1a
Heaths Grasses/sedges Herbs
Shrubs
Trees
Indeterminate
Sphagnum
Pteridium aquilinum
Polypodium vulgare-type
Pteropsida (mono) indet.
Osmunda regalis
Hypericum selago
Cryptogramma crispa
Equisetum
Oenanthe
Potamogeton alterniflorum
Myriophyllum
Menyanthes
Littorella uniflora
Stratigraphy
Depth (cm)
14C yrs. BP
5335±60-
5685±60-
8025±95-
8540±95-
8705±75-
8625±75-
Dk. brown fine peat
Brown peat
Wood peat
continued

Figure 5.10 c

Figure 5.11 Pollen and spore percentage diagram for AC2, Ulva
(Circle symbol = < 2% TLP; TLP excludes Alnus)

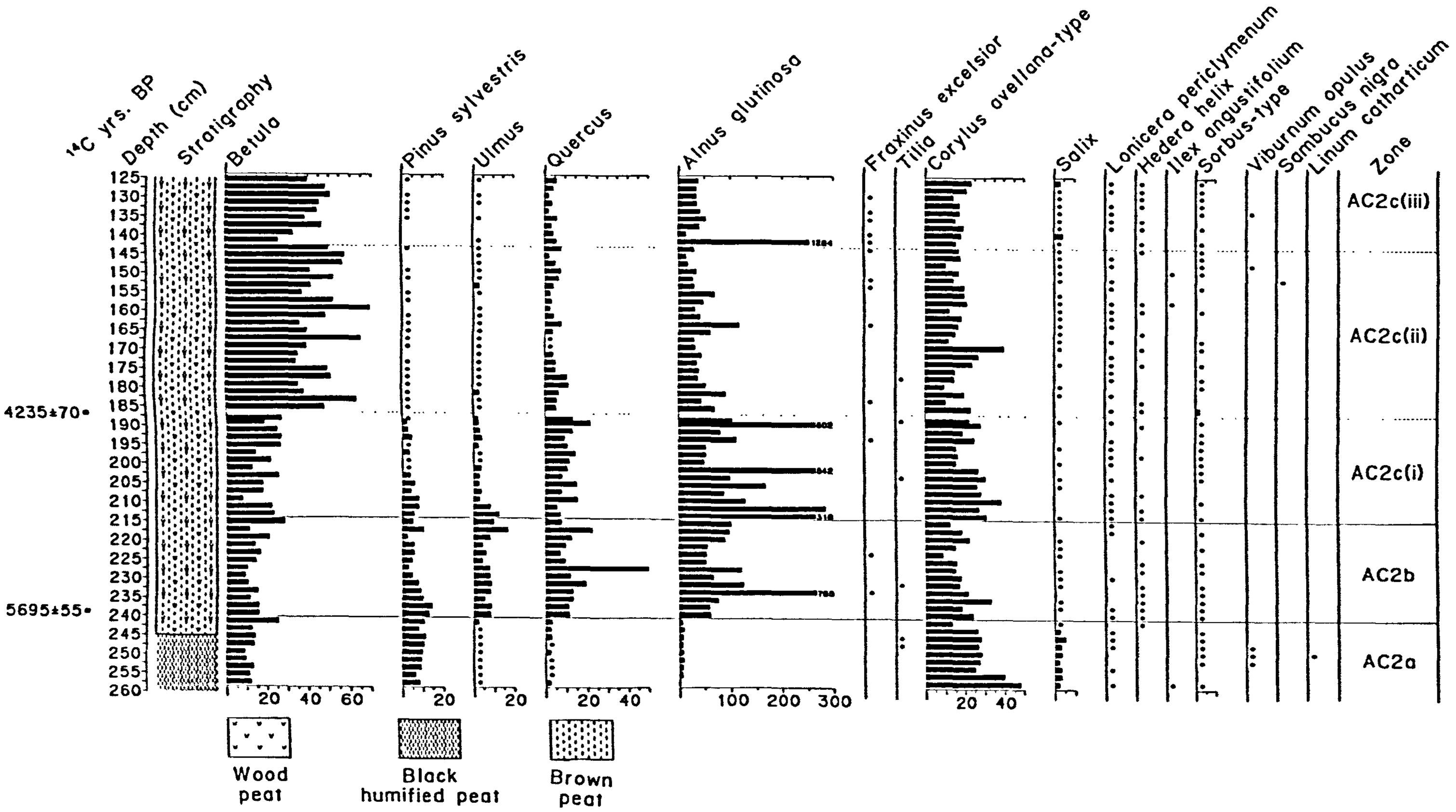
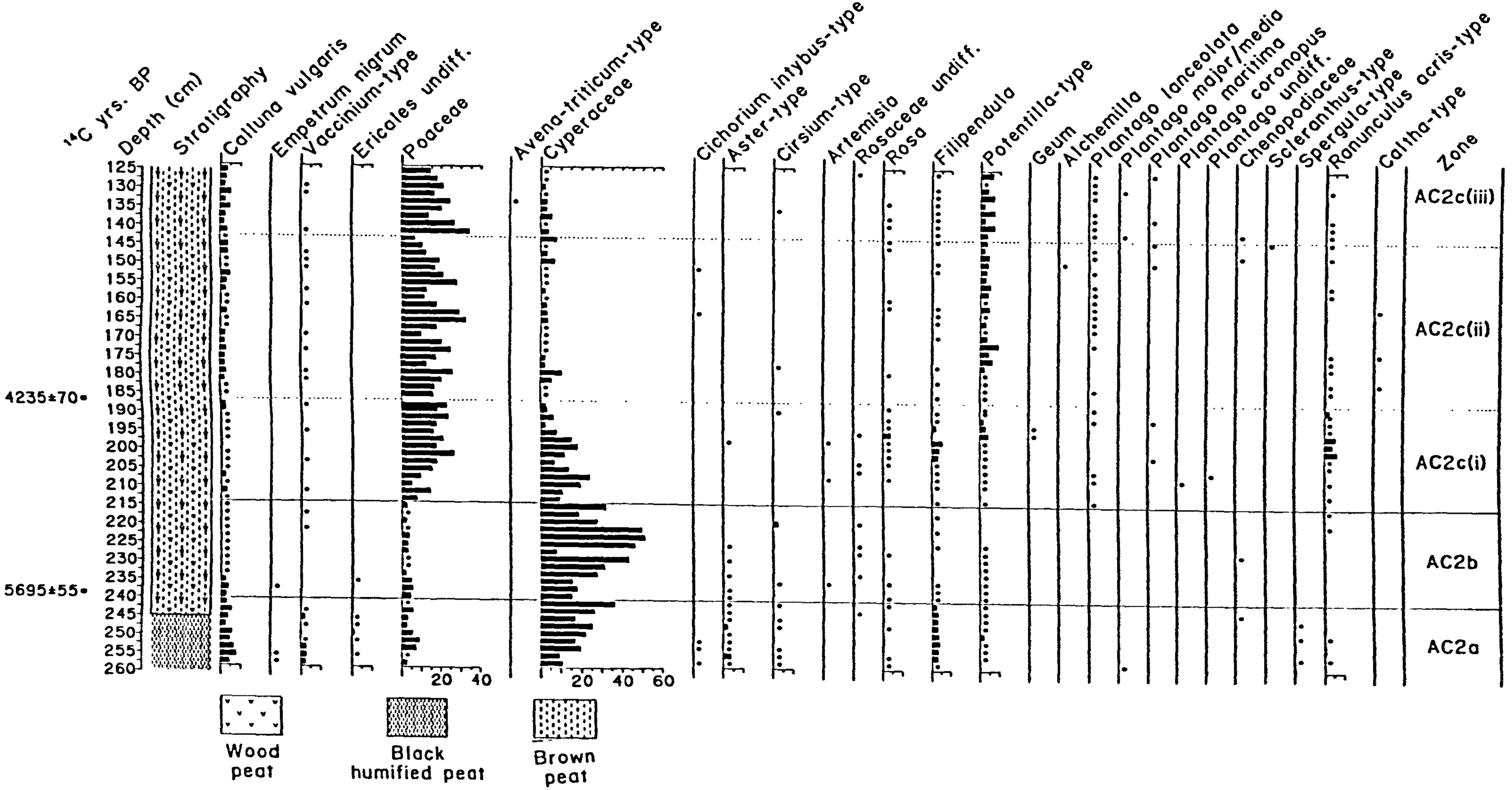


Figure 5.11 continued



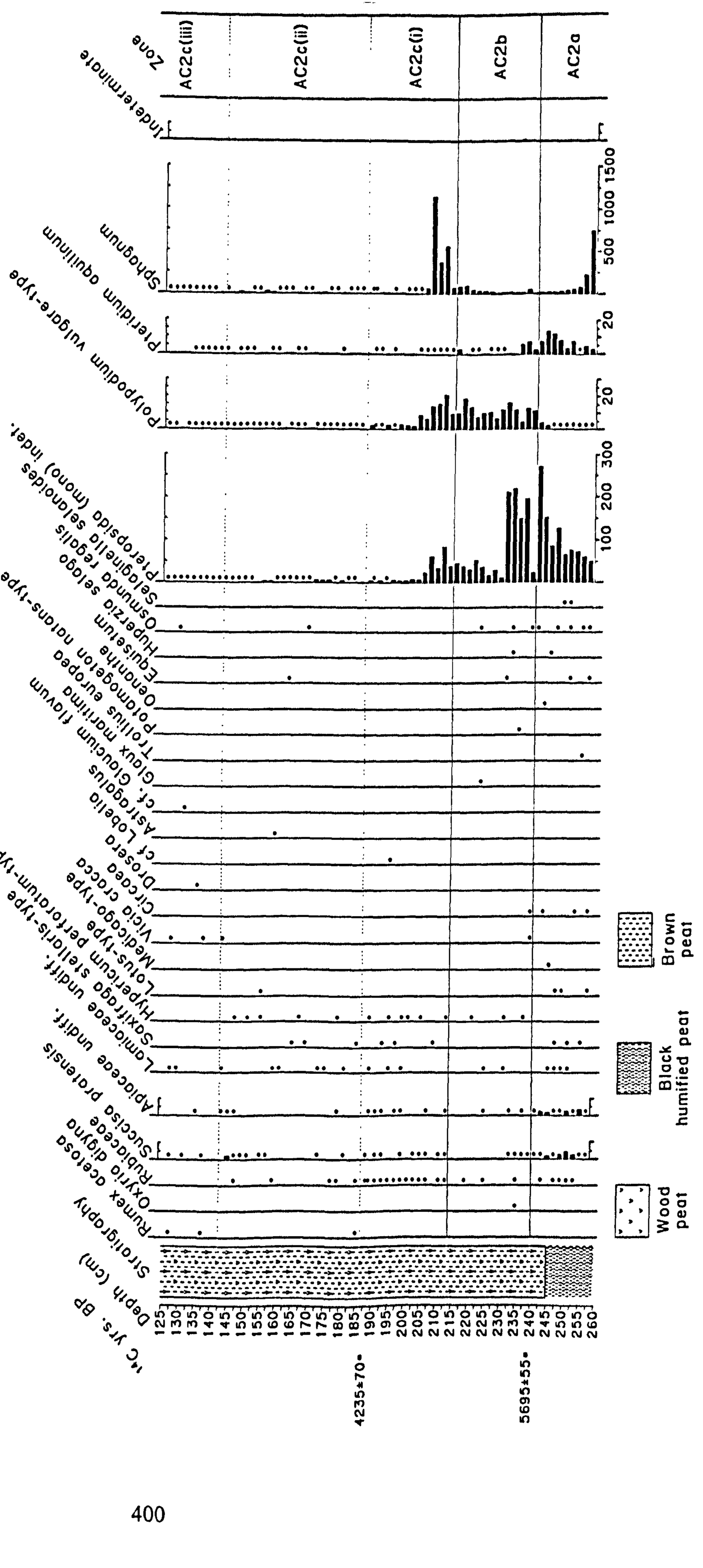


Figure 5.11 continued

Figure 5.11 continued

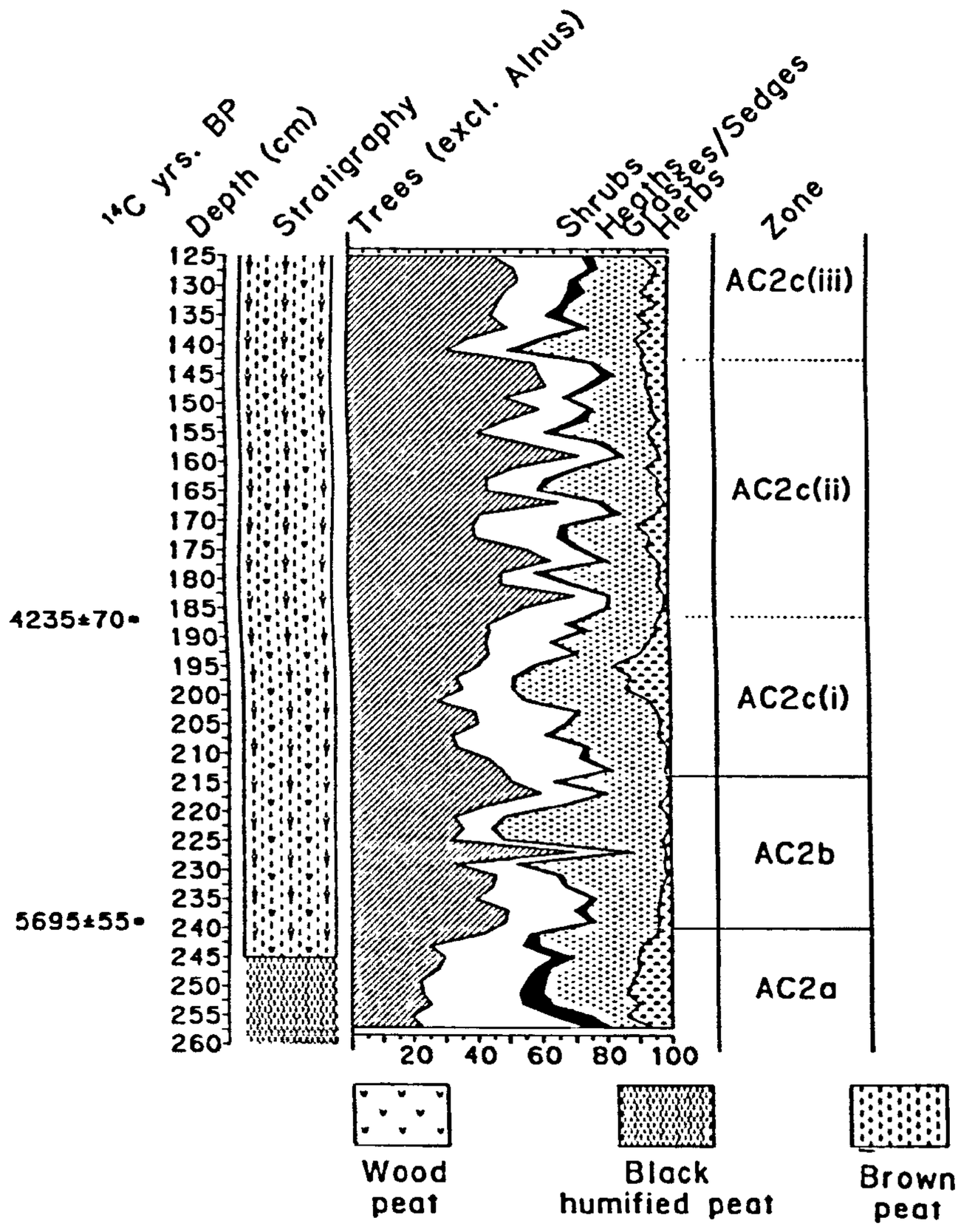


Figure 5.12 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and total damaged pollen for AC1

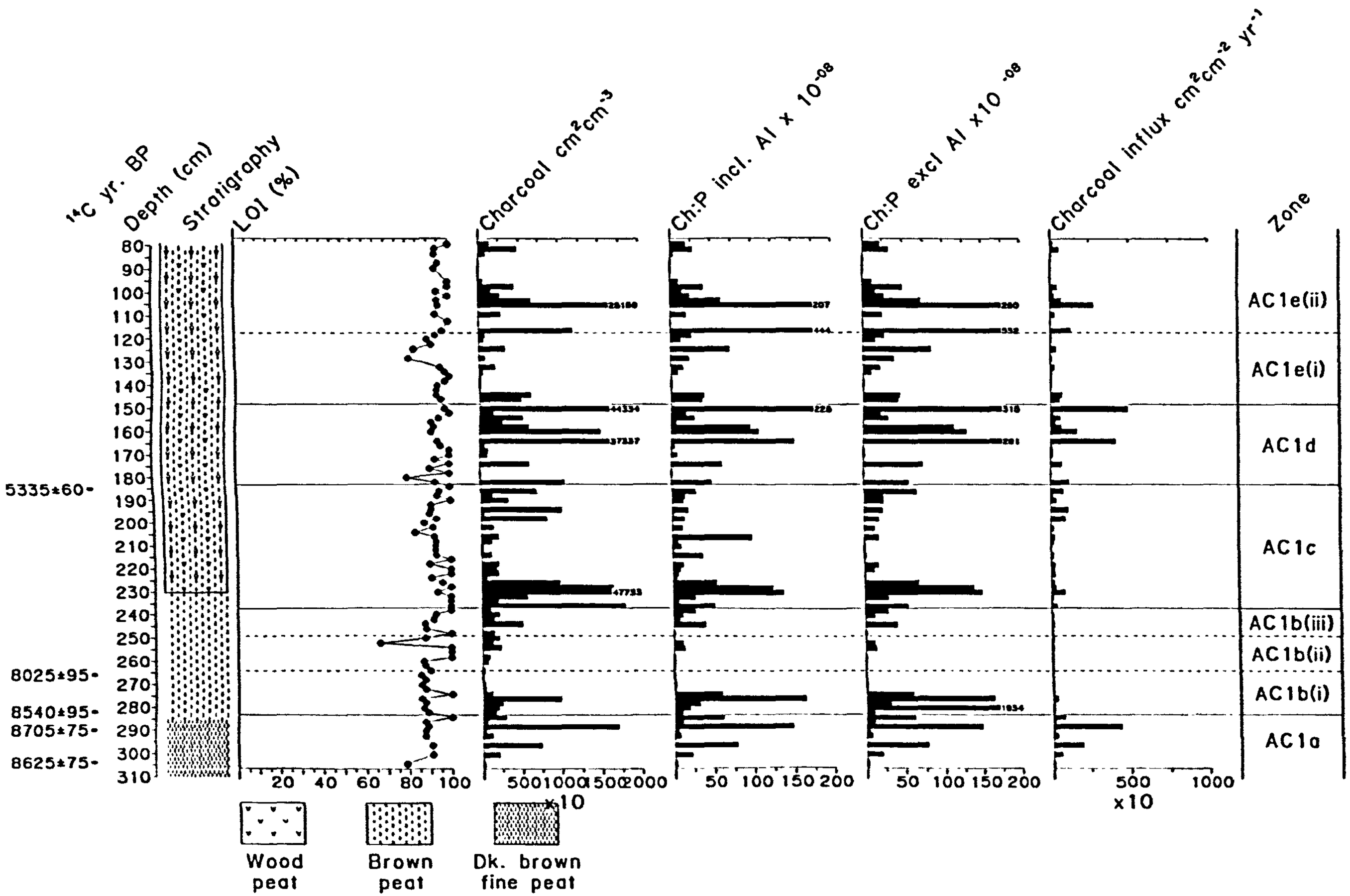


Figure 5.12 continued

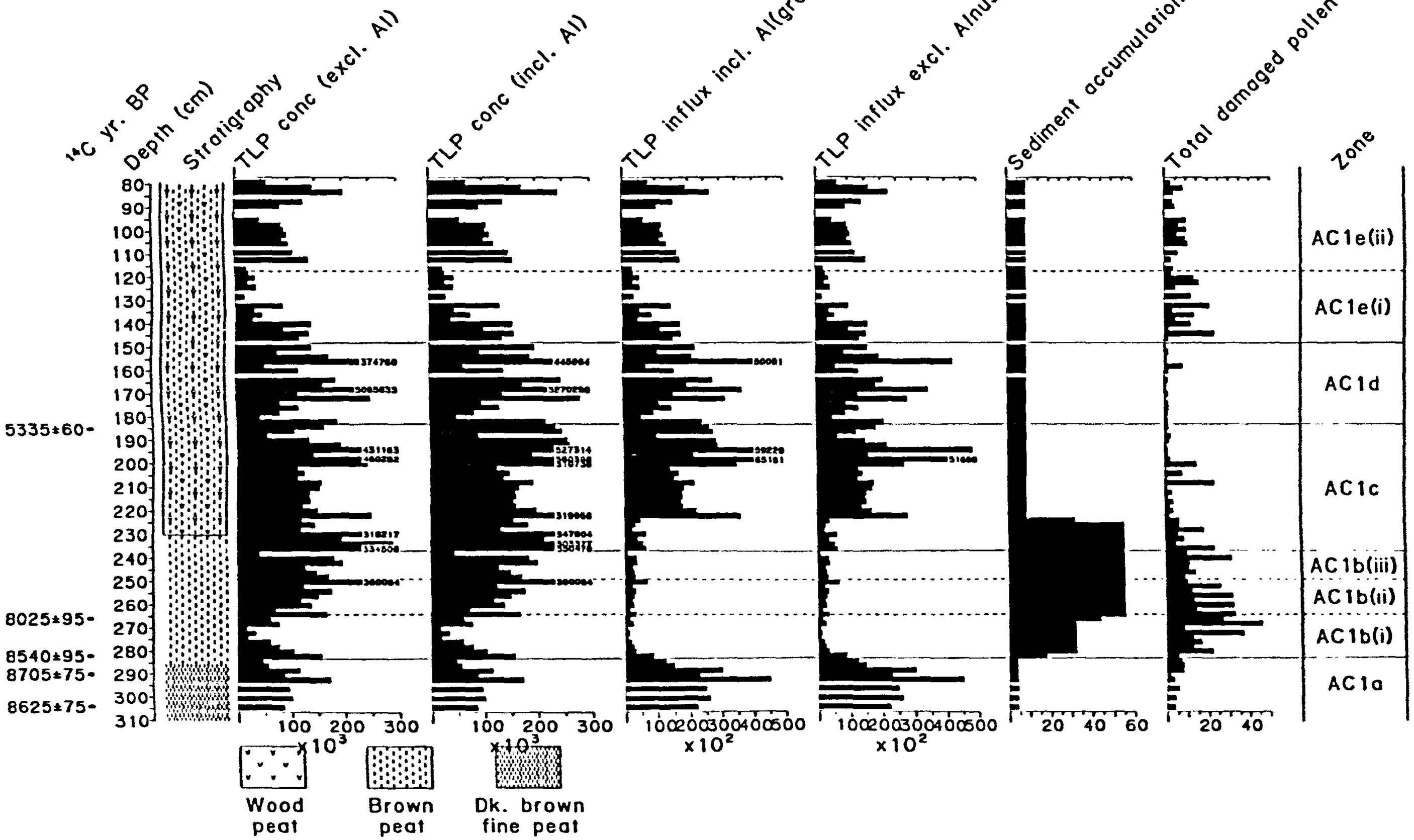


Figure 5.13 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and damaged pollen data, AC2.
(Unshaded exaggeration curve = x10)

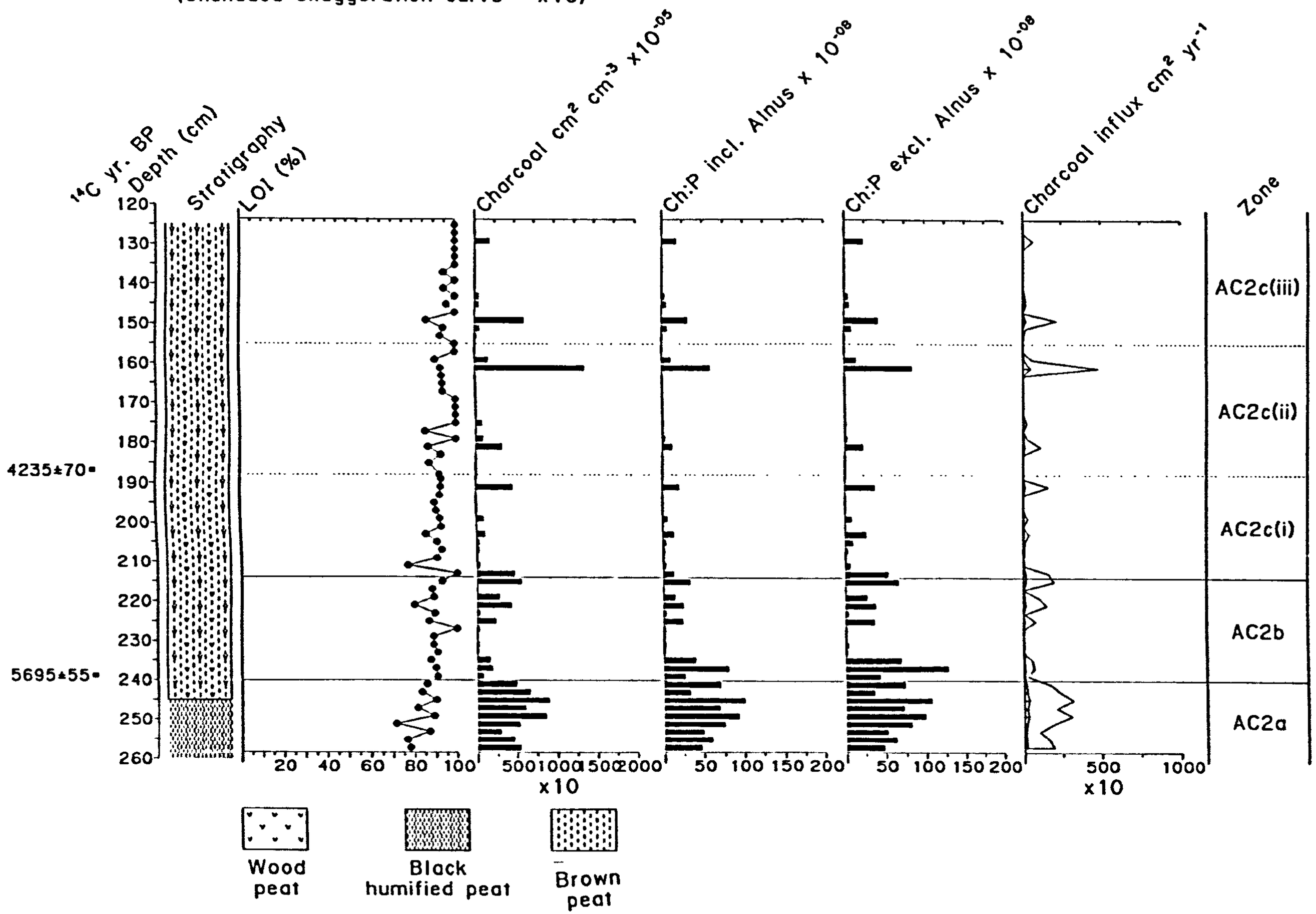


Figure 5.13 continued

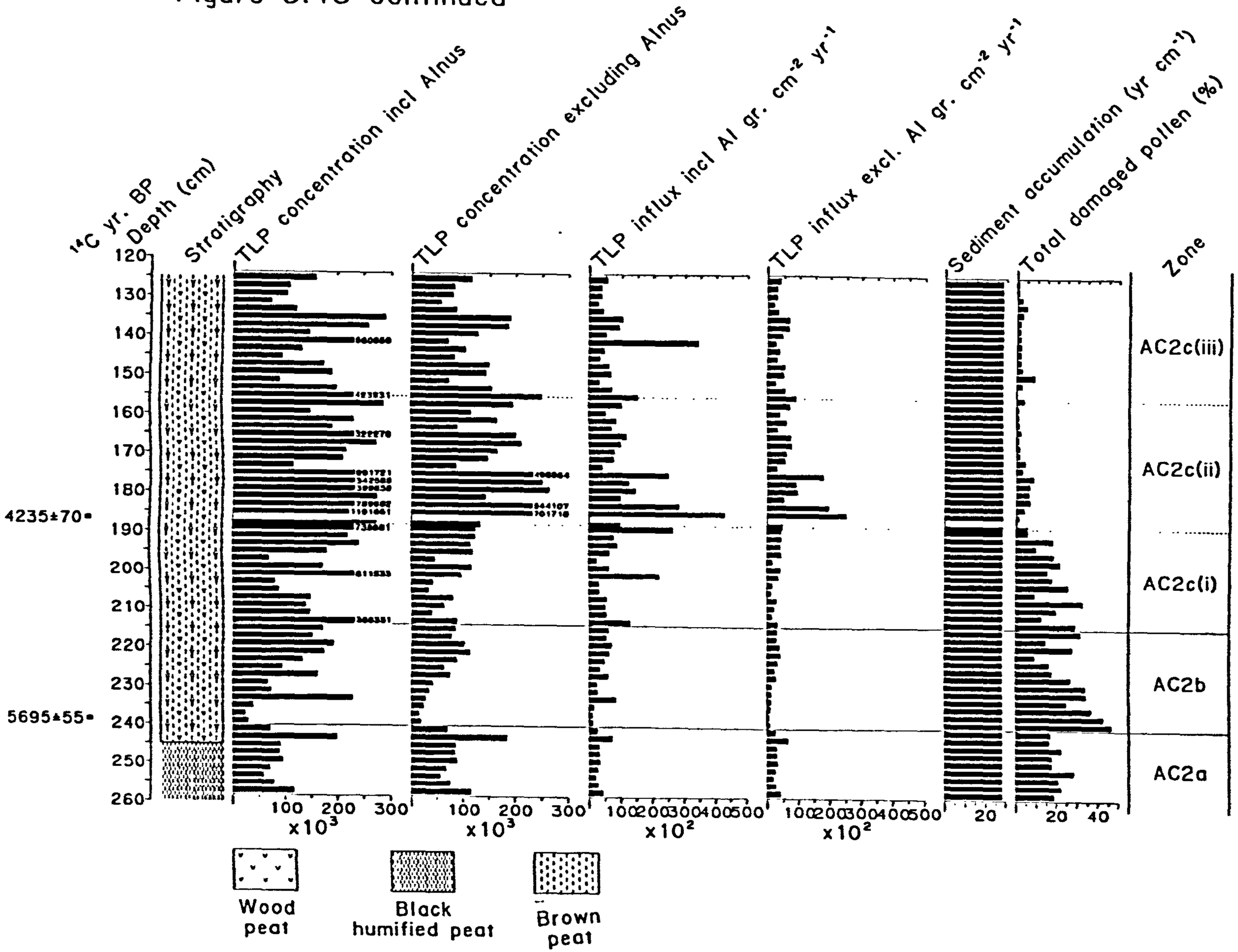
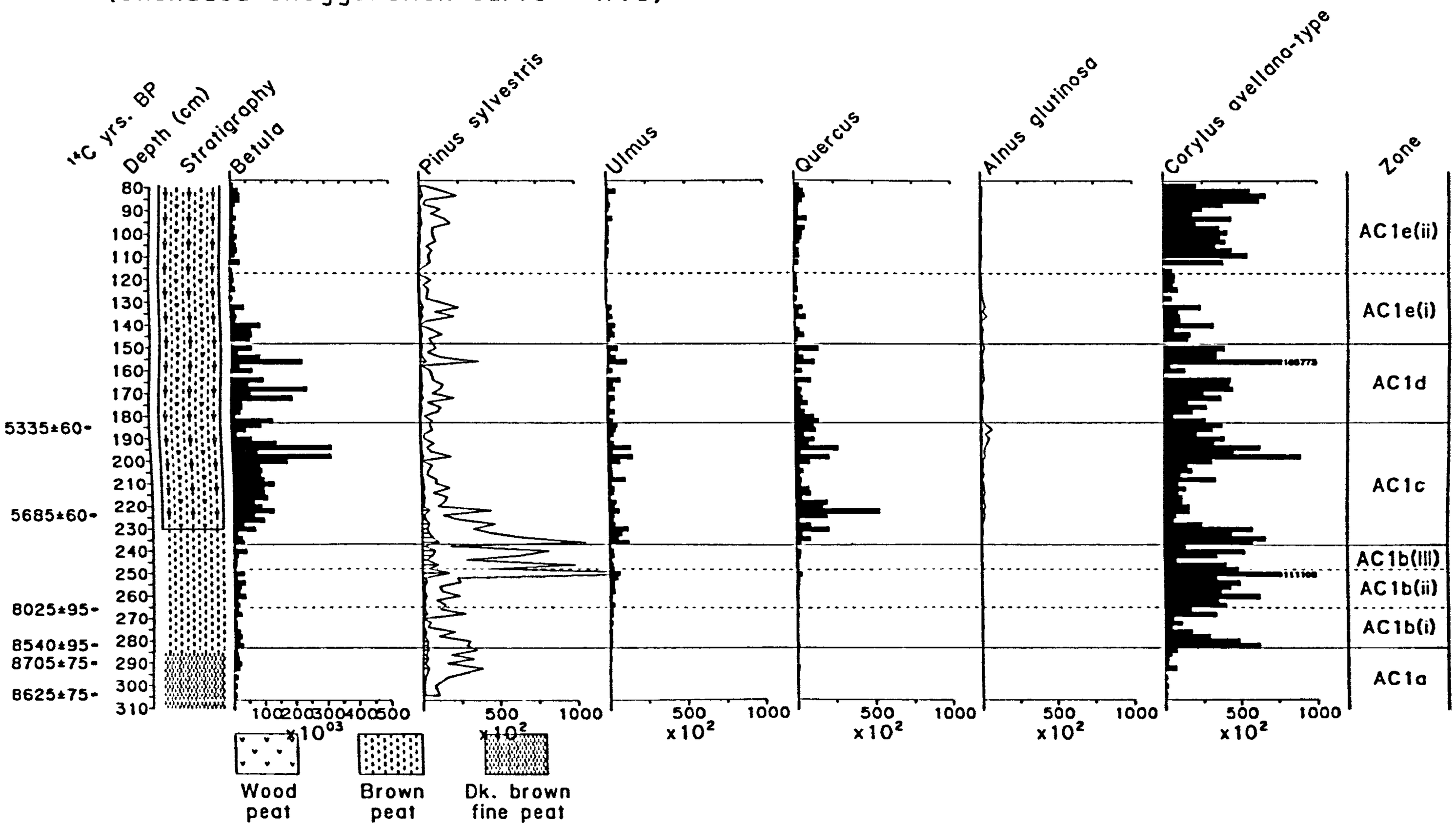


Figure 5.14 Concentration diagram of selected taxa from profile AC1
(Unshaded exaggeration curve = x10)



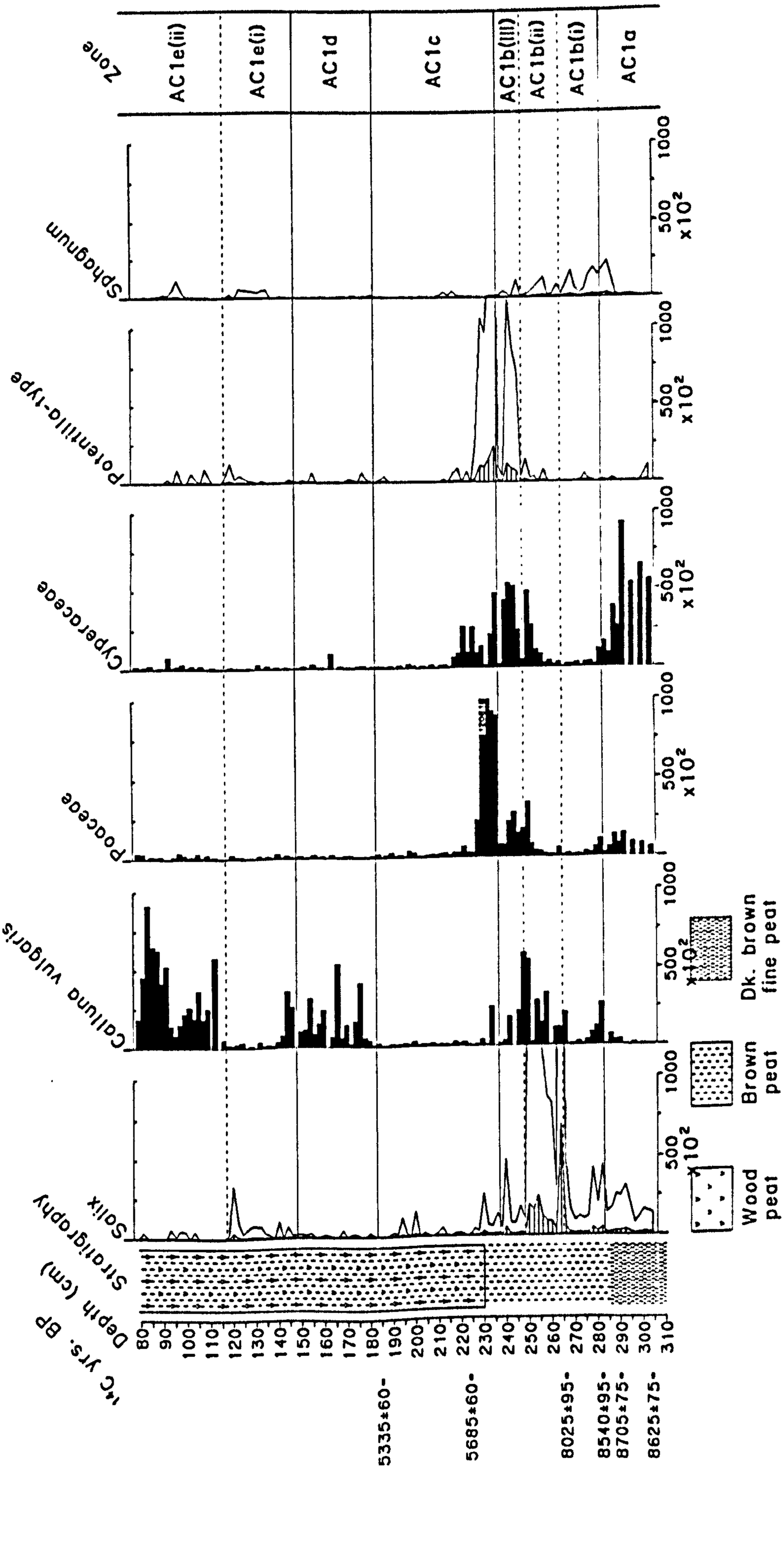
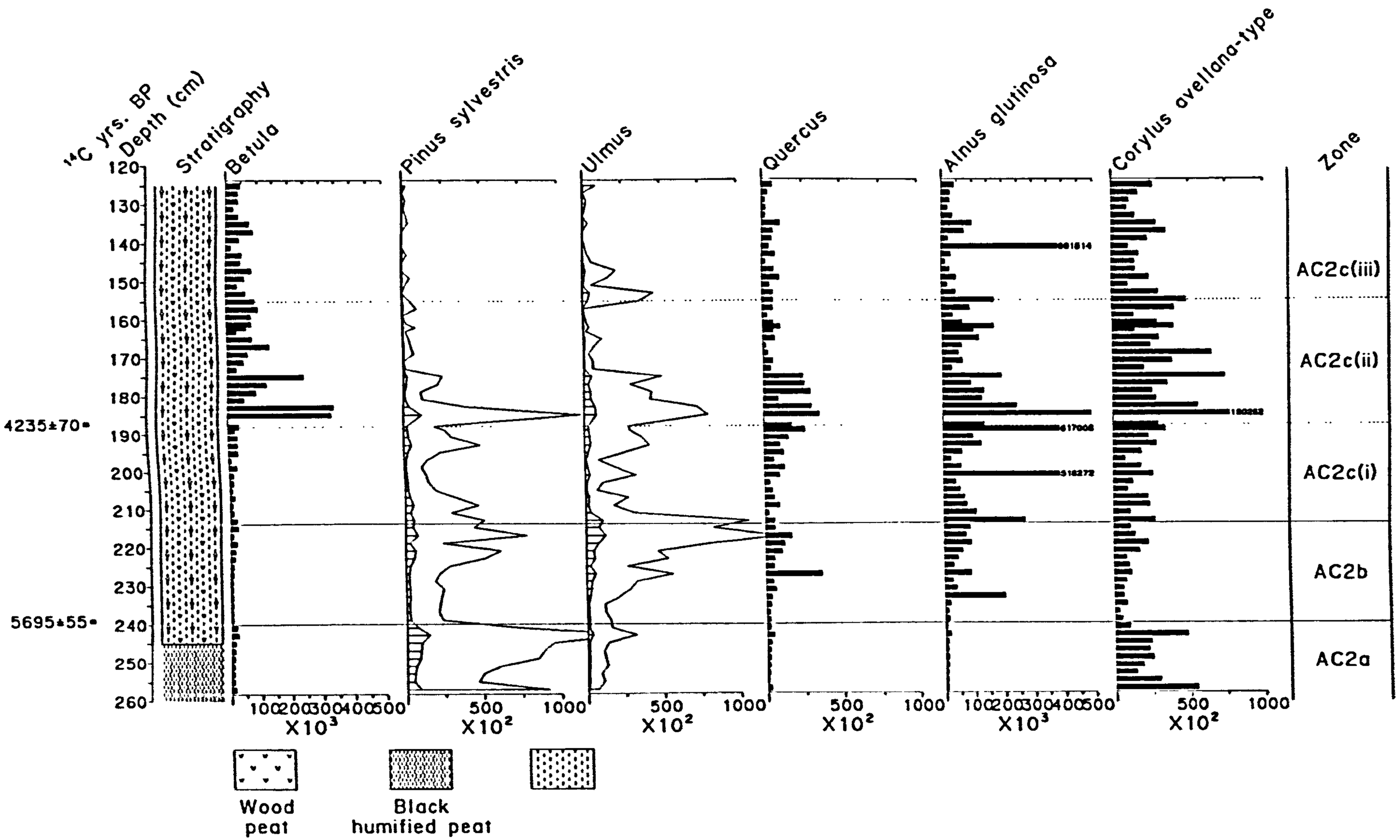


Figure 5.14 continued

Figure 5.15 Concentration diagram of selected taxa from profile AC2
(Unshaded exaggeration curves = x10)



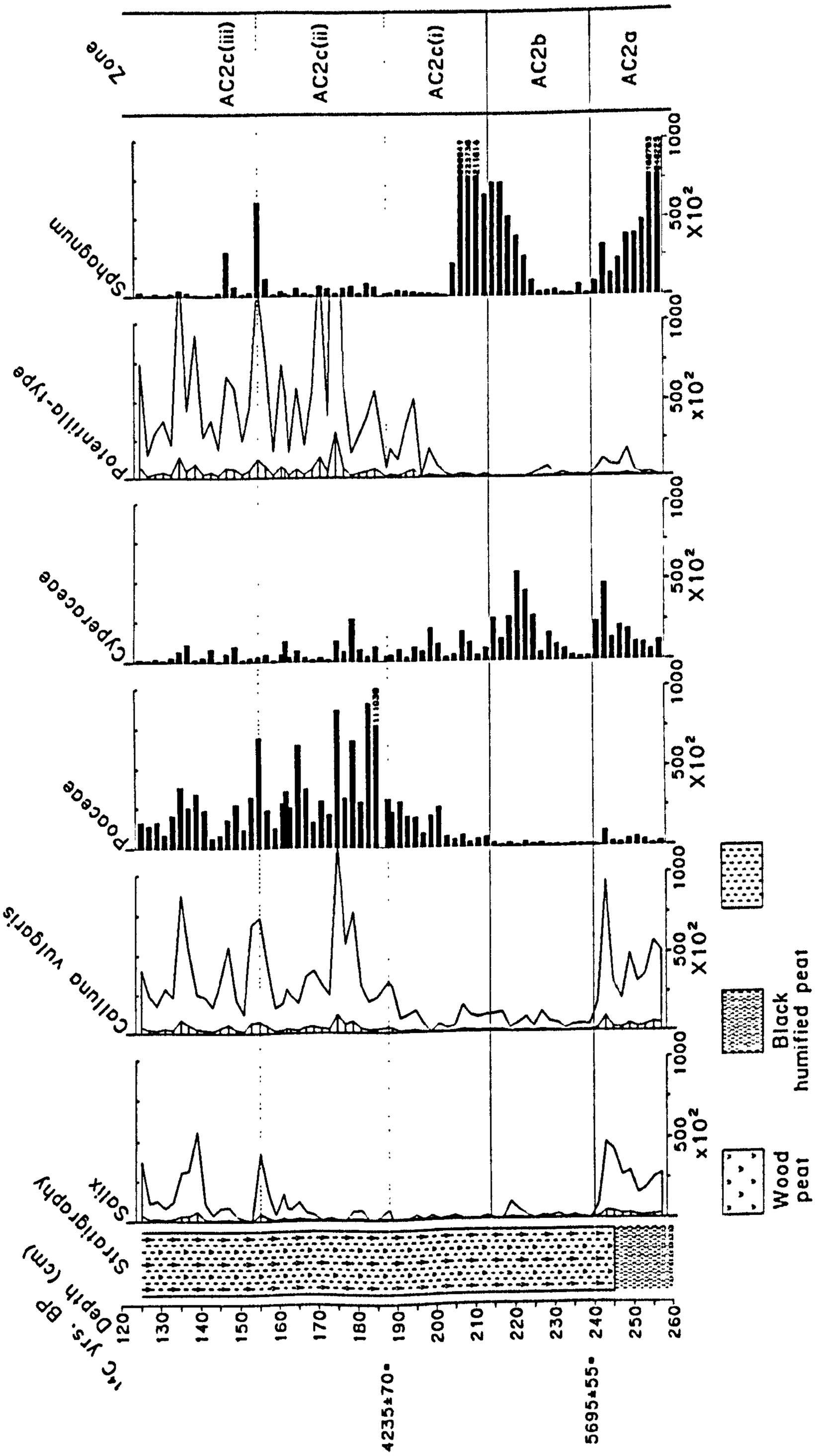
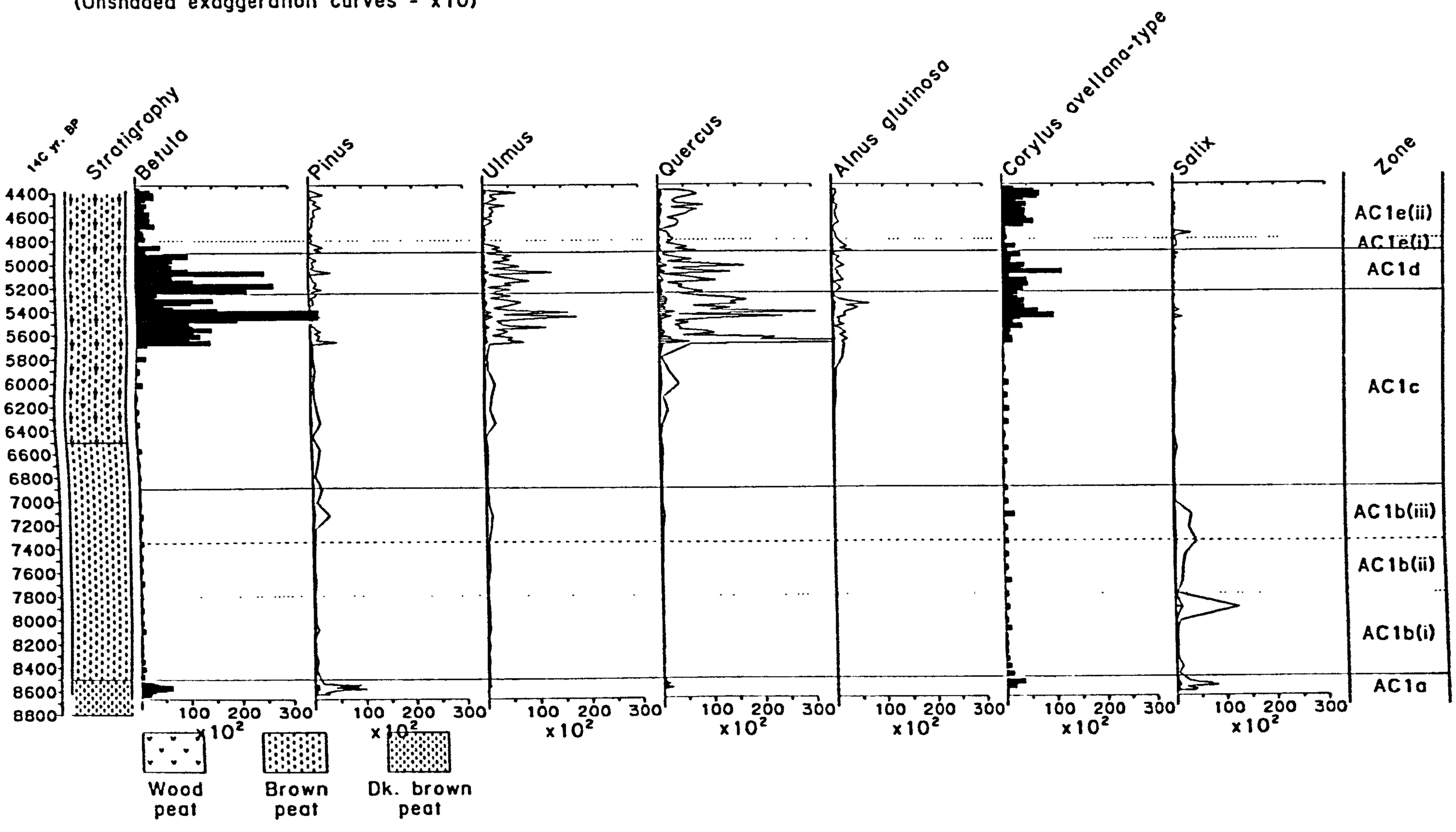


Figure 5.15 continued

Figure 5.16 Pollen and spore influx diagram of selected taxa from AC1
(Unshaded exaggeration curves = x10)



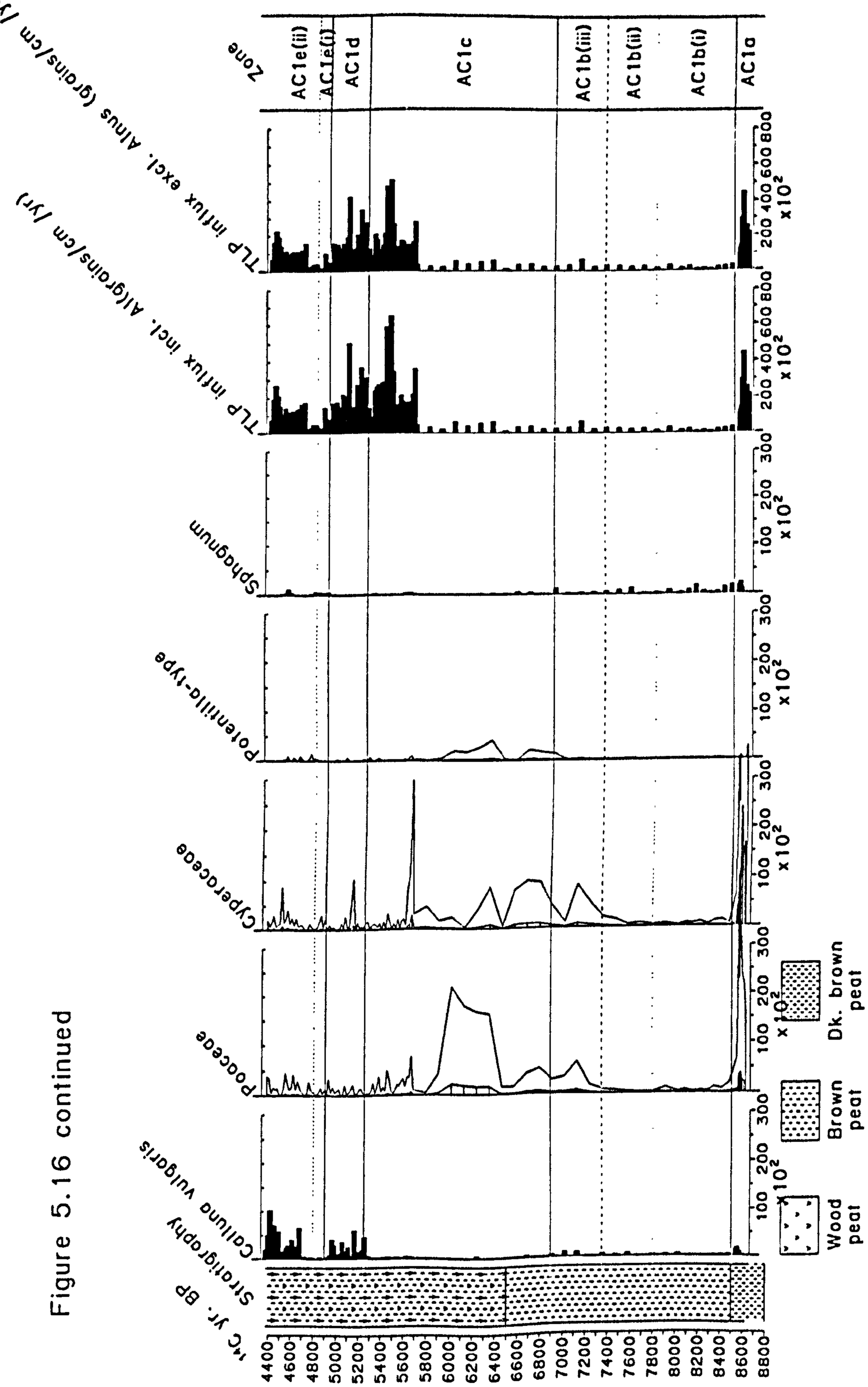


Figure 5.16 continued

Figure 5.17 Pollen and spore influx diagram for selected taxa from AC2
(Unshaded exaggeration curves = x10).

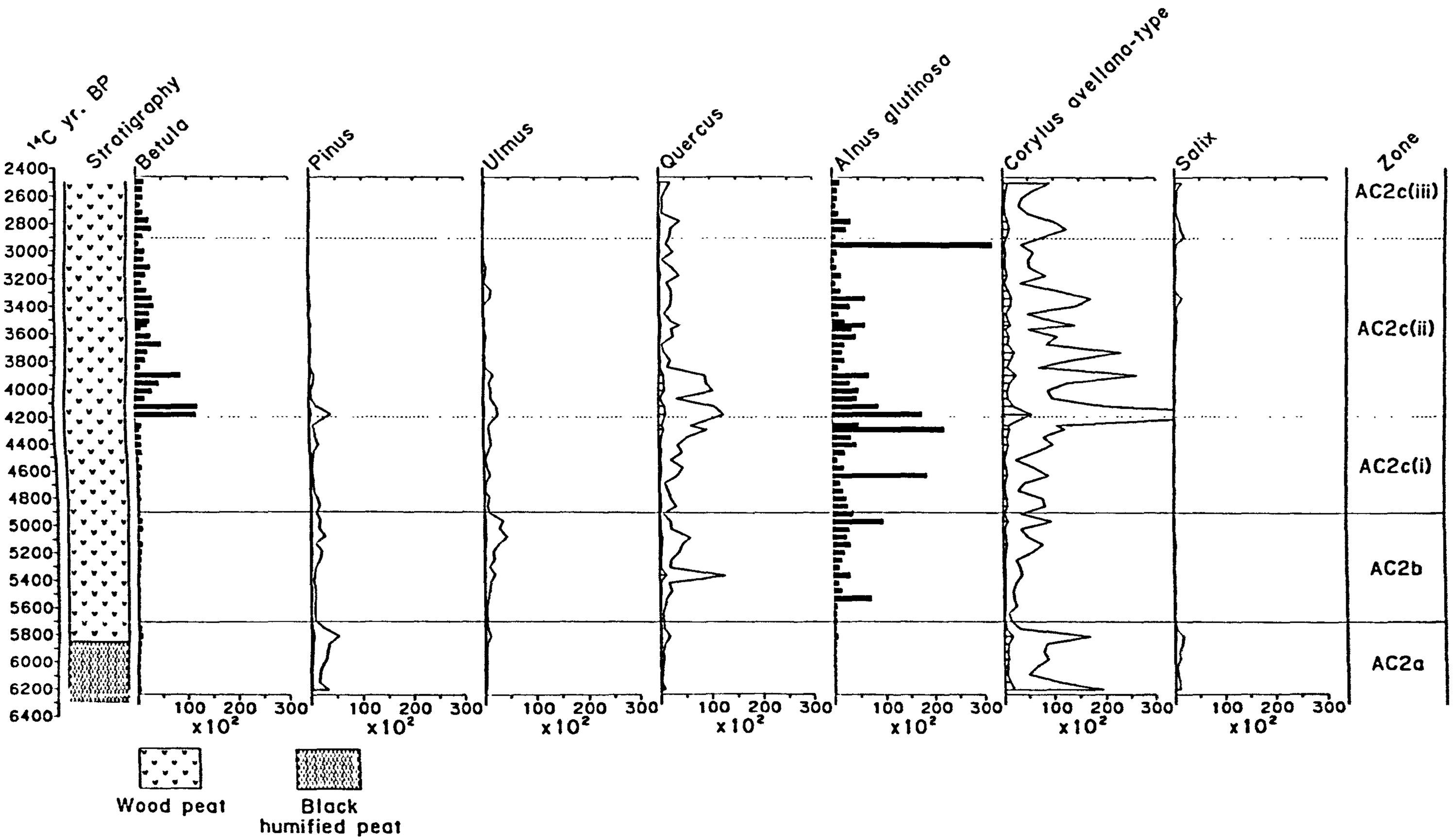


Figure 5.17 continued

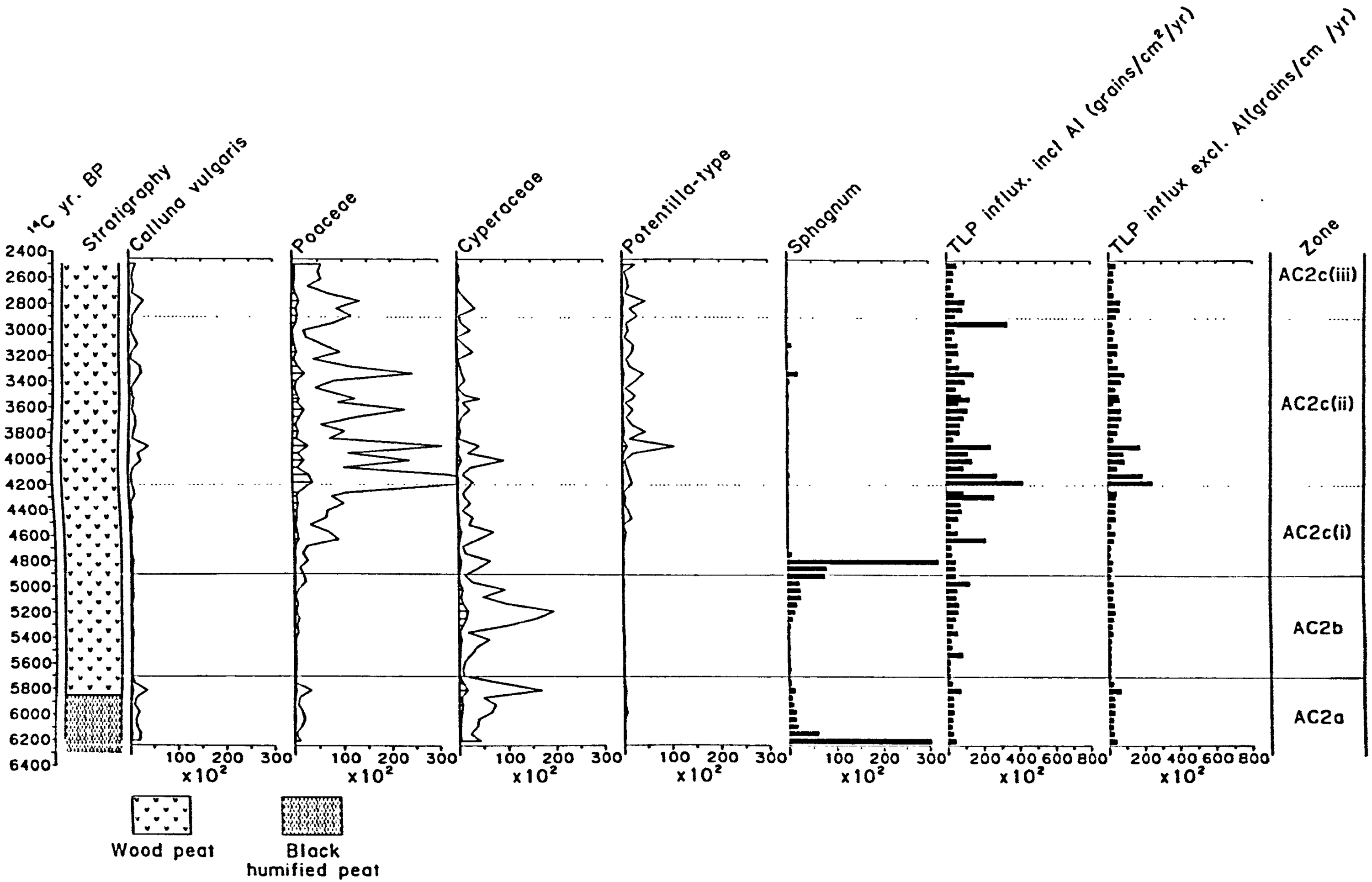


Figure 5.18 Percentage diagram of damaged pollen types for selected taxa from AC1
(Taxon scores presented as raw counts)

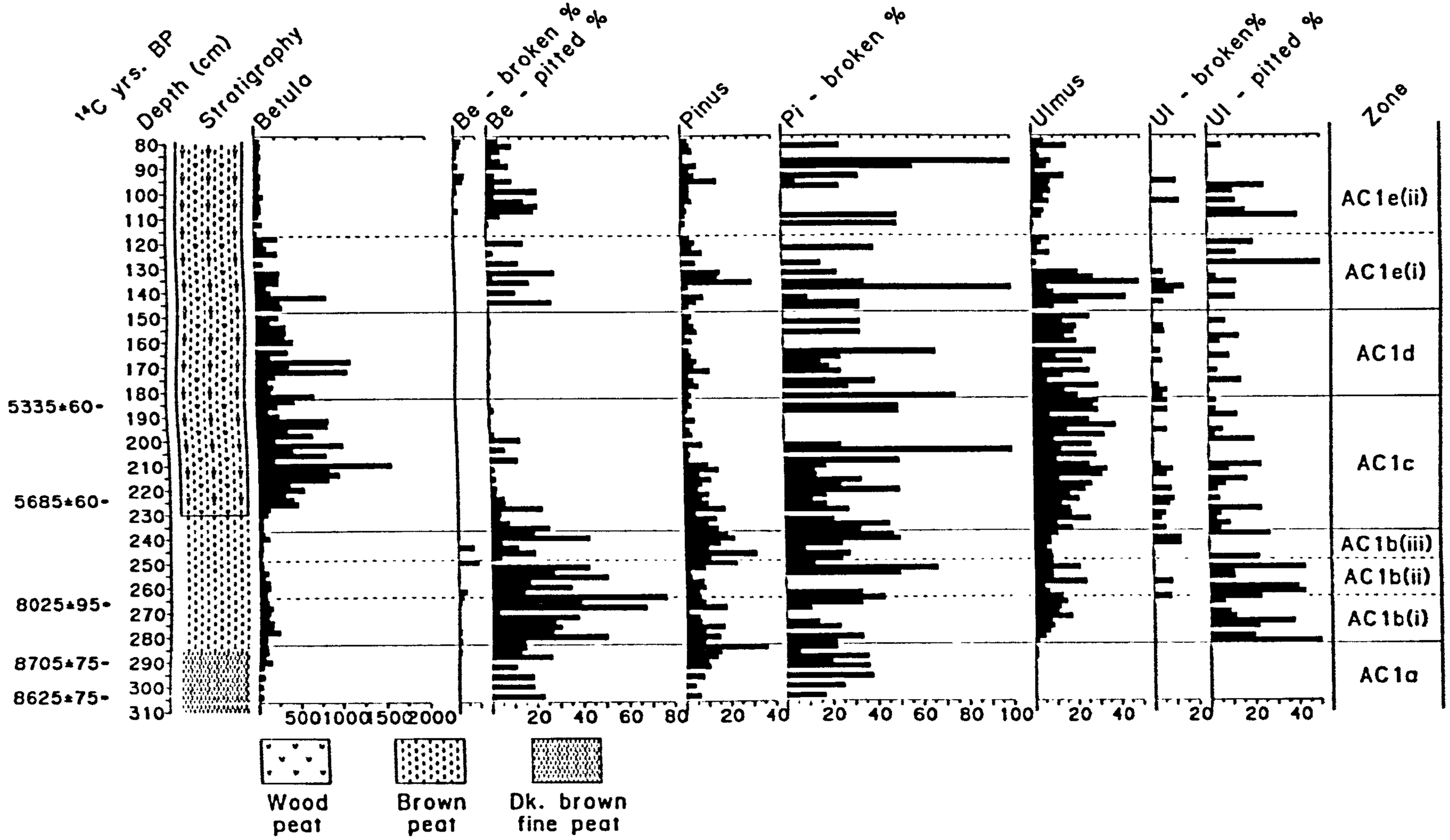


Figure 5.18 continued

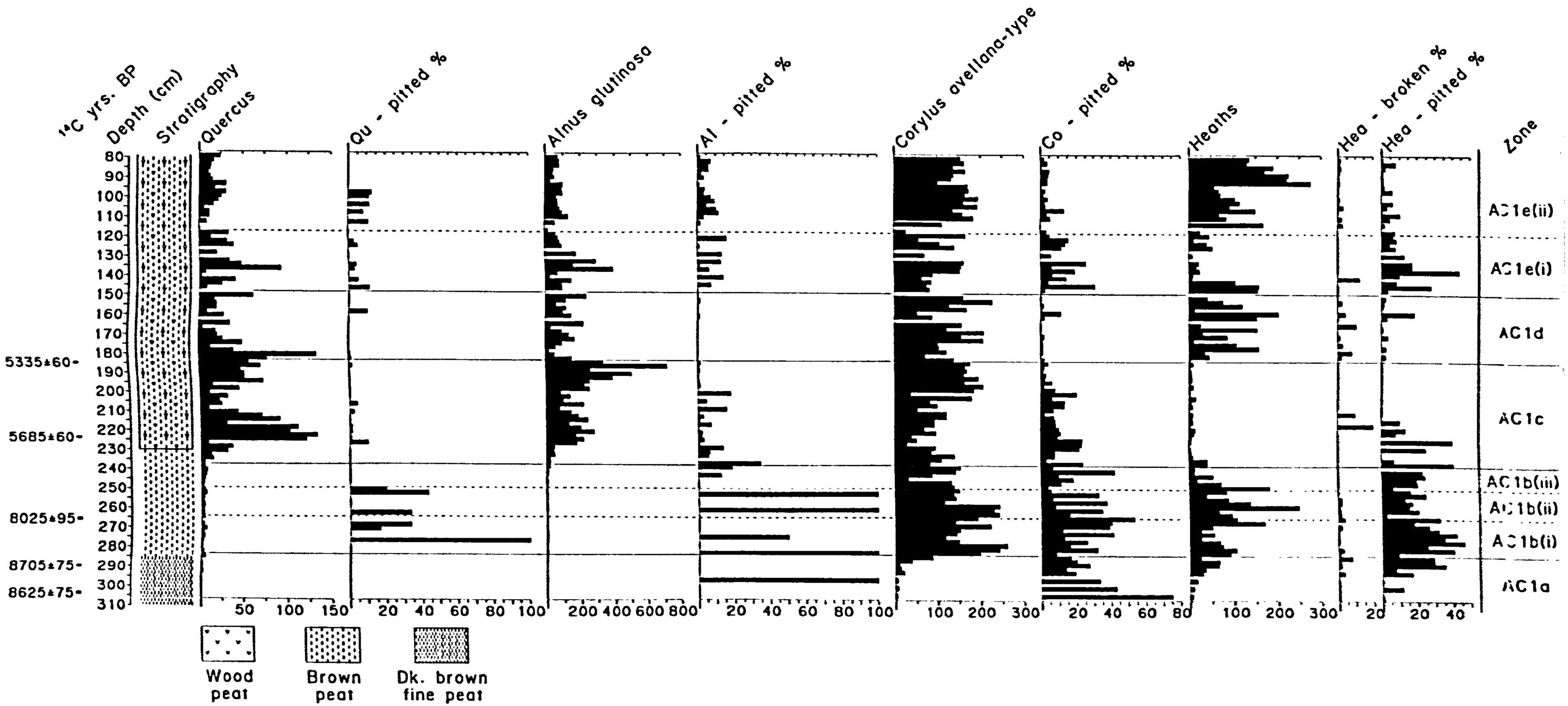


Figure 5.18 continued

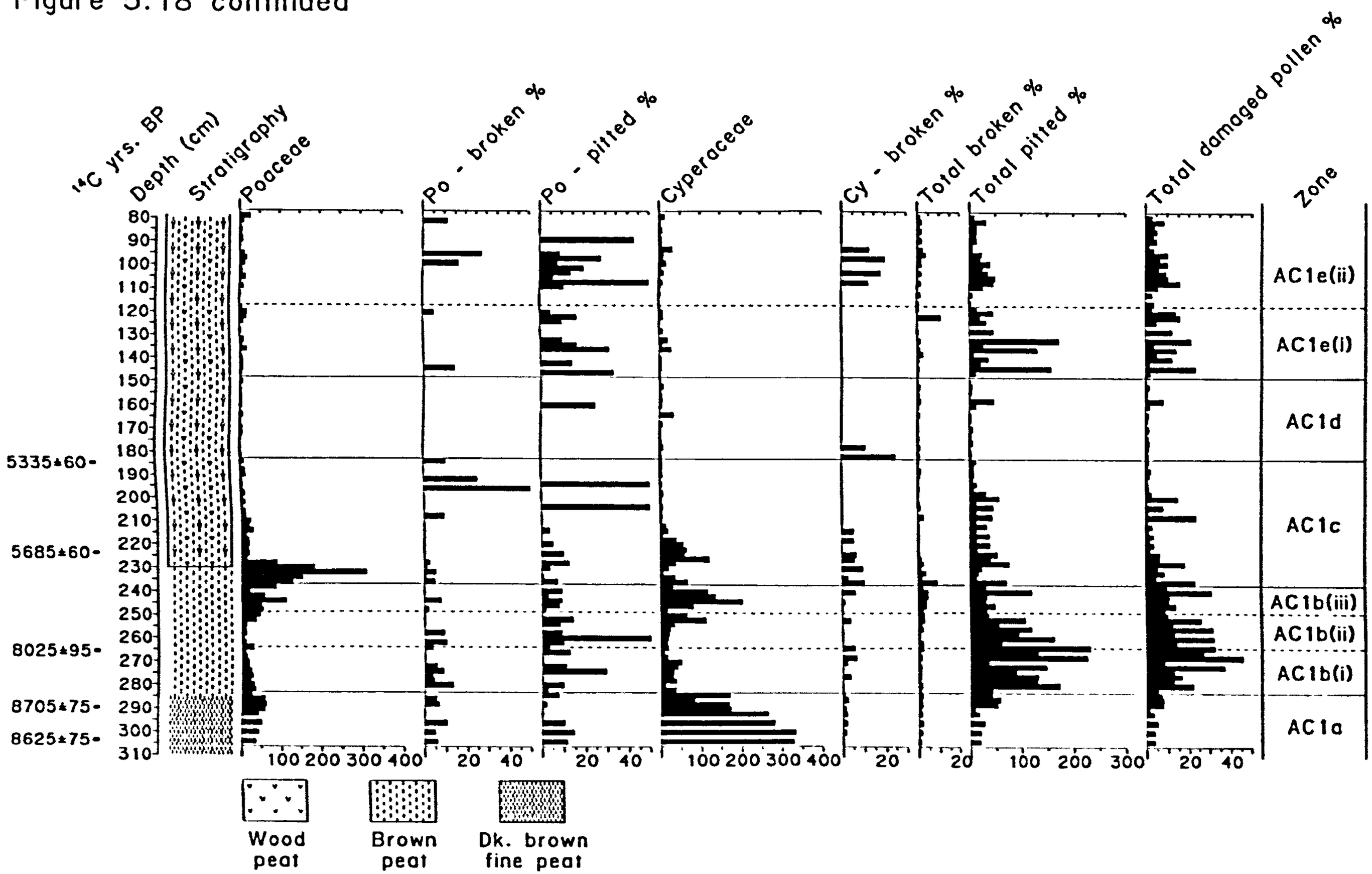


Figure 5.19 Percentage diagram of damaged pollen types for selected taxa from AC2
(Taxon scores presented as raw counts)

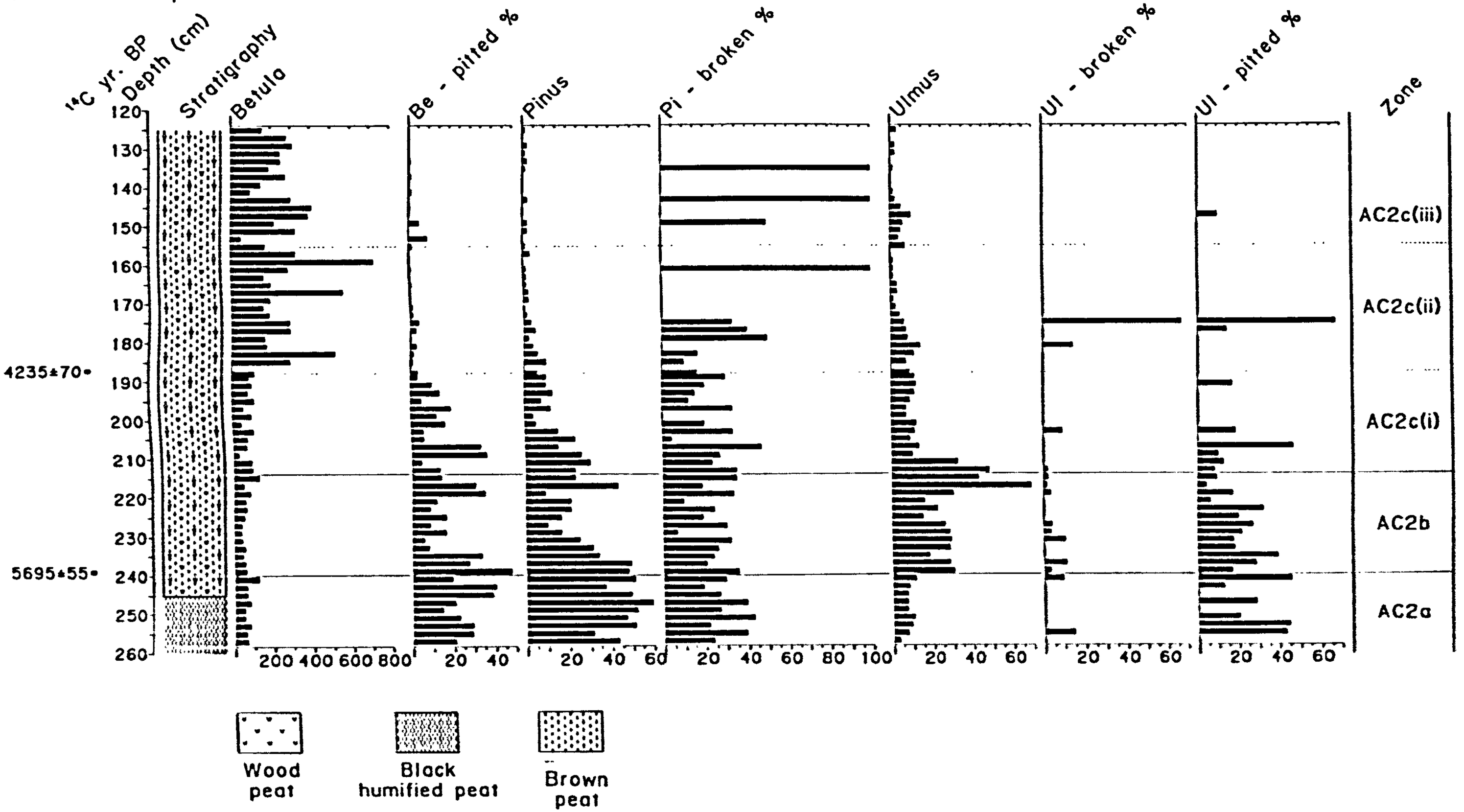


Figure 5.19 continued

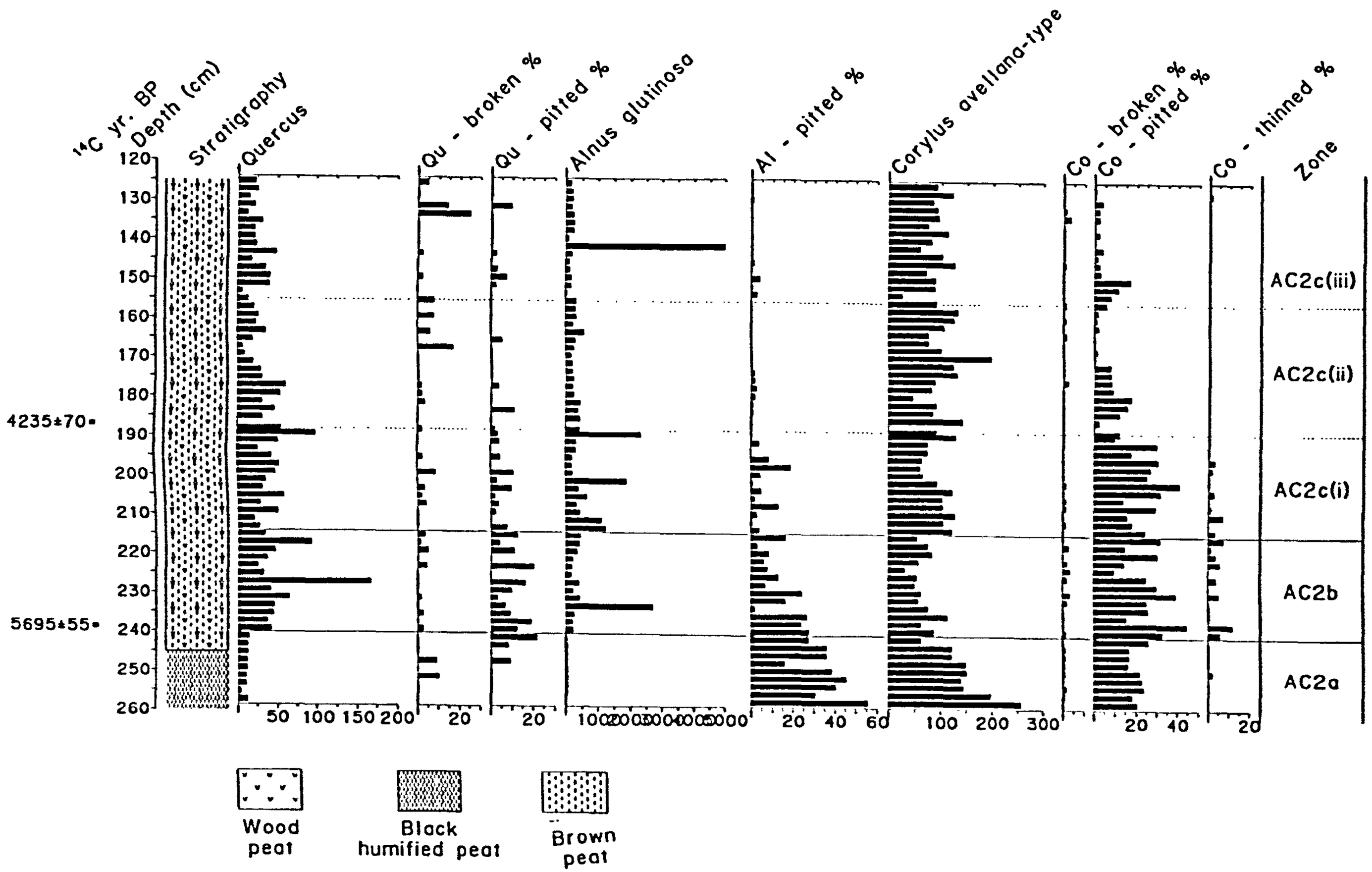


Figure 5.19 continued

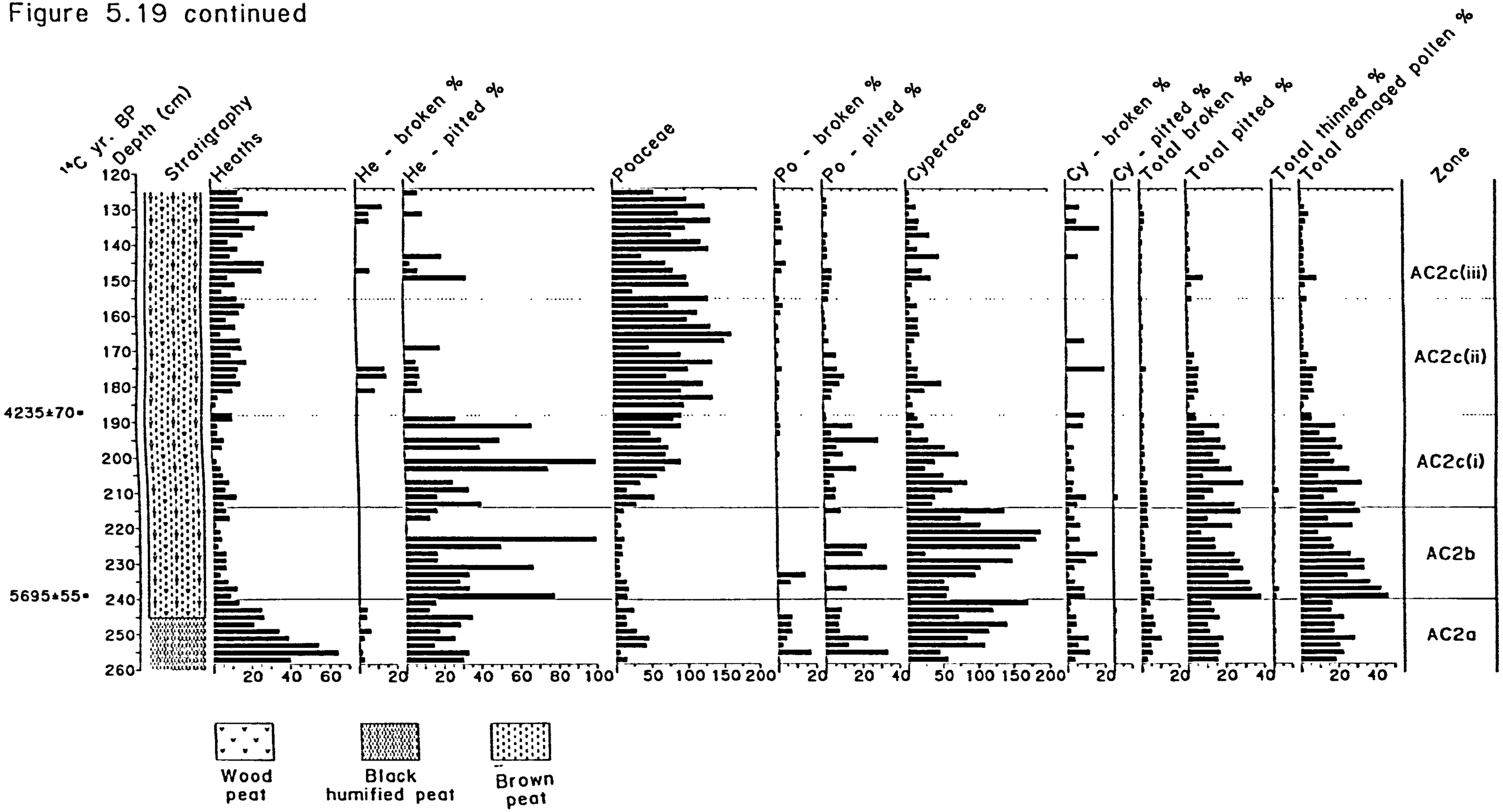


Figure 5.20 Pollen and spore percentage diagram for LC1, Ulva
(Circle symbol = < 2% TLP; TLP excludes Alnus)

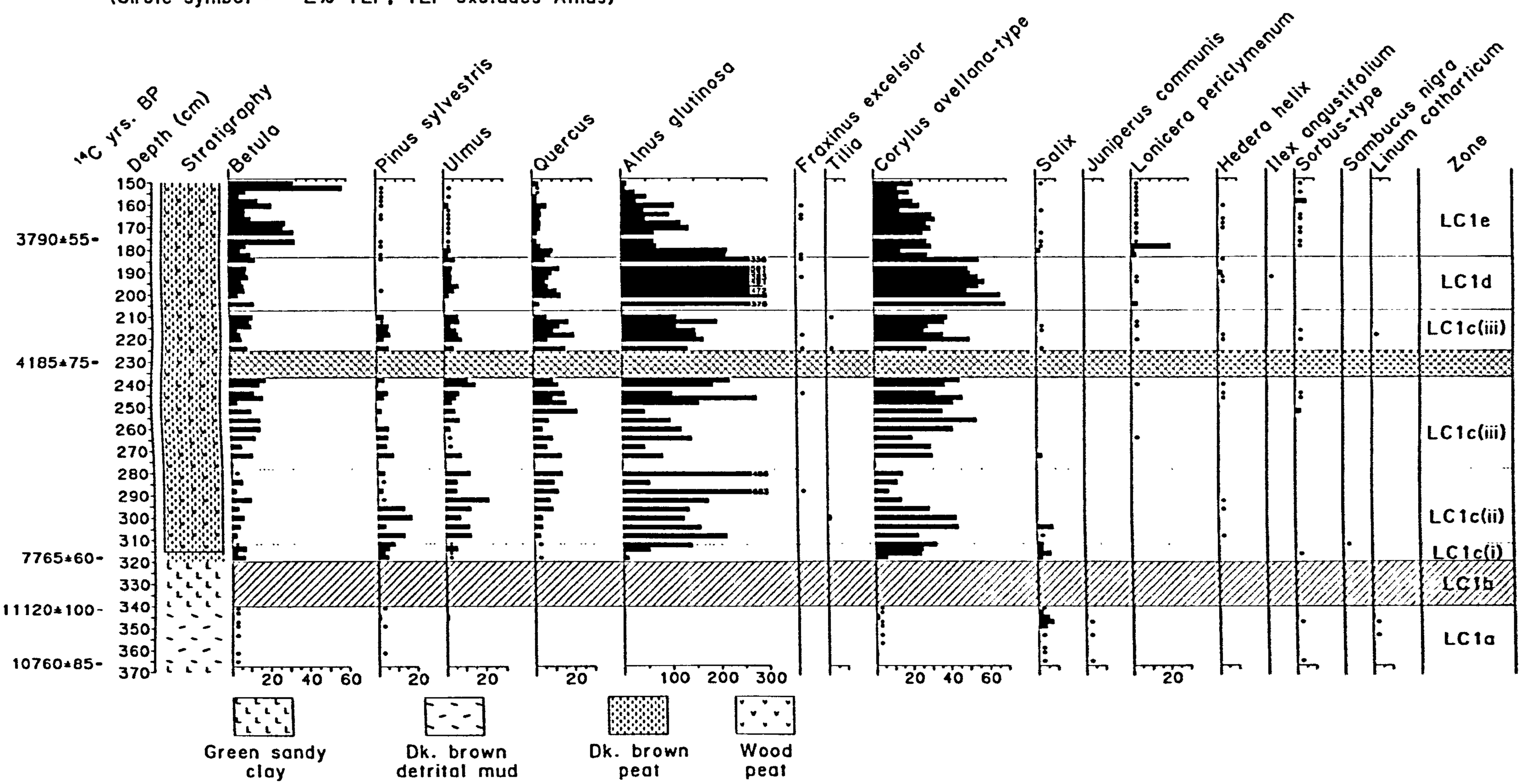


Figure 5.20 continued

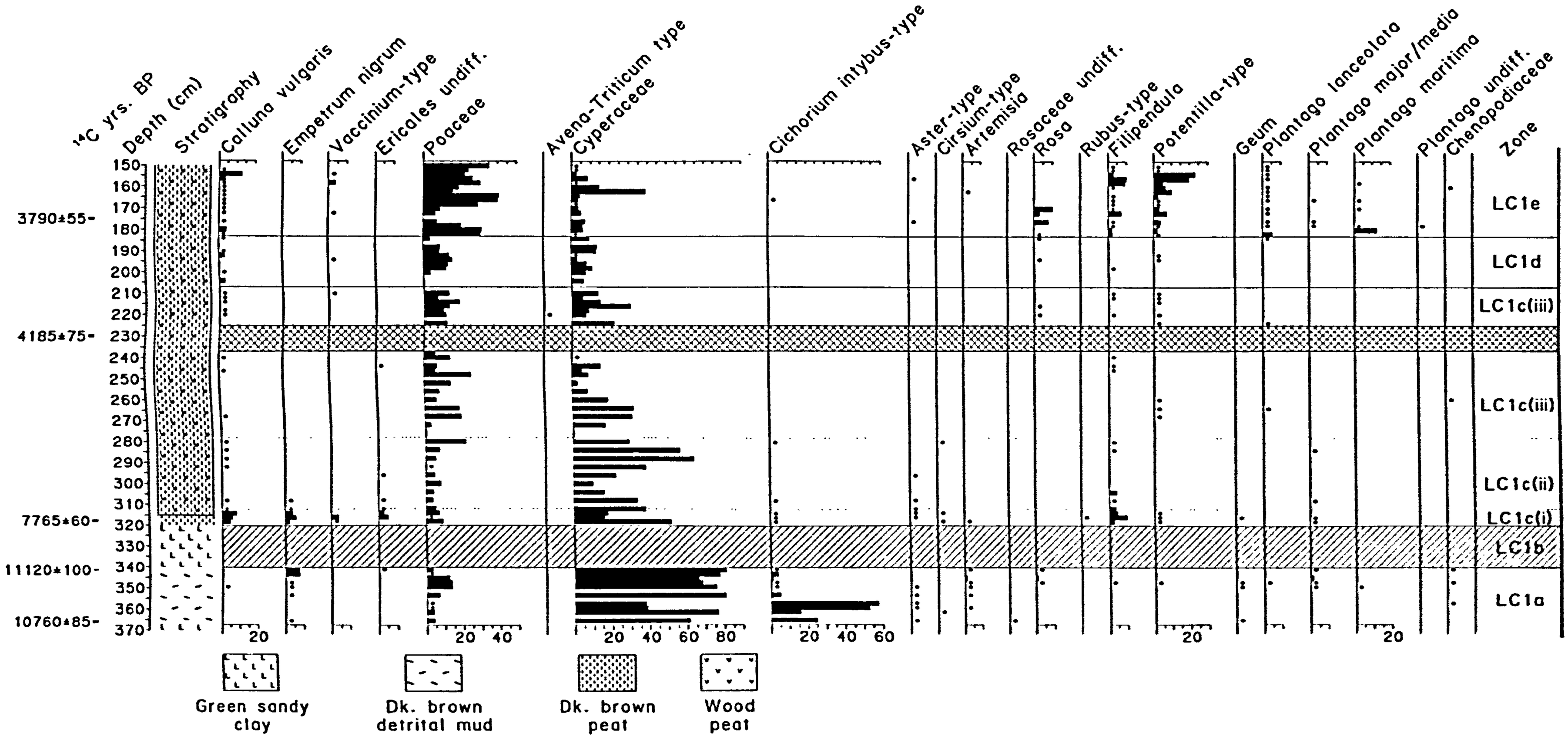


Figure 5.20 continued

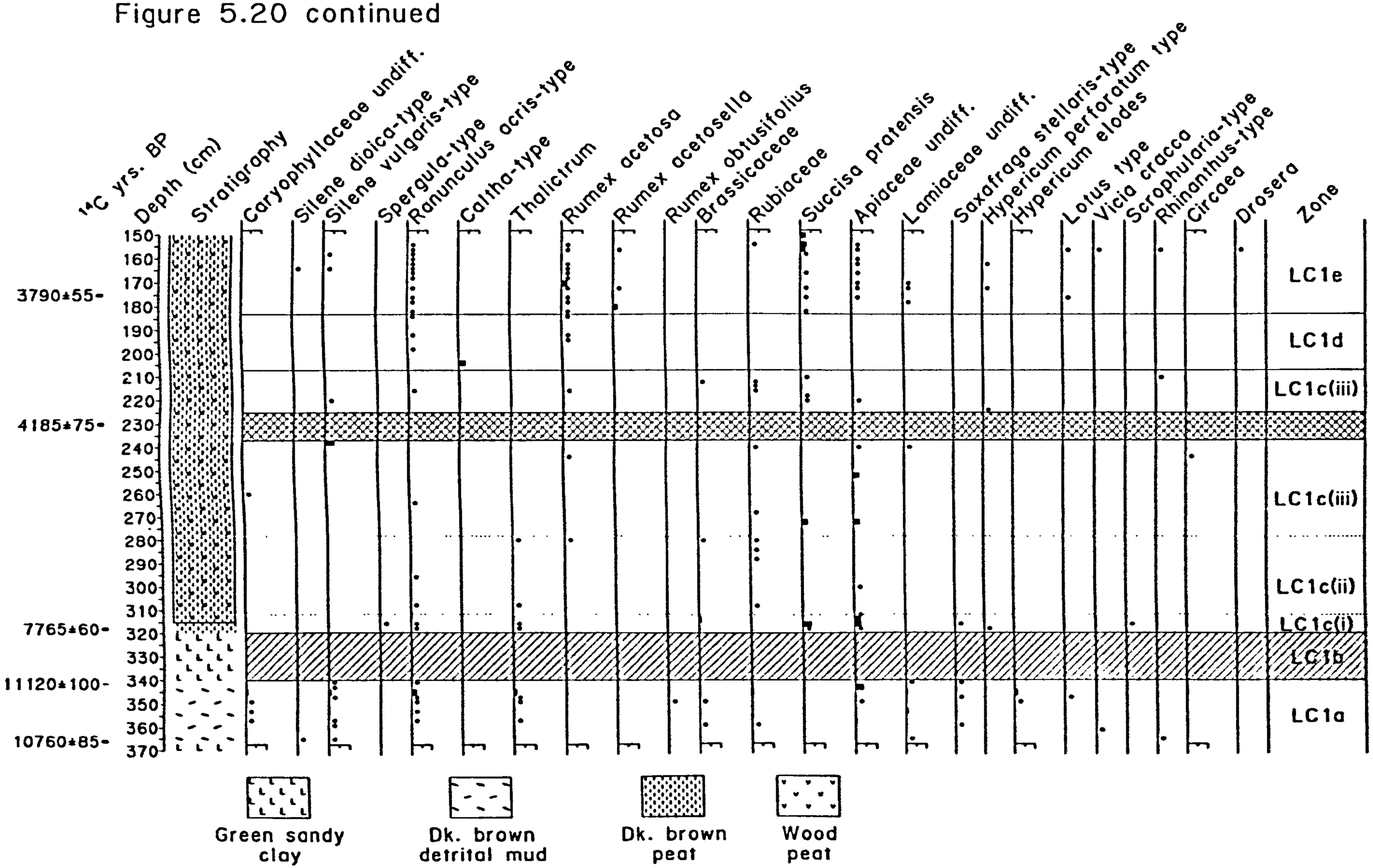
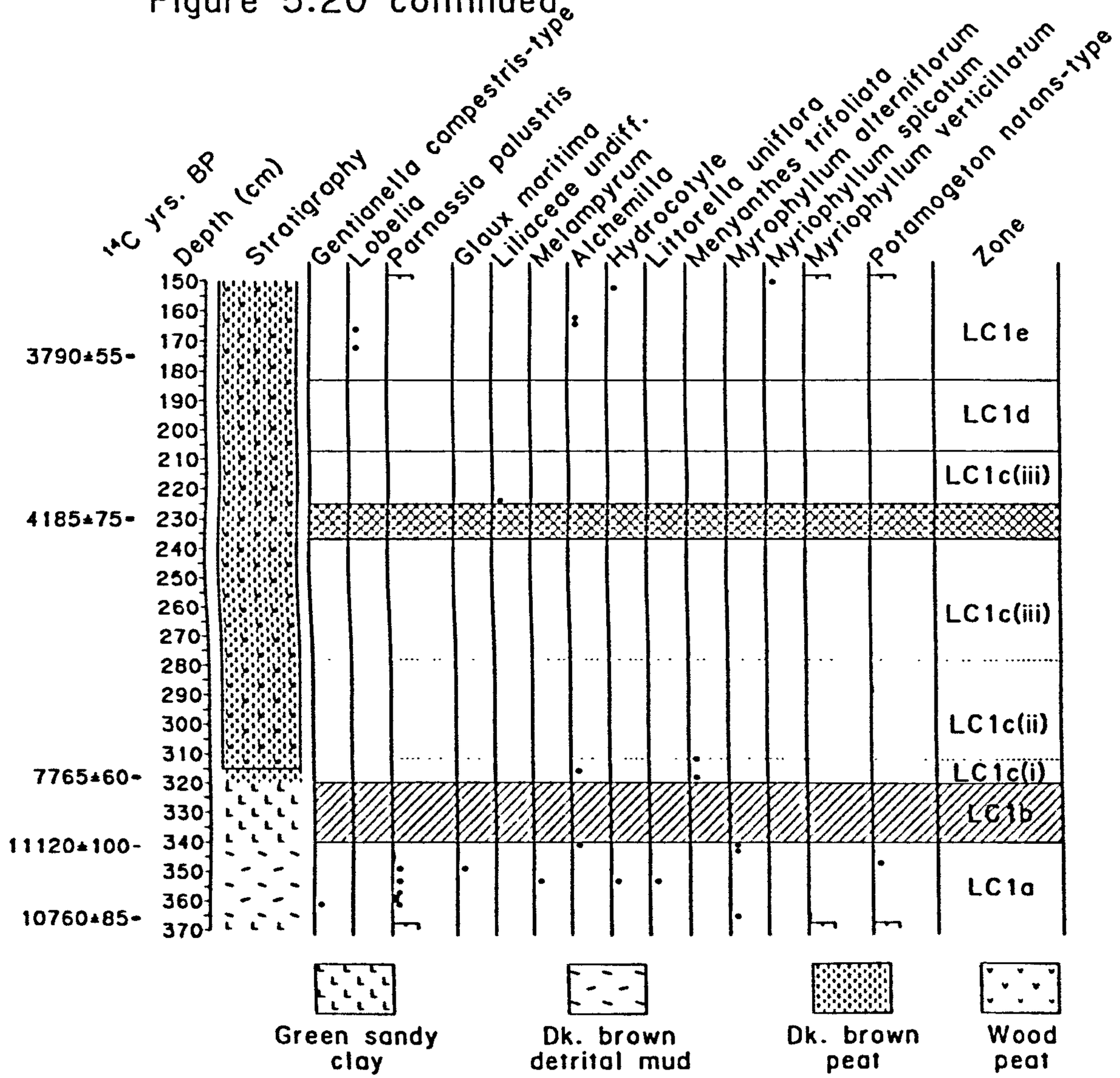


Figure 5.20 continued.



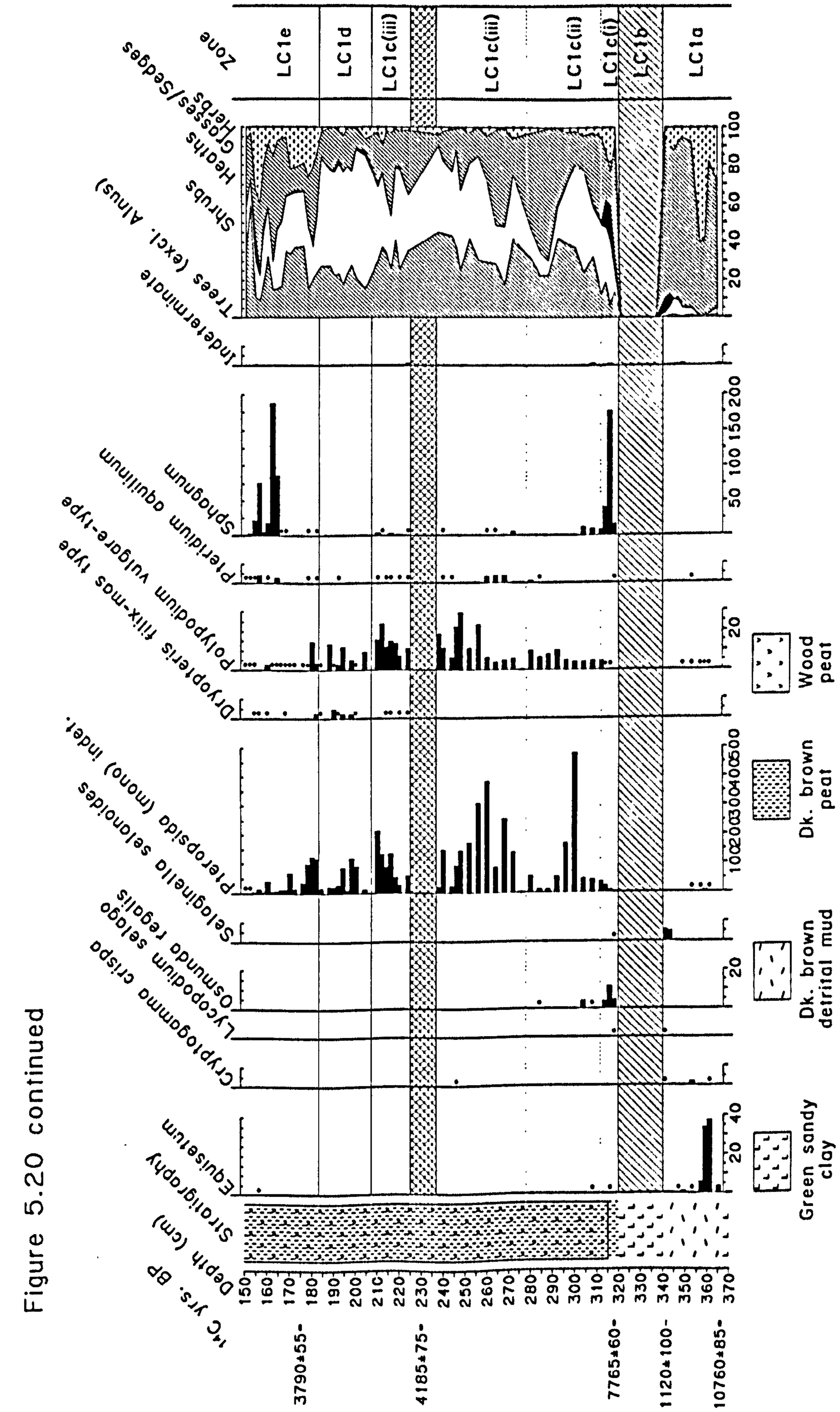


Figure 5.20 continued

Figure 5.21 Pollen and spore percentage diagram for LC2, Ulva
(Circle symbol = < 2% TLP; TLP excludes Alnus)

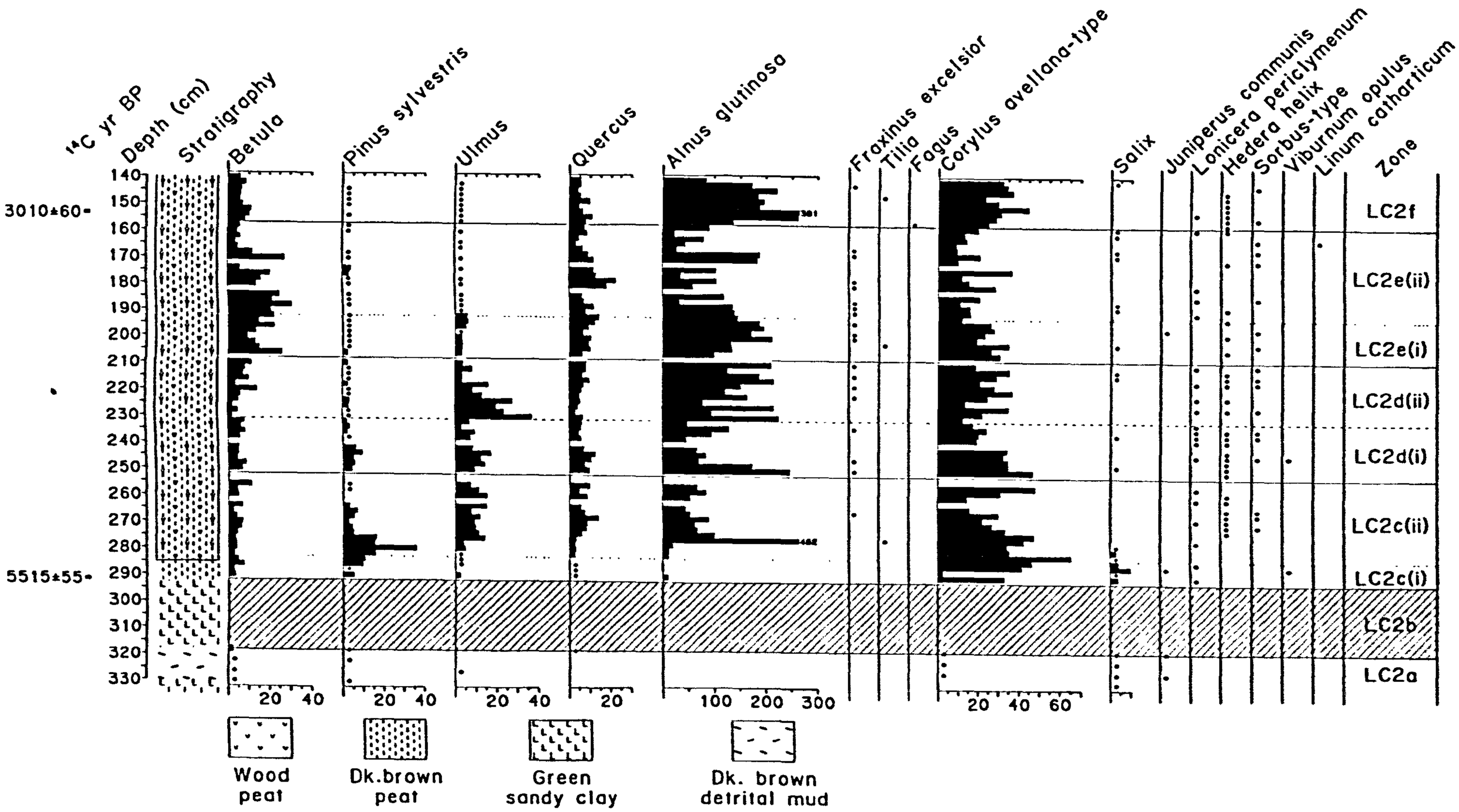


Figure 5.21 continued

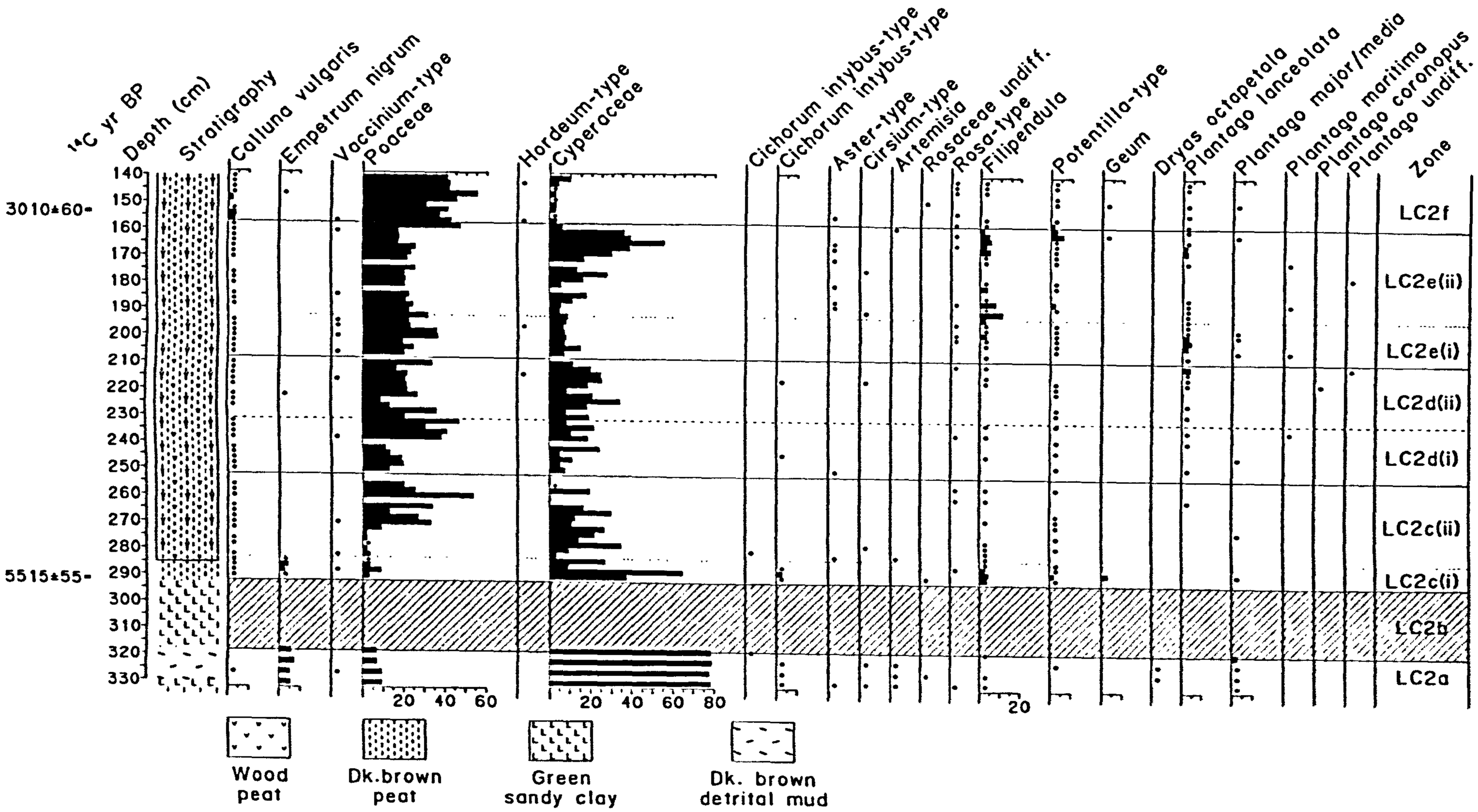
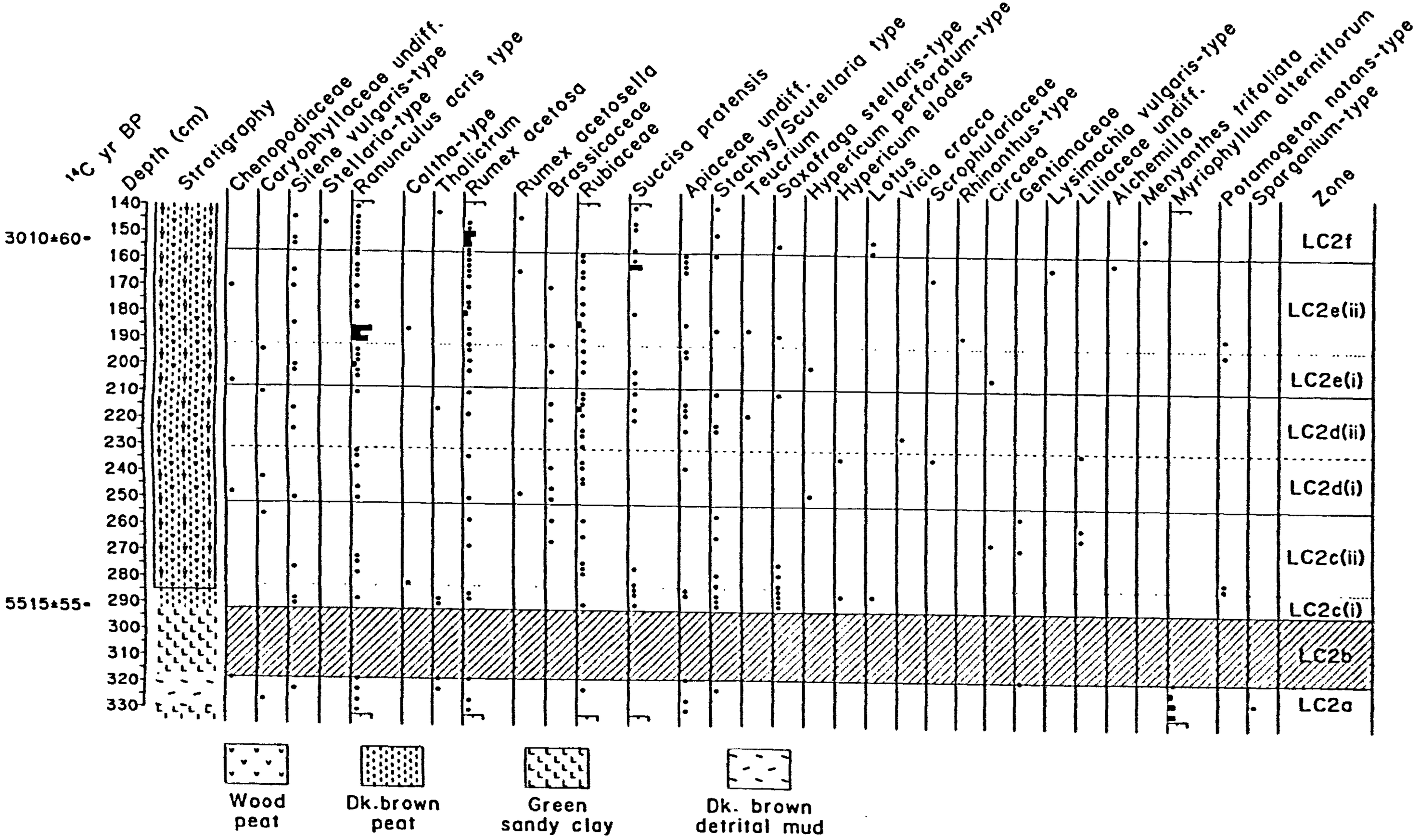


Figure 5.21 continued



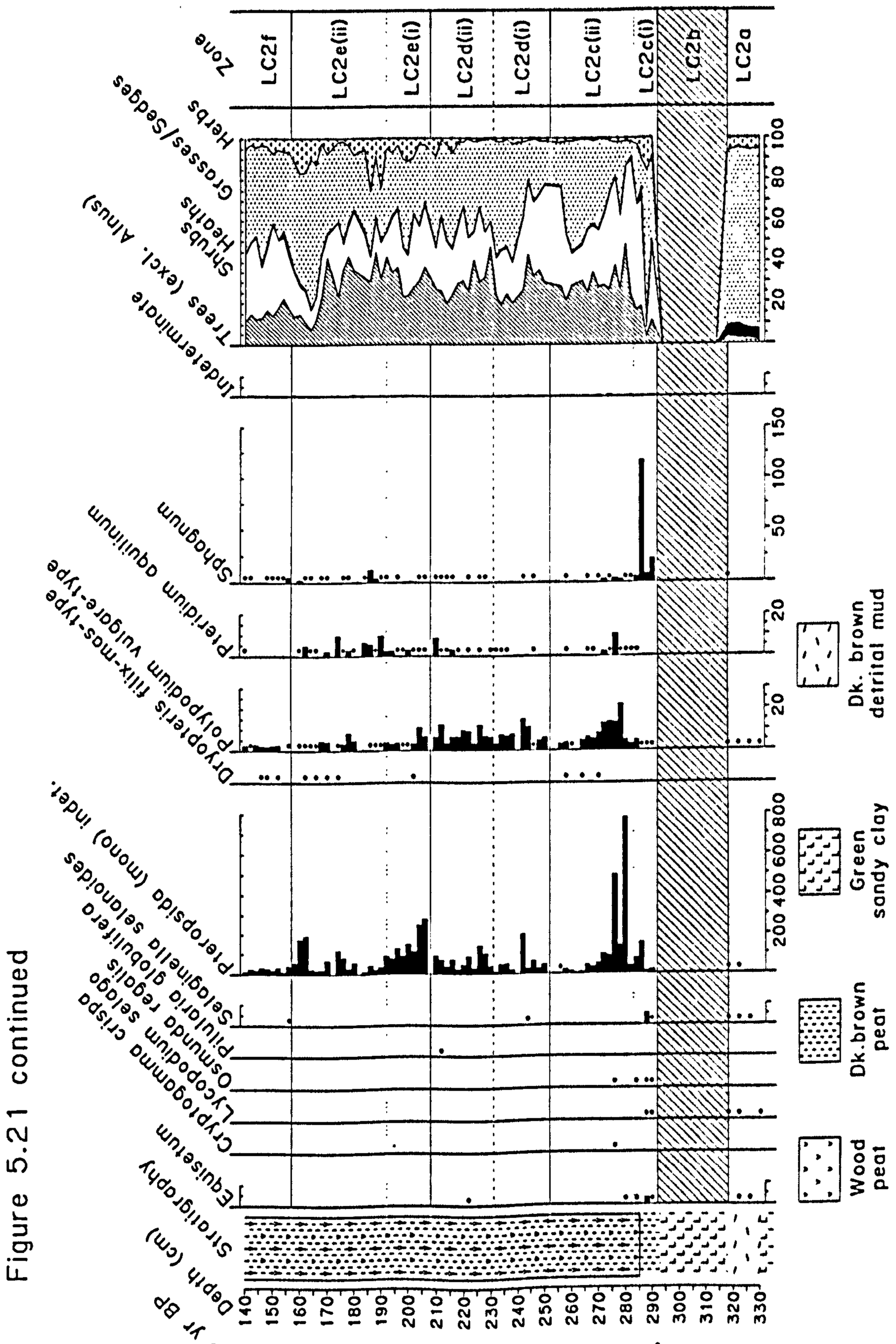
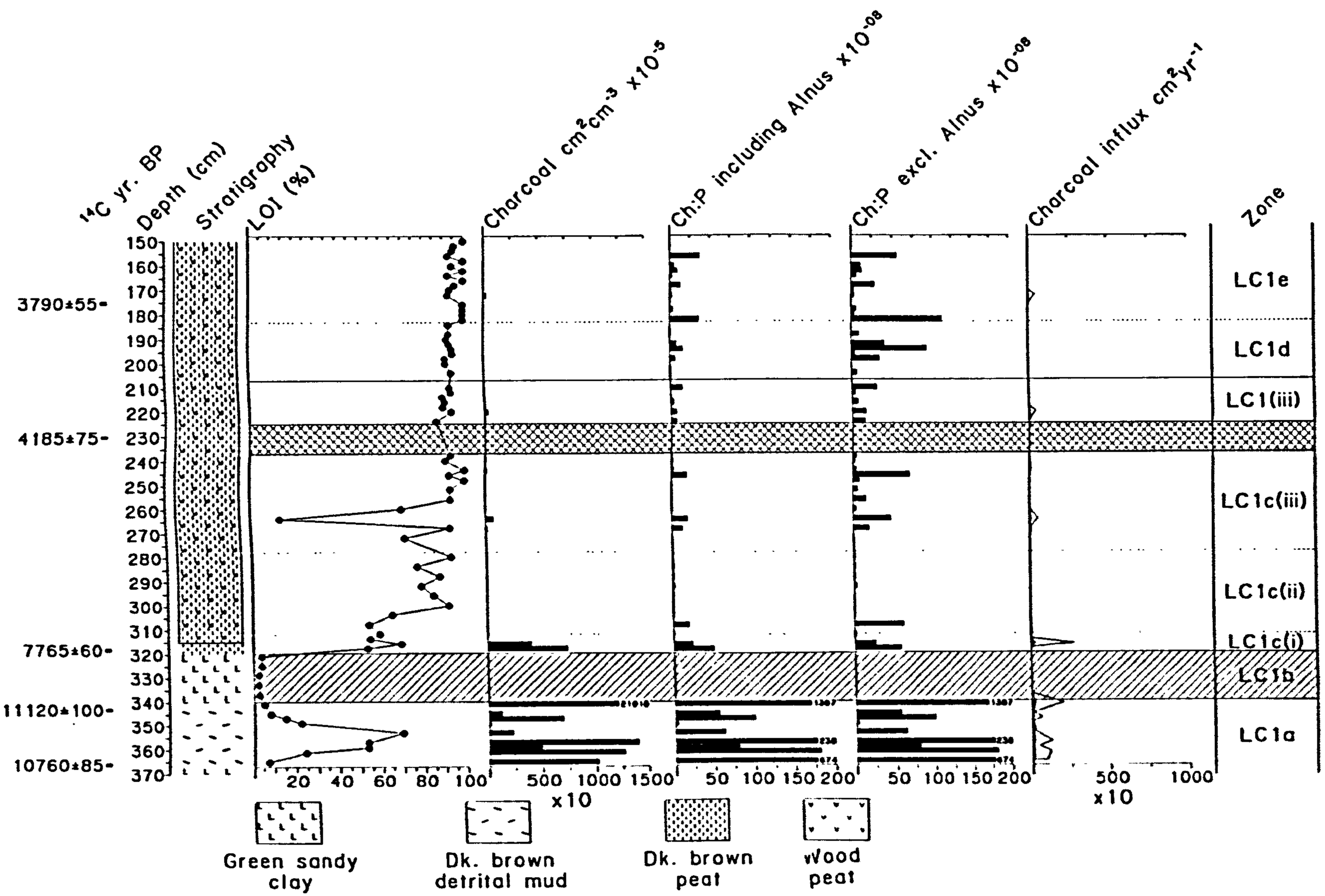


Figure 5.21 continued

Figure 5.22 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and total damaged pollen for LC1
(Unshaded exaggeration curve = x10)



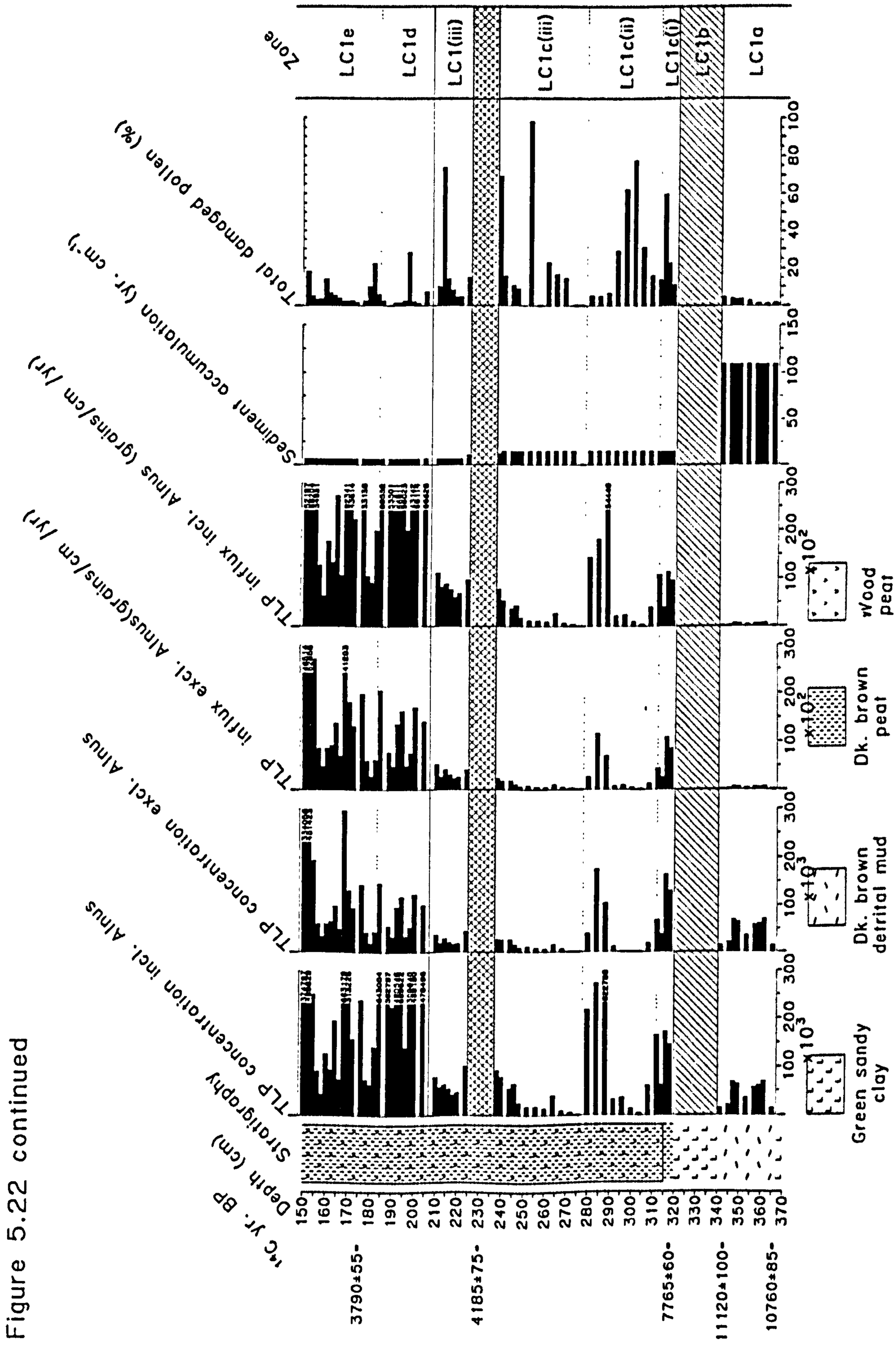


Figure 5.22 continued

Figure 5.23 Summary of LOI, charcoal, TLP concentration and influx, sediment accumulation and total damaged pollen.
(Unshaded exaggeration curve = x10).

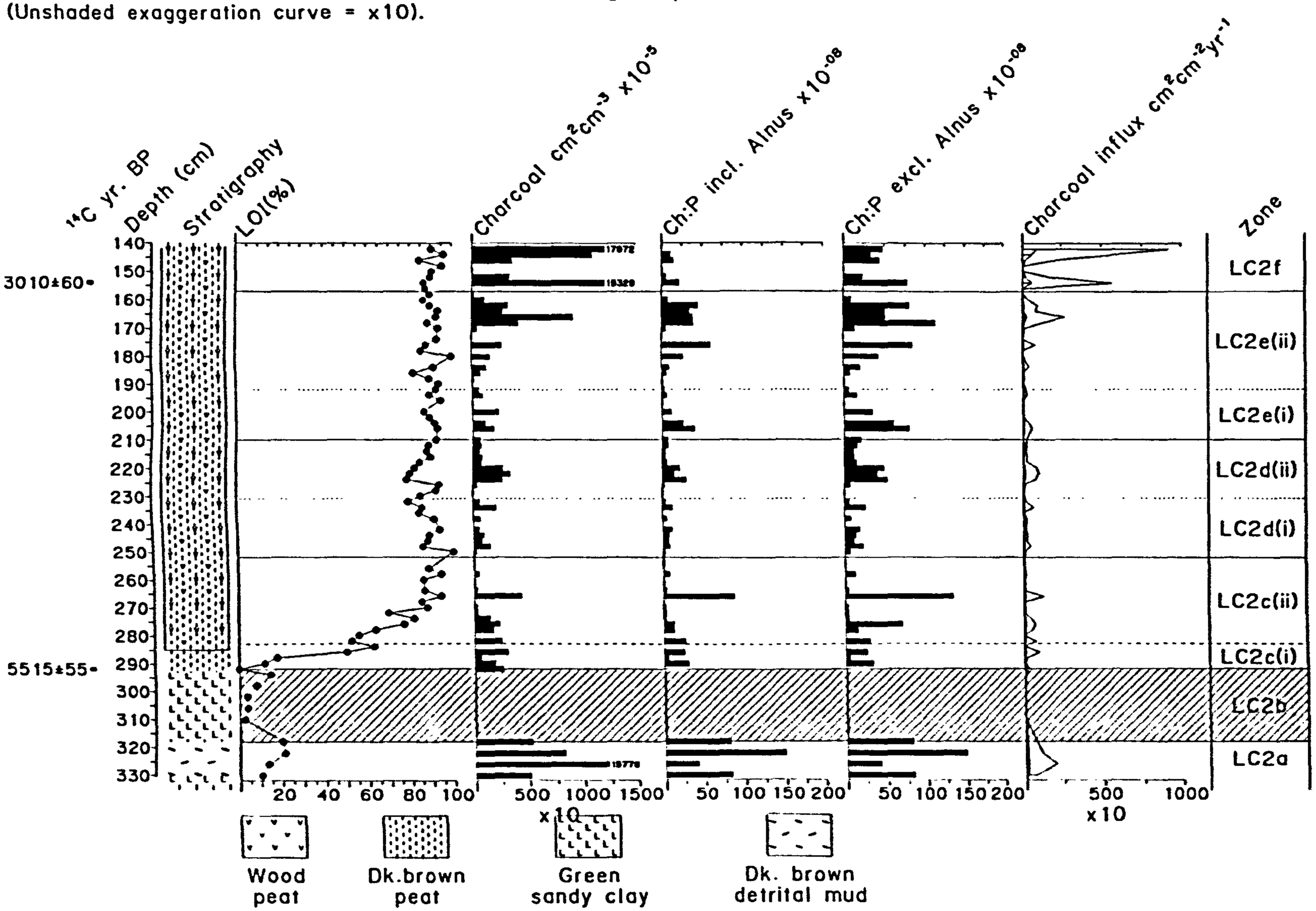


Figure 5.23 continued

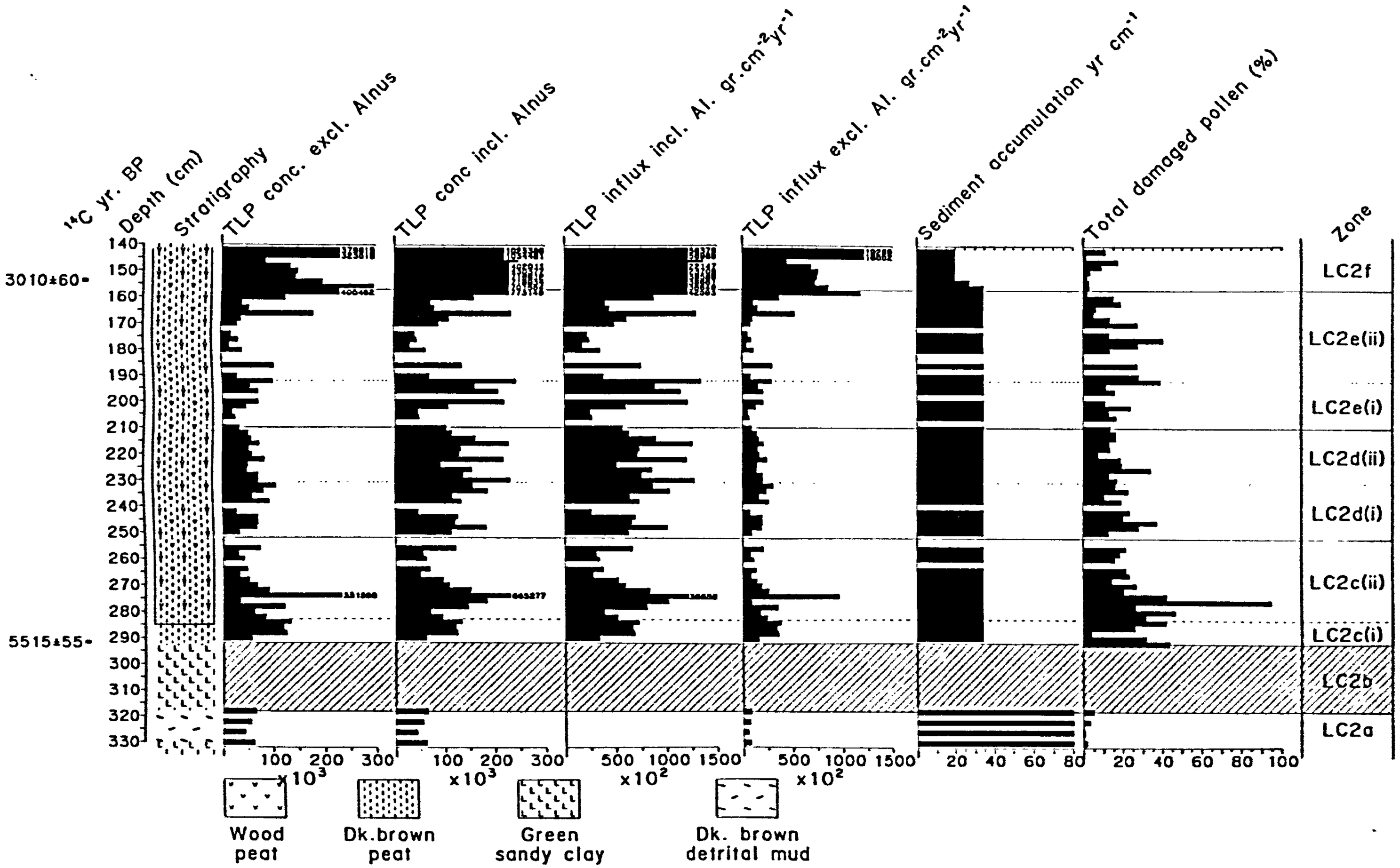
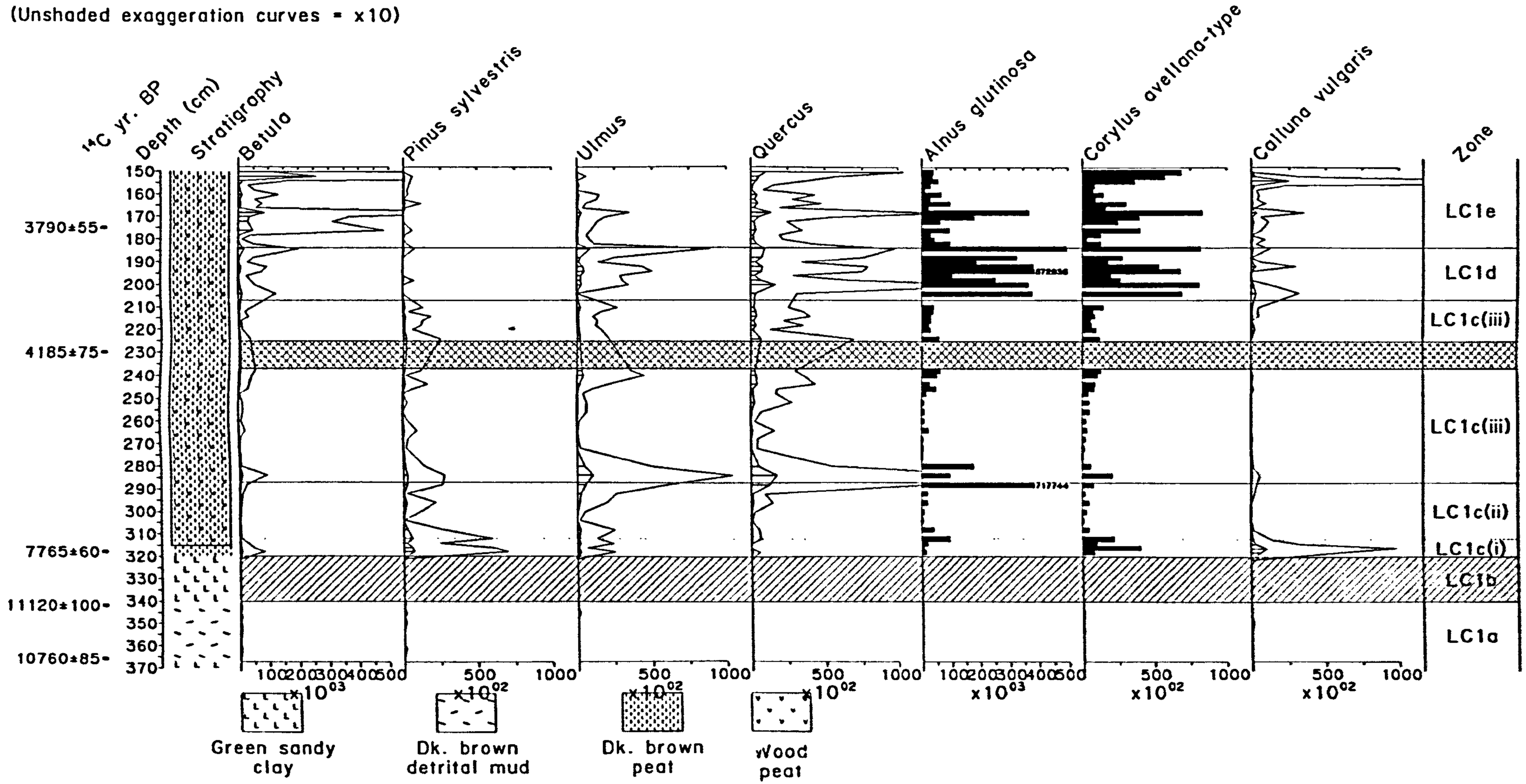


Figure 5.24 Pollen and spore concentration diagram of selected taxa from LC1
(Unshaded exaggeration curves = x10)



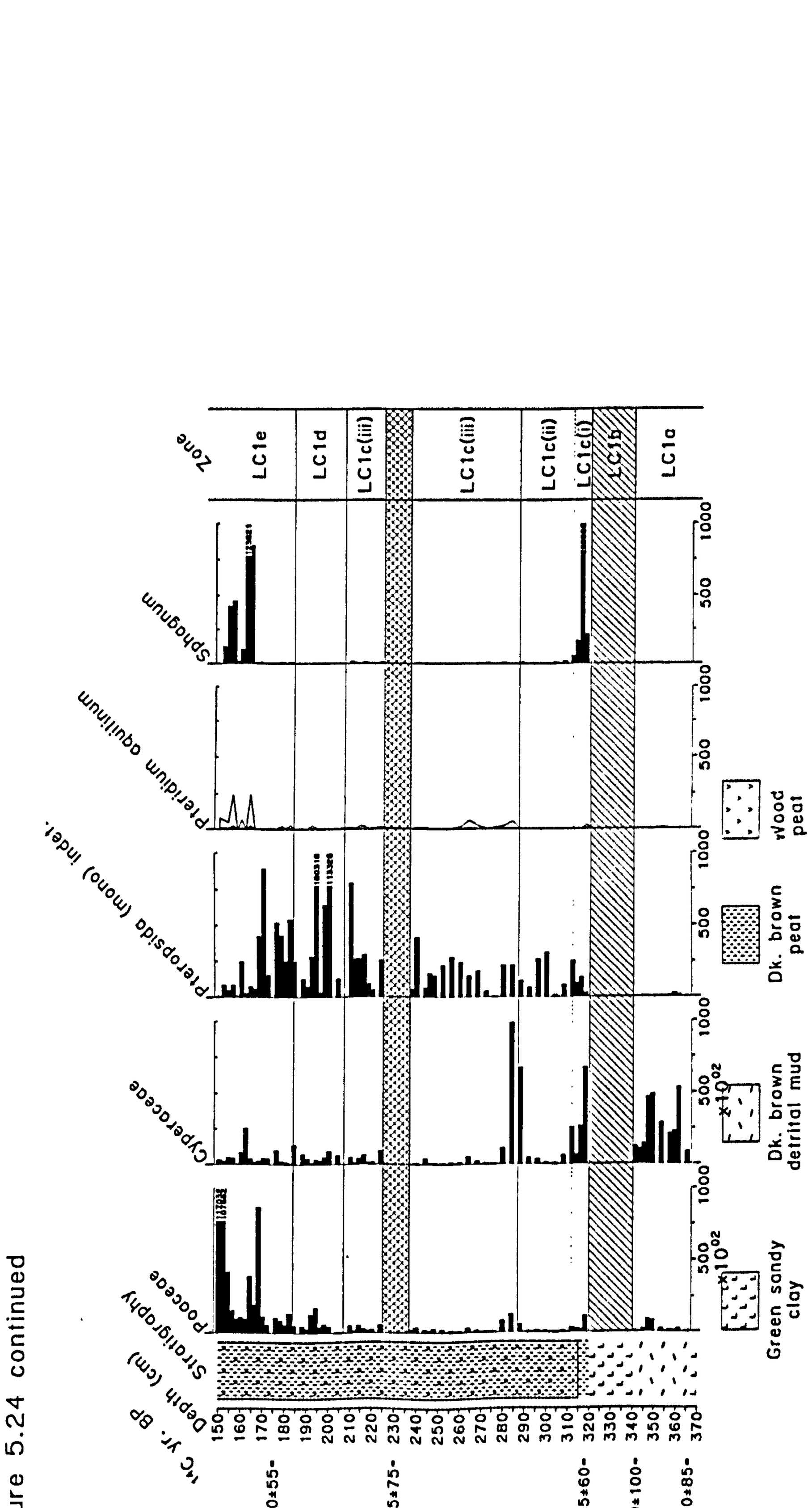


Figure 5.24 continued

Figure 5.25 Pollen and spore concentration diagram of selected taxa from LC2
(Unshaded exaggeration curves = x10)

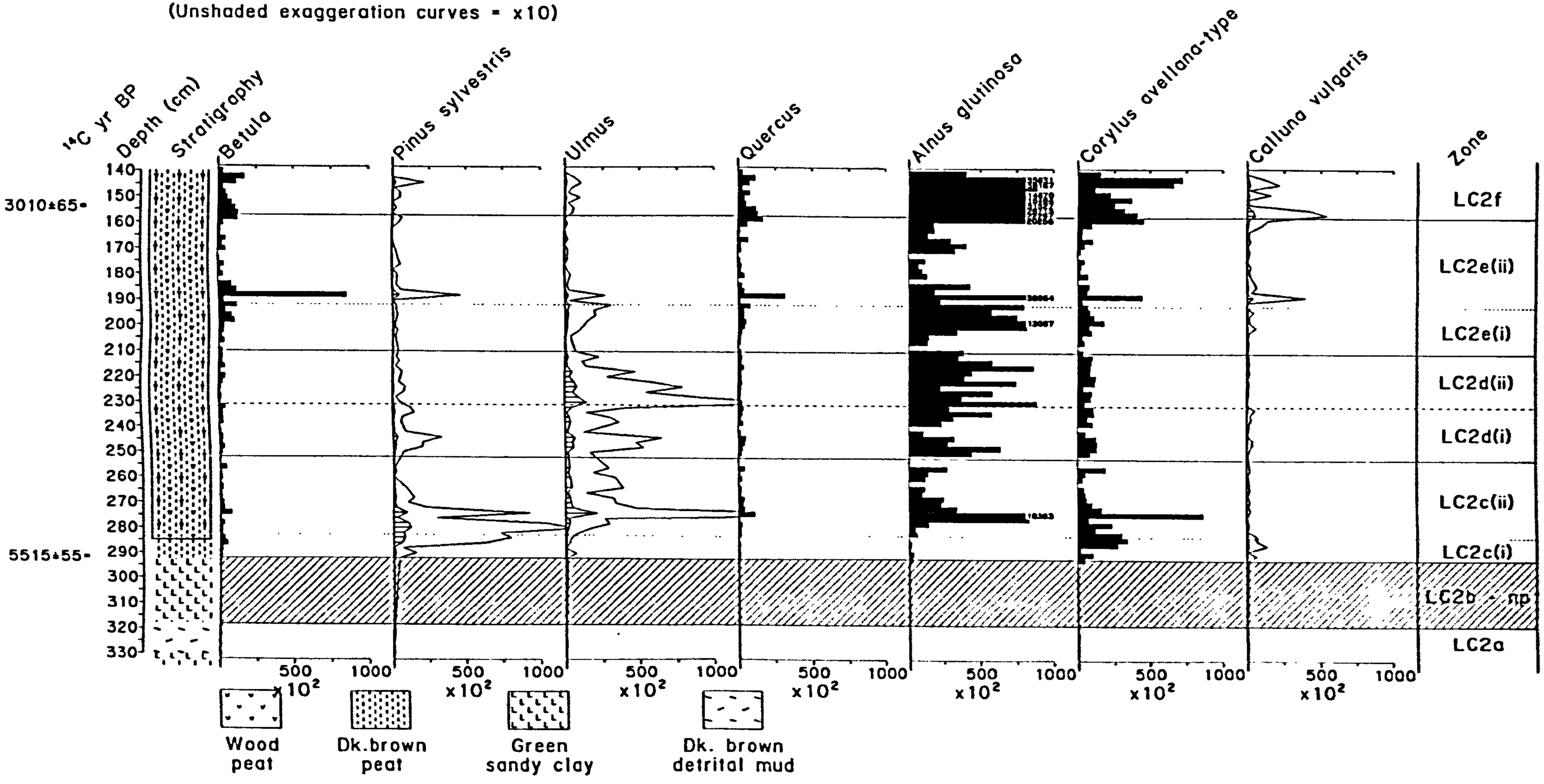


Figure 5.25 continued

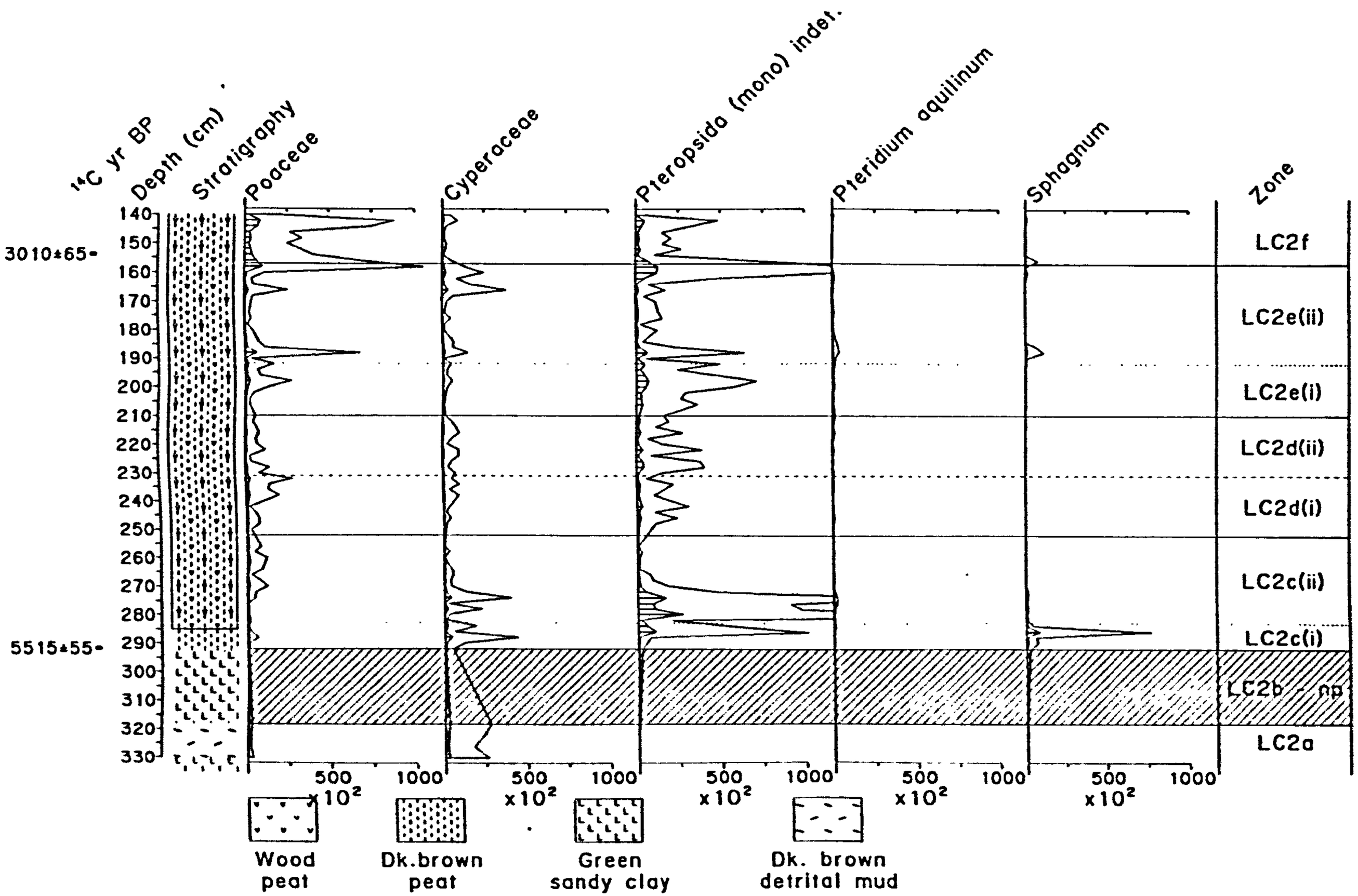


Figure 5.26 Pollen influx diagram for selected taxa from LC1
Extrapolation based on Holocene sediment basal date of 5515±55 BP
(Unshaded exaggeration curve = x10)

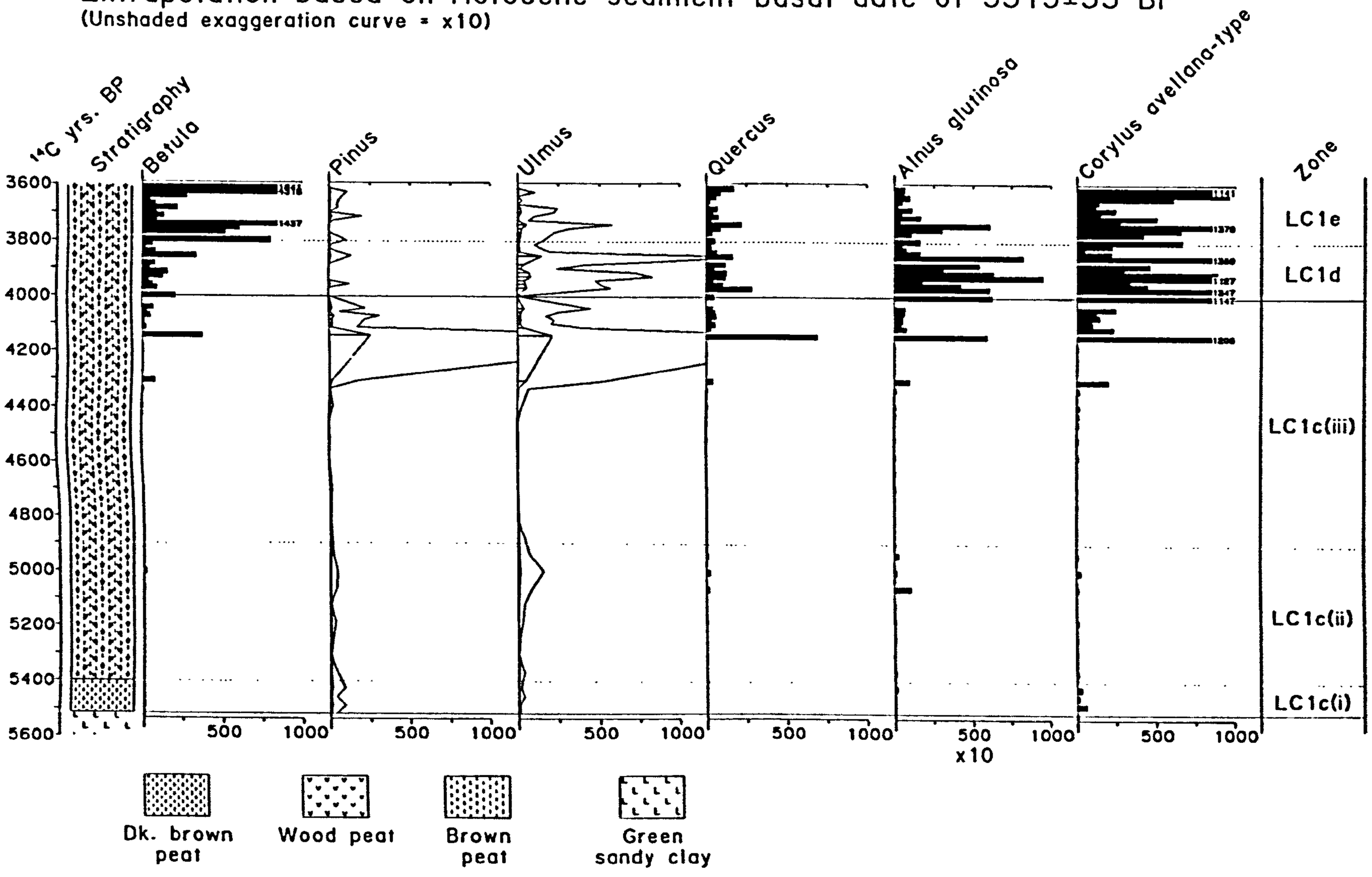


Figure 5.26 continued

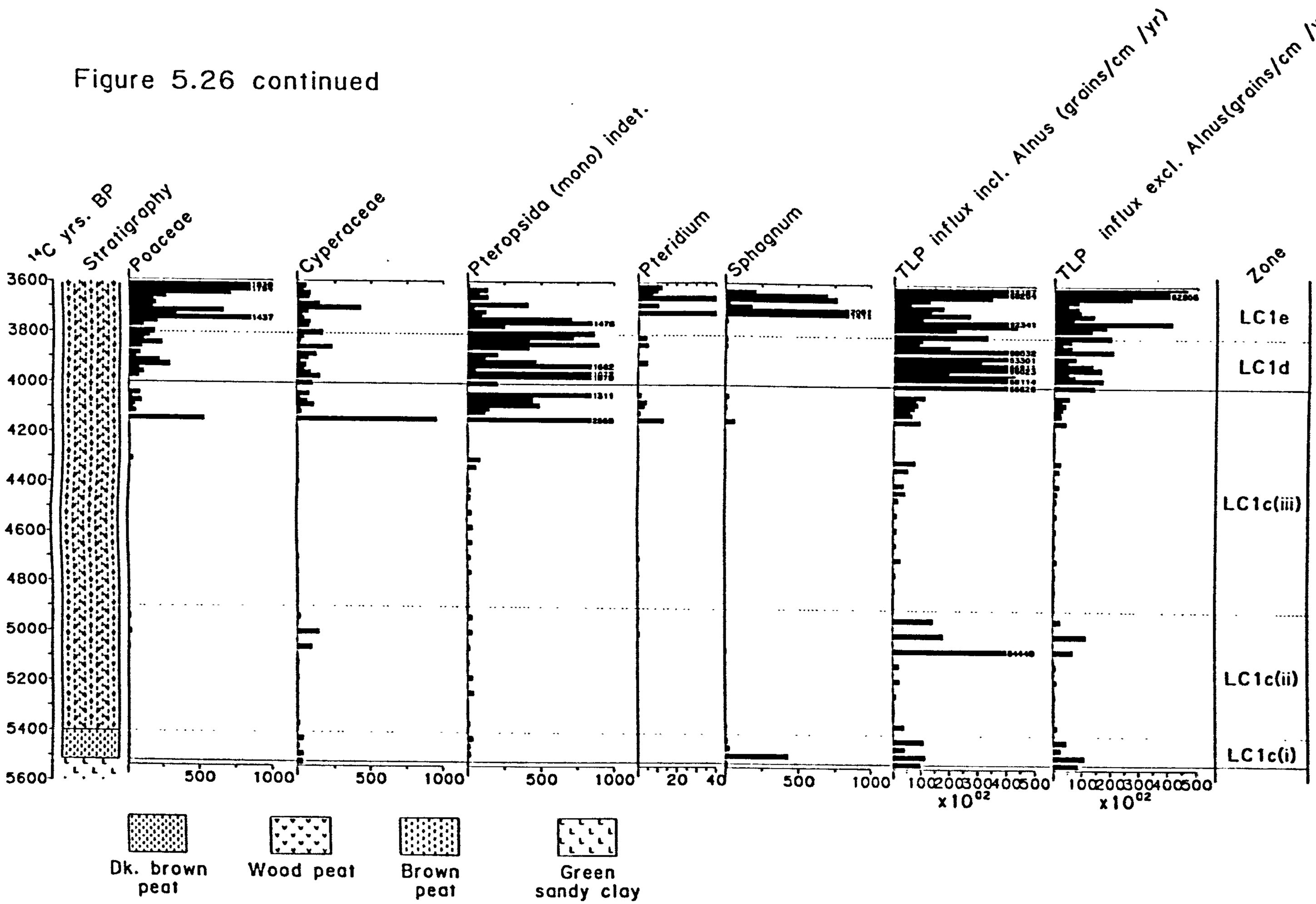
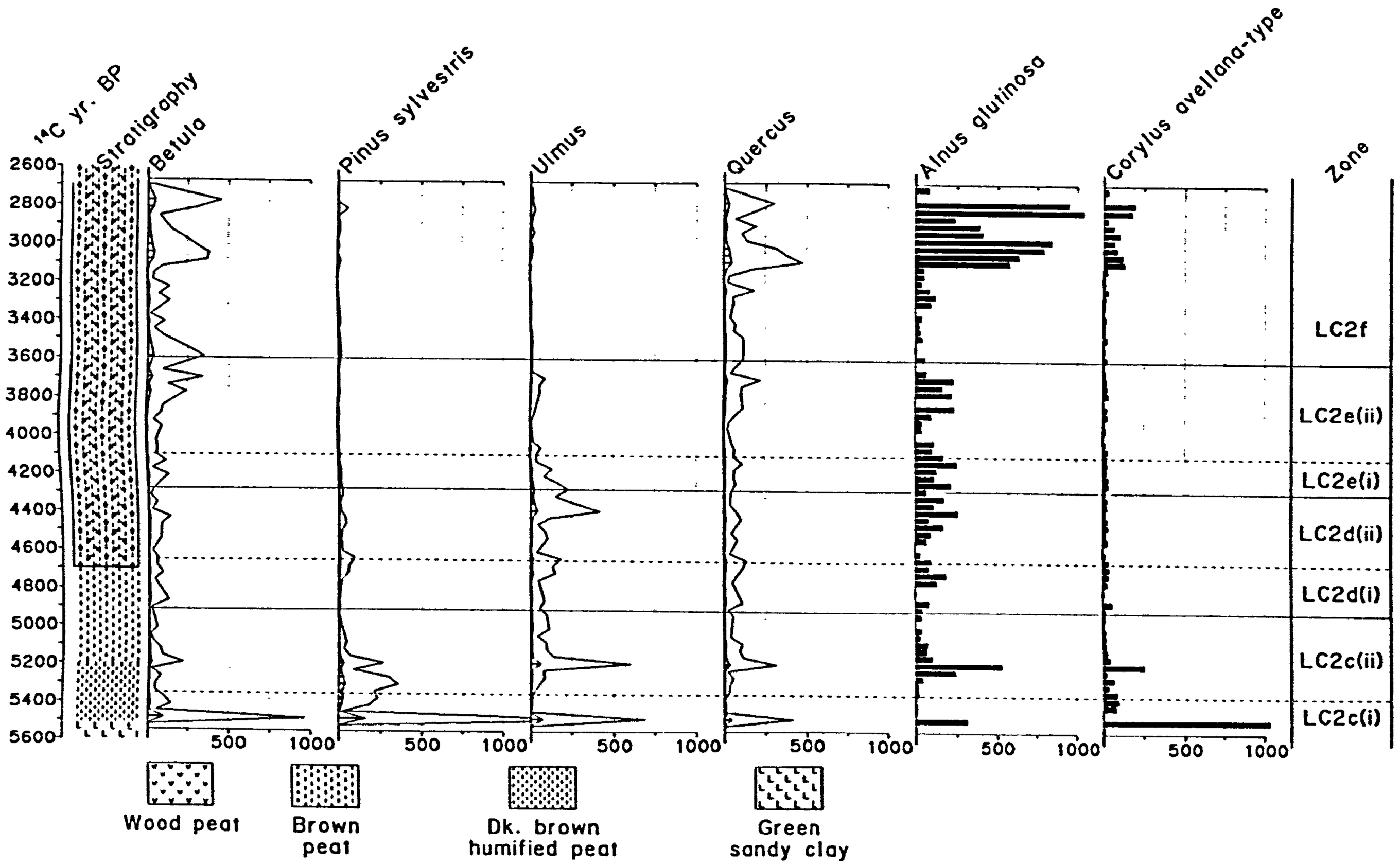


Figure 5.27 Pollen influx diagram of selected taxa for LC2
Extrapolation based on Holocene basal date of 5515±55 BP
(Unshaded exaggeration curves = x10)



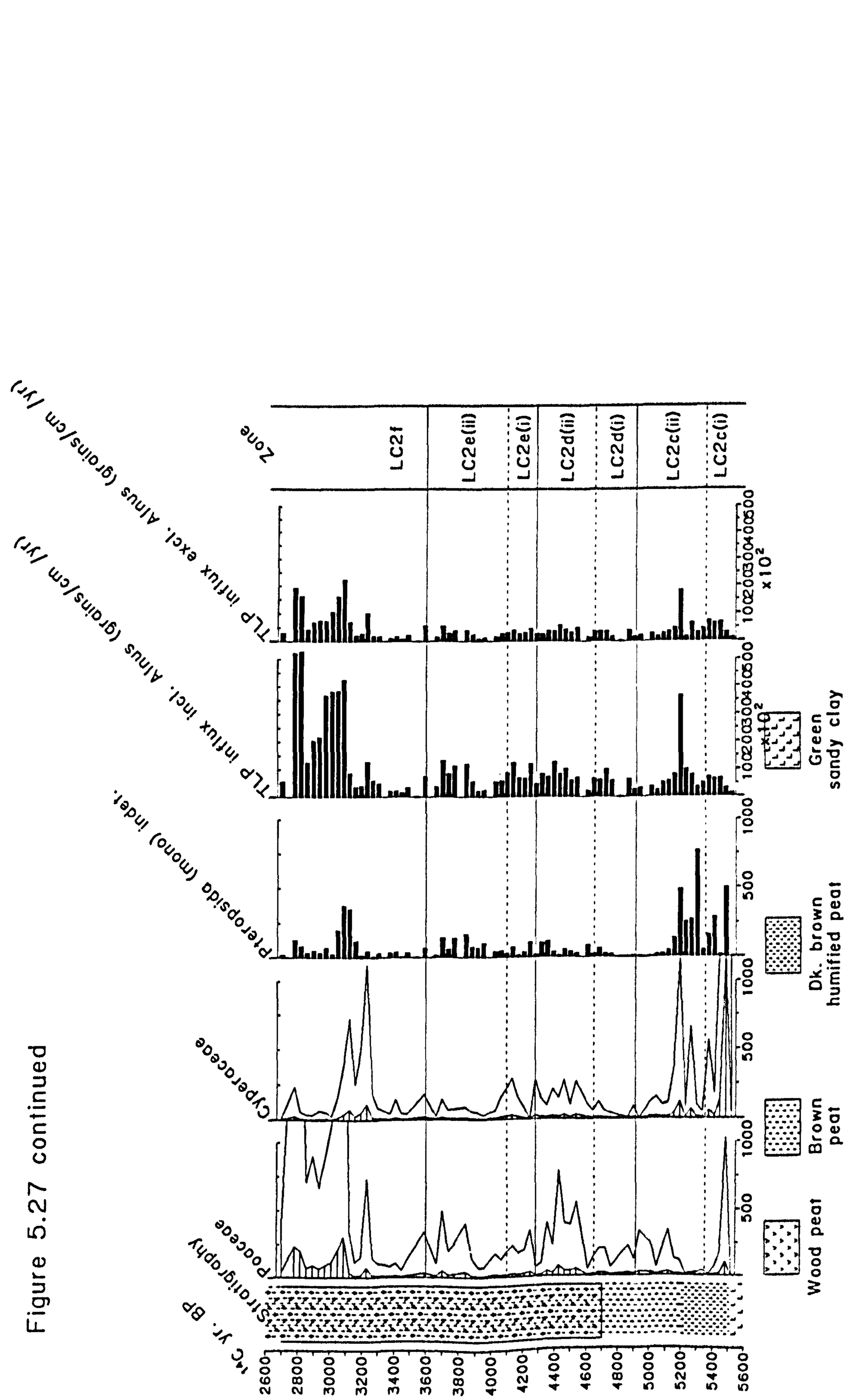


Figure 5.27 continued

Figure 5.9a DCA plot of mean subzone score for AC1 and AC2

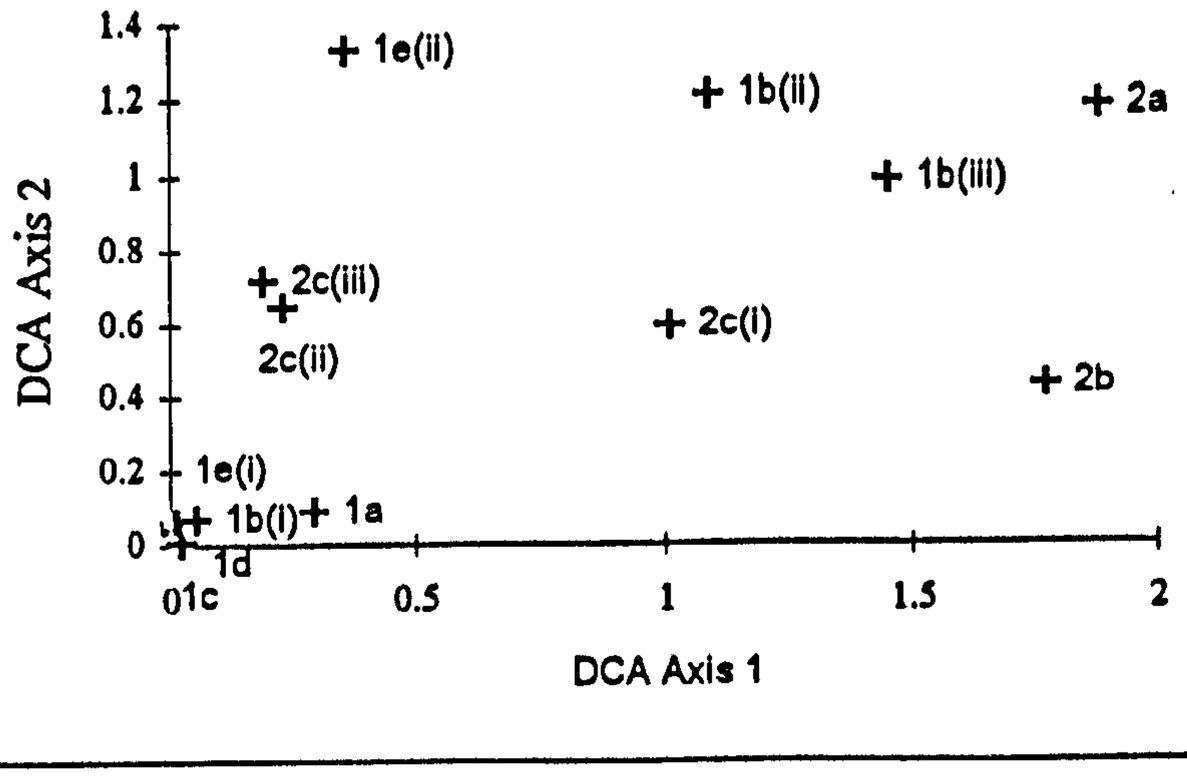


Figure 5.9b DCA plot of mean subzone scores for LC1 and LC2

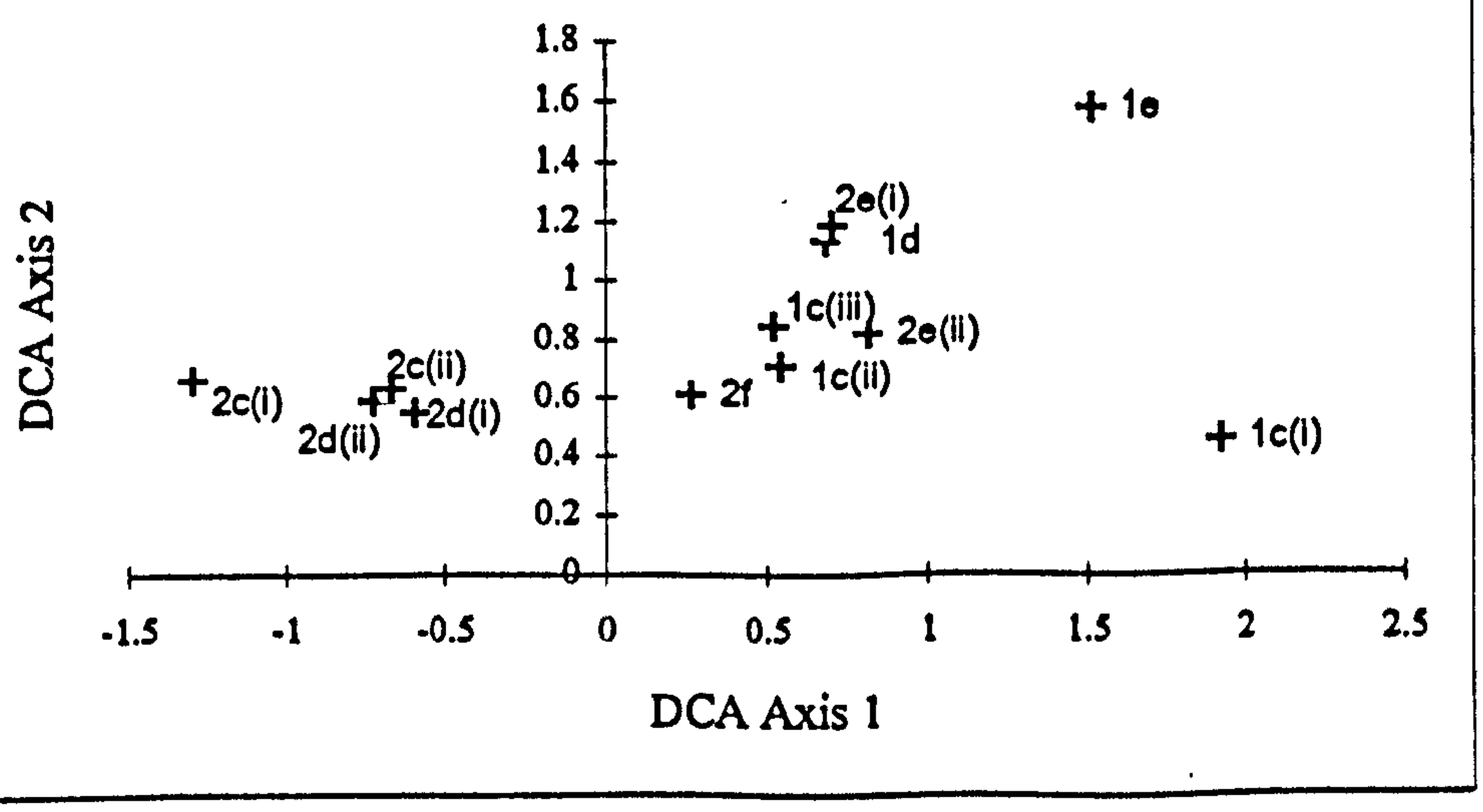
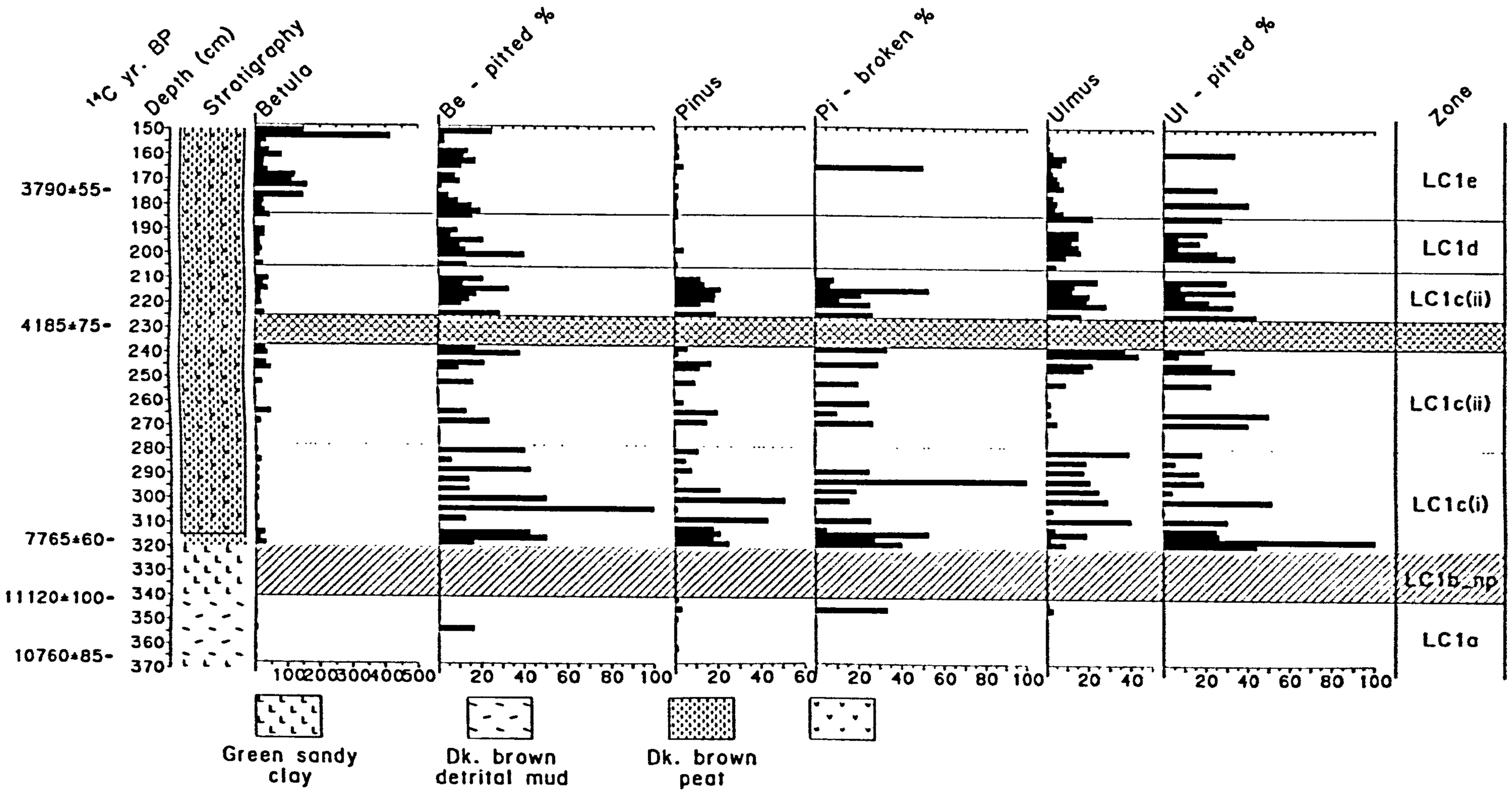


Figure 5.28 Percentage diagram of damaged pollen types for selected taxa from LC1
(Taxon scores presented as raw counts)



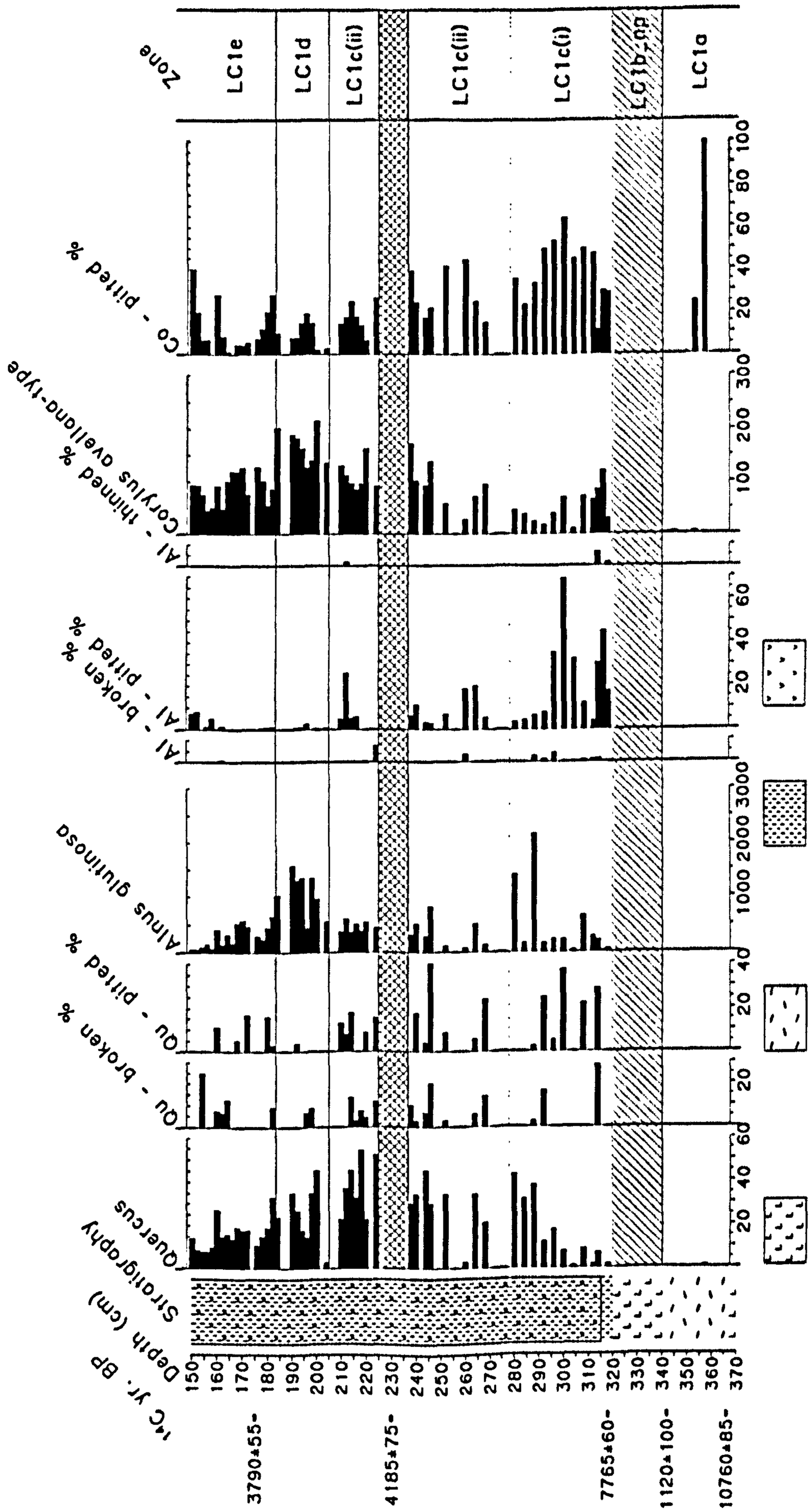


Figure 5.28 continued

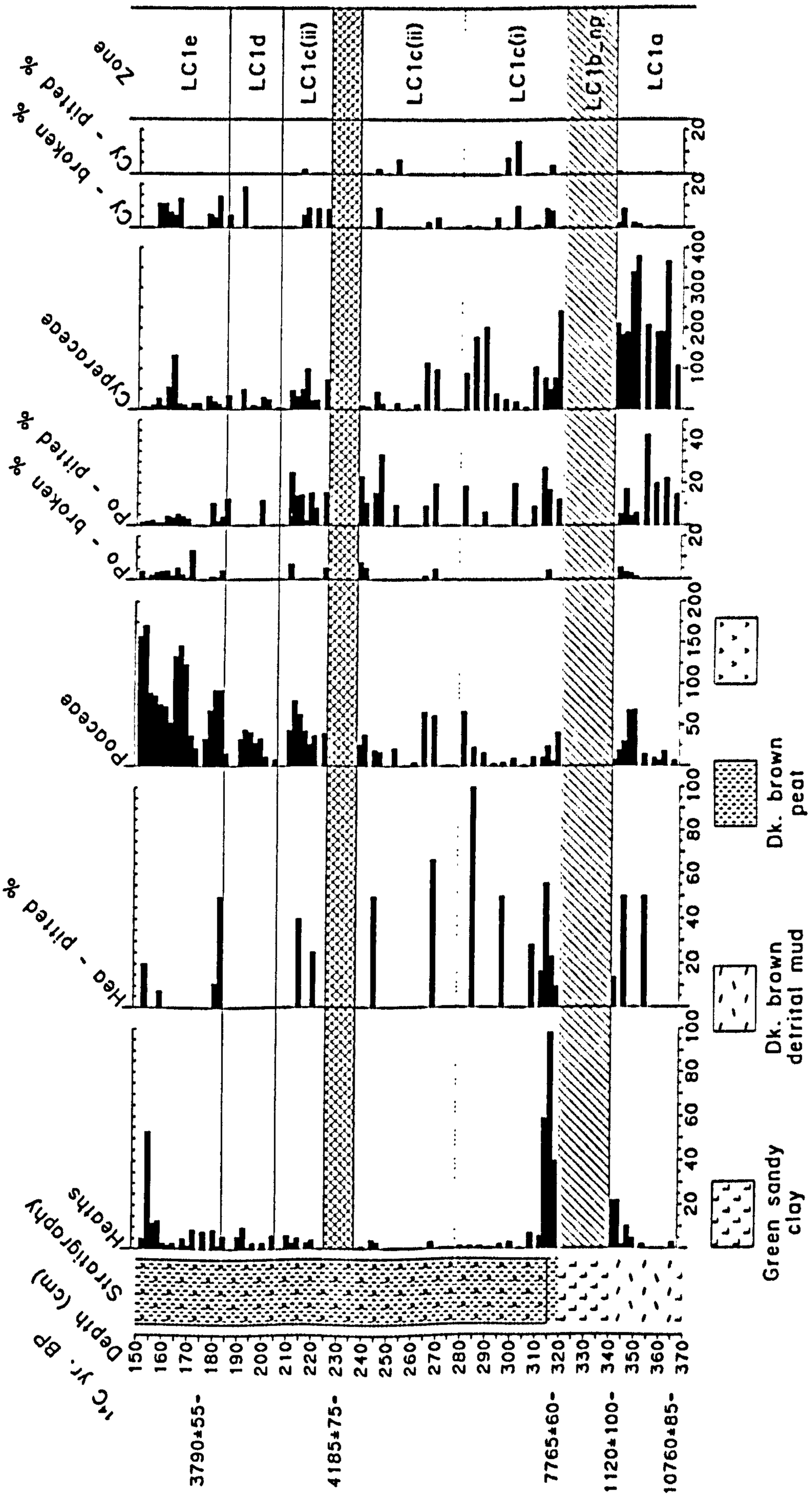


Figure 5.28 continued

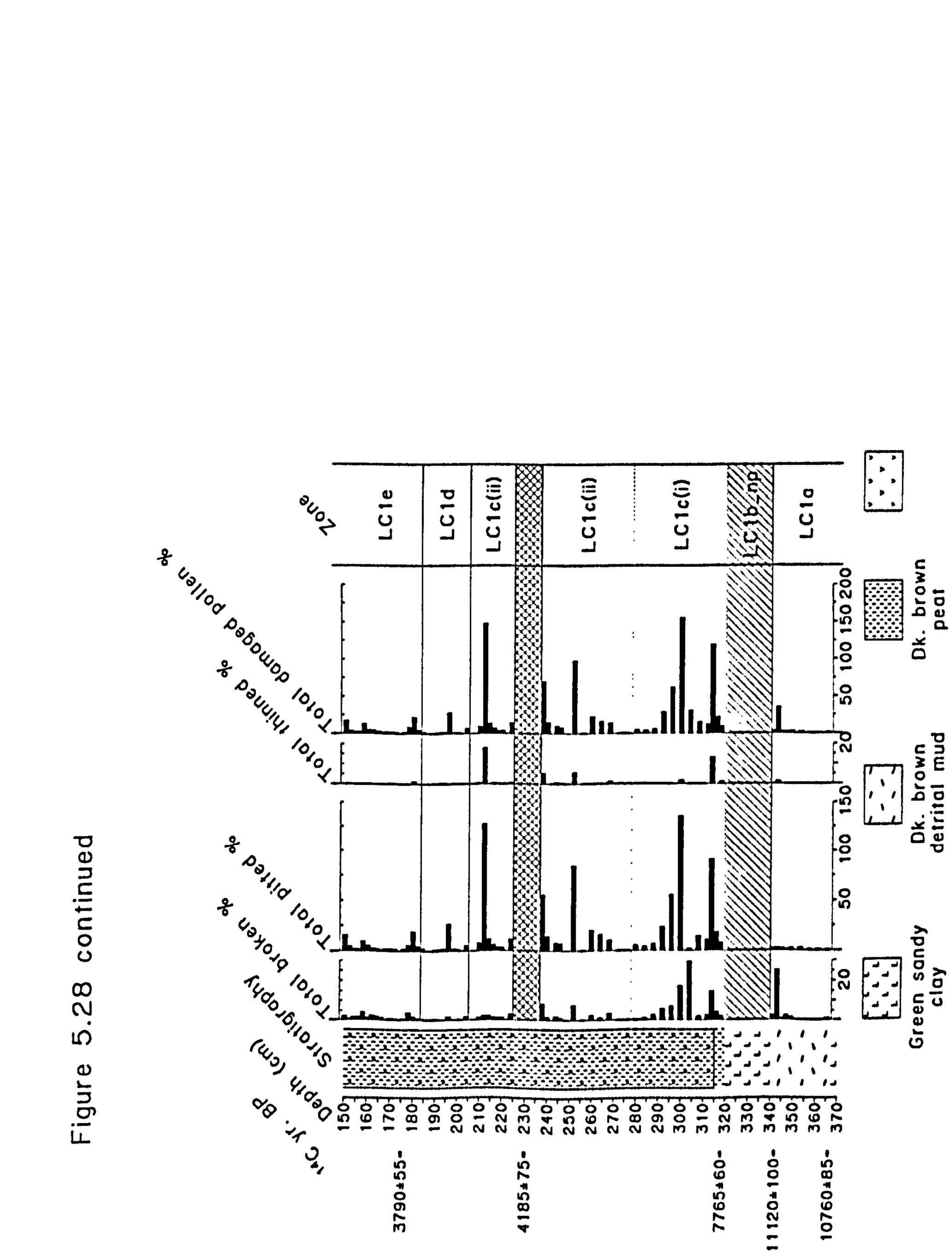


Figure 5.28 continued

Figure 5.29 Percentage diagram of damaged pollen types for selected taxa from LC2
(Taxon scores presented as raw counts)

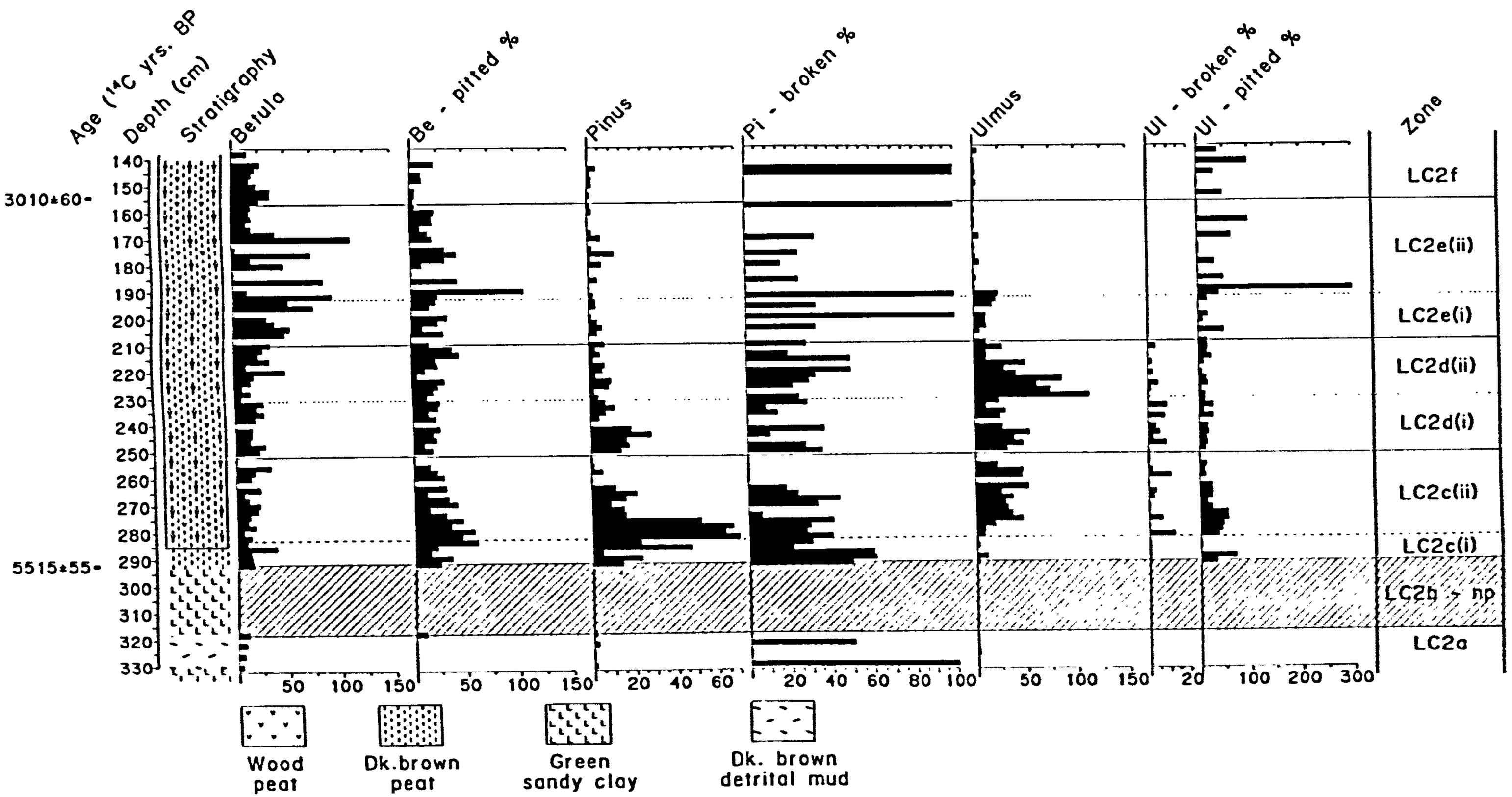
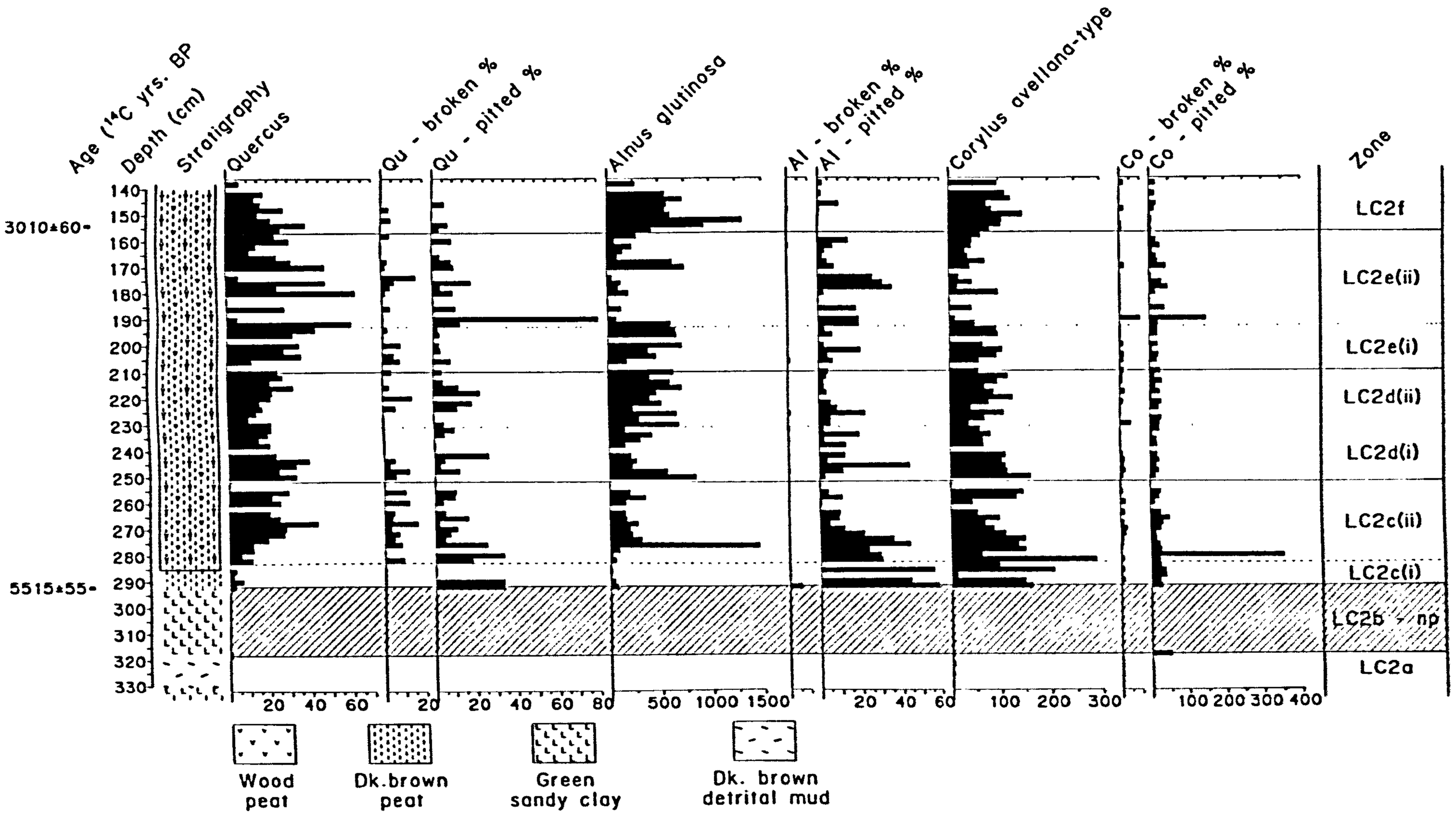


Figure 5.29 continued



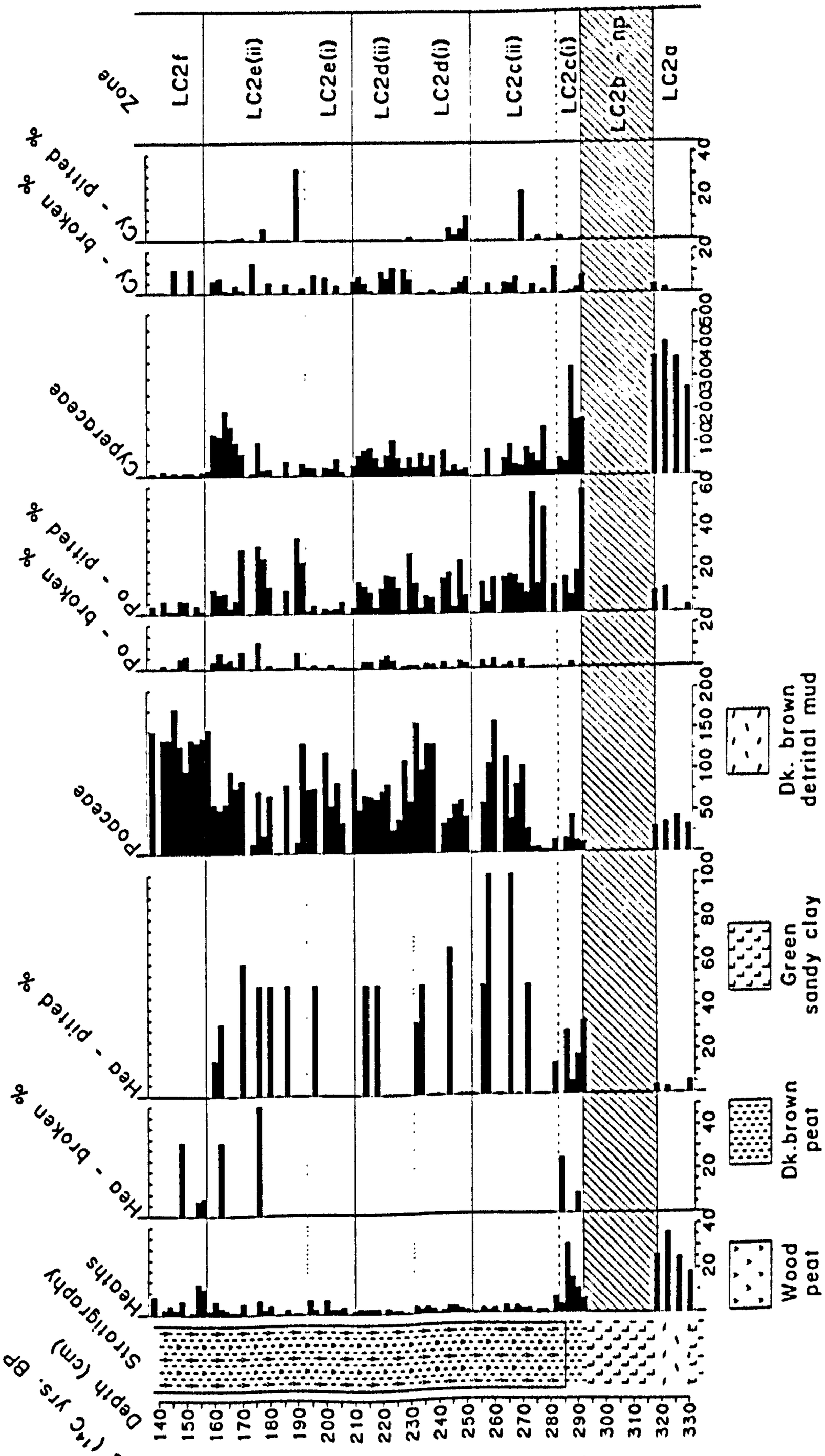


Figure 5.29 continued

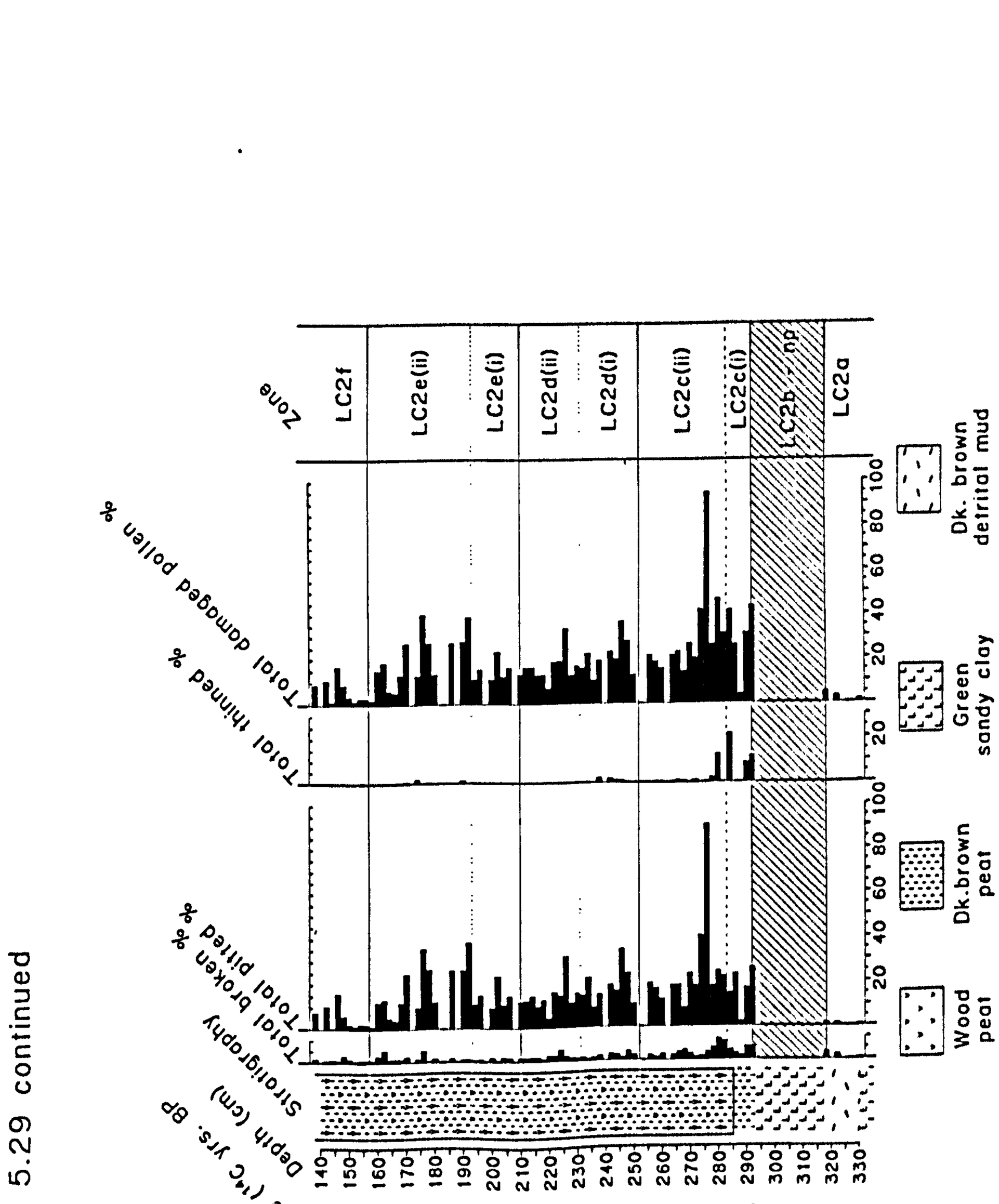


Figure 5.29 continued

Figure 5.30 Map of A'Chrannag and Livingstone's Cave bogs, Ulva, showing inferred vegetation patterns for c. 8500 - 6000 BP (7770 – 4910 cal. BC)

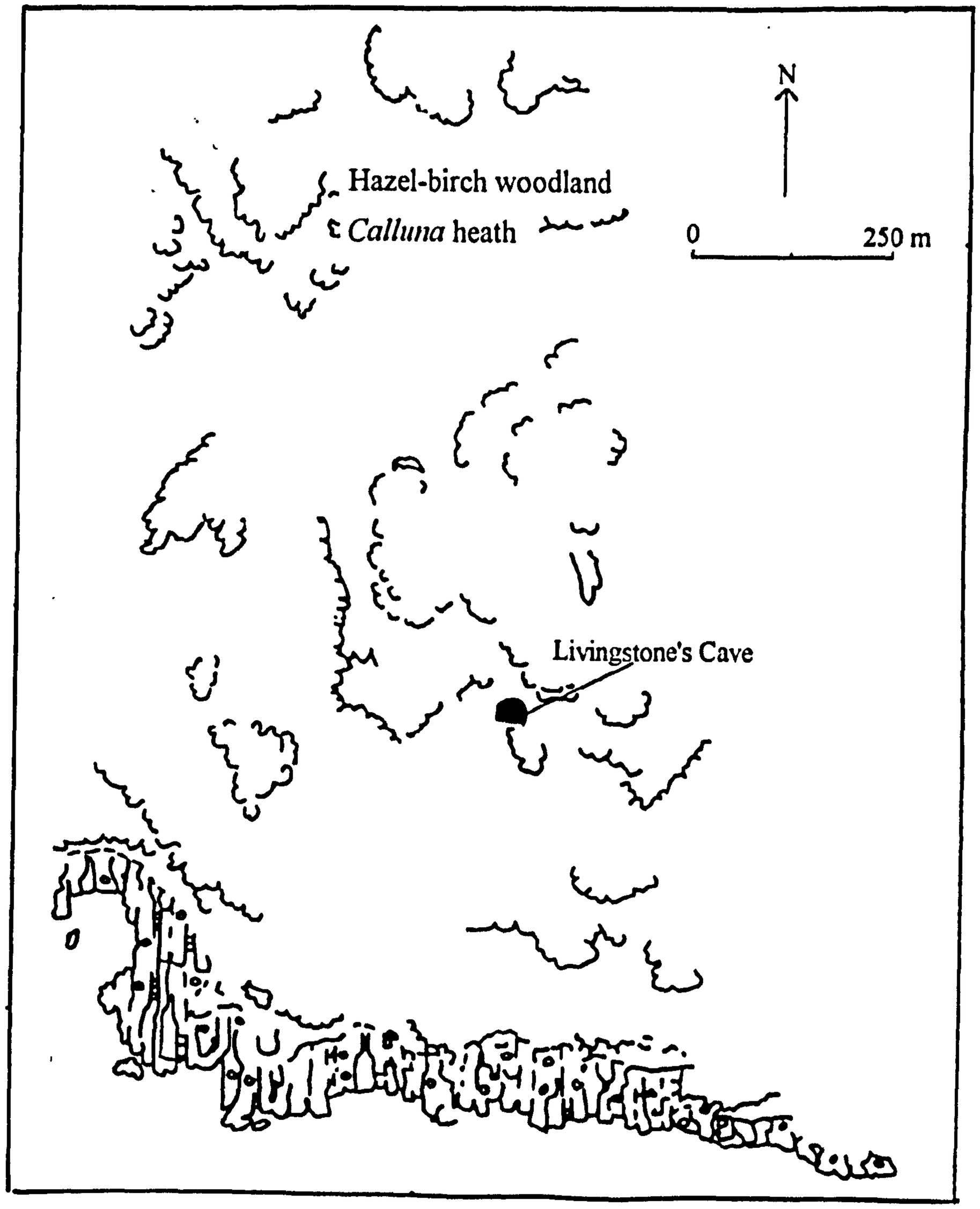


Figure 5.31 Map of A'Chrannag and Livingstone's Cave bogs, Ulva showing inferred vegetation patterns for c. 6000 - 5500 BP (4910 – 4380 cal. BC)

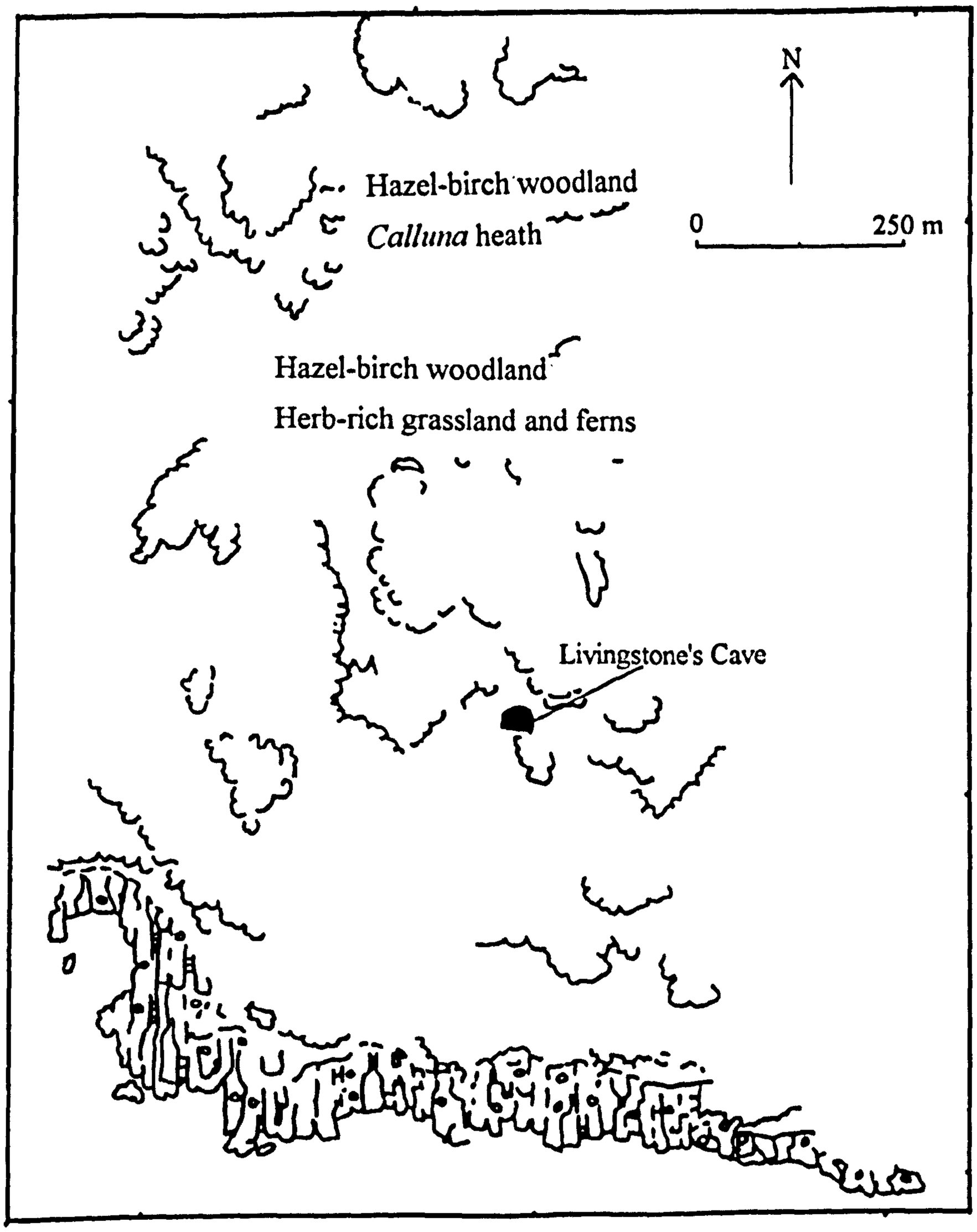


Figure 5.32 Map of A'Chrannag and Livingstone's Cave bogs, showing inferred vegetation patterns for c. 5500 - 4000 BP (4380 – 2530 cal. BC)

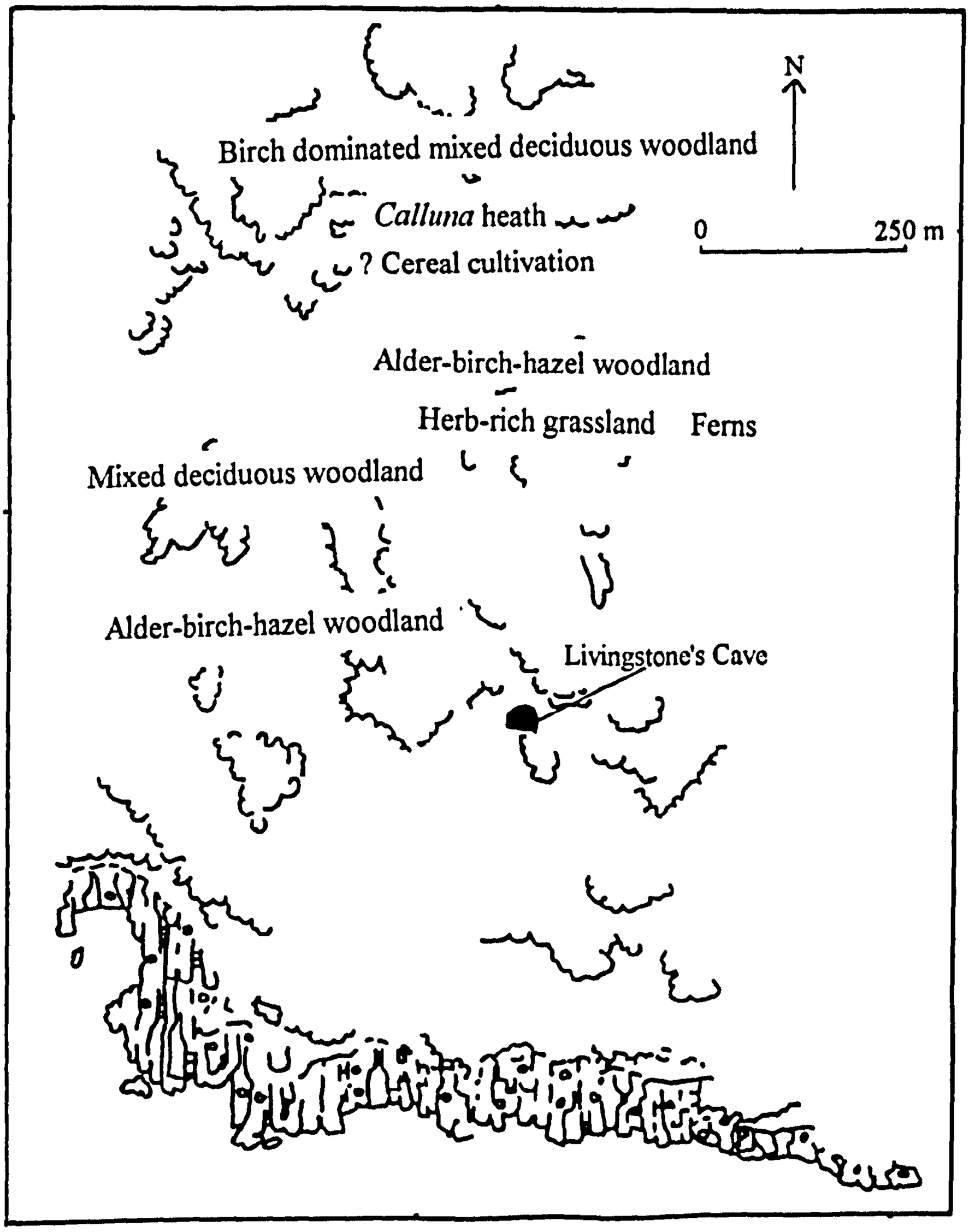


Figure 5.33 Map of A'Chrannag and Livingstone's Cave bogs, Ulva, showing inferred vegetation patterns c. 4000 - 2500 BP (2530 – 600 cal. BC)

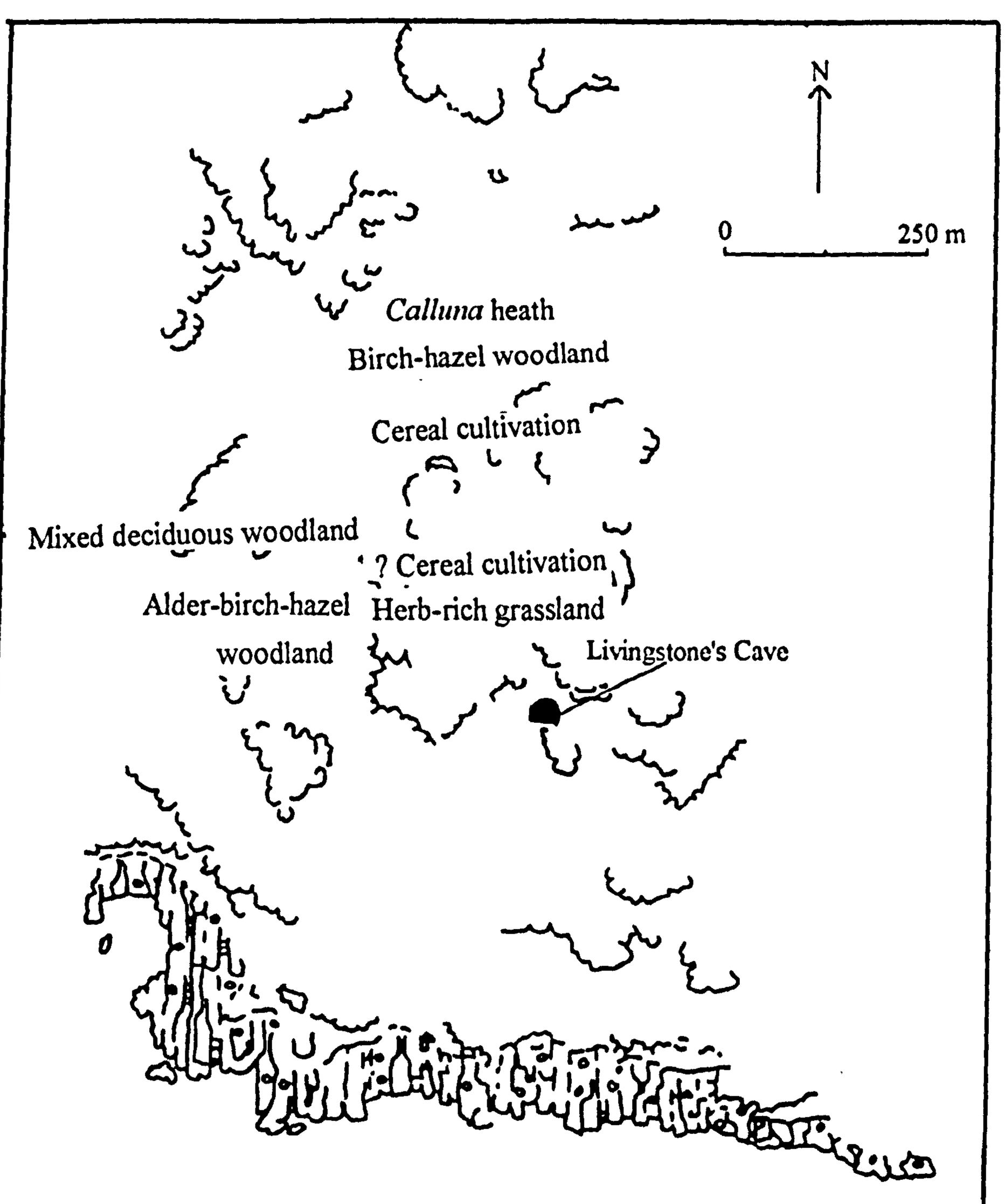


Figure 5.34 Diagram of Ulmus and Cereal-type pollen percentages and Ch:P for all Ulva profiles
(Circle symbol = < 2% TLP)

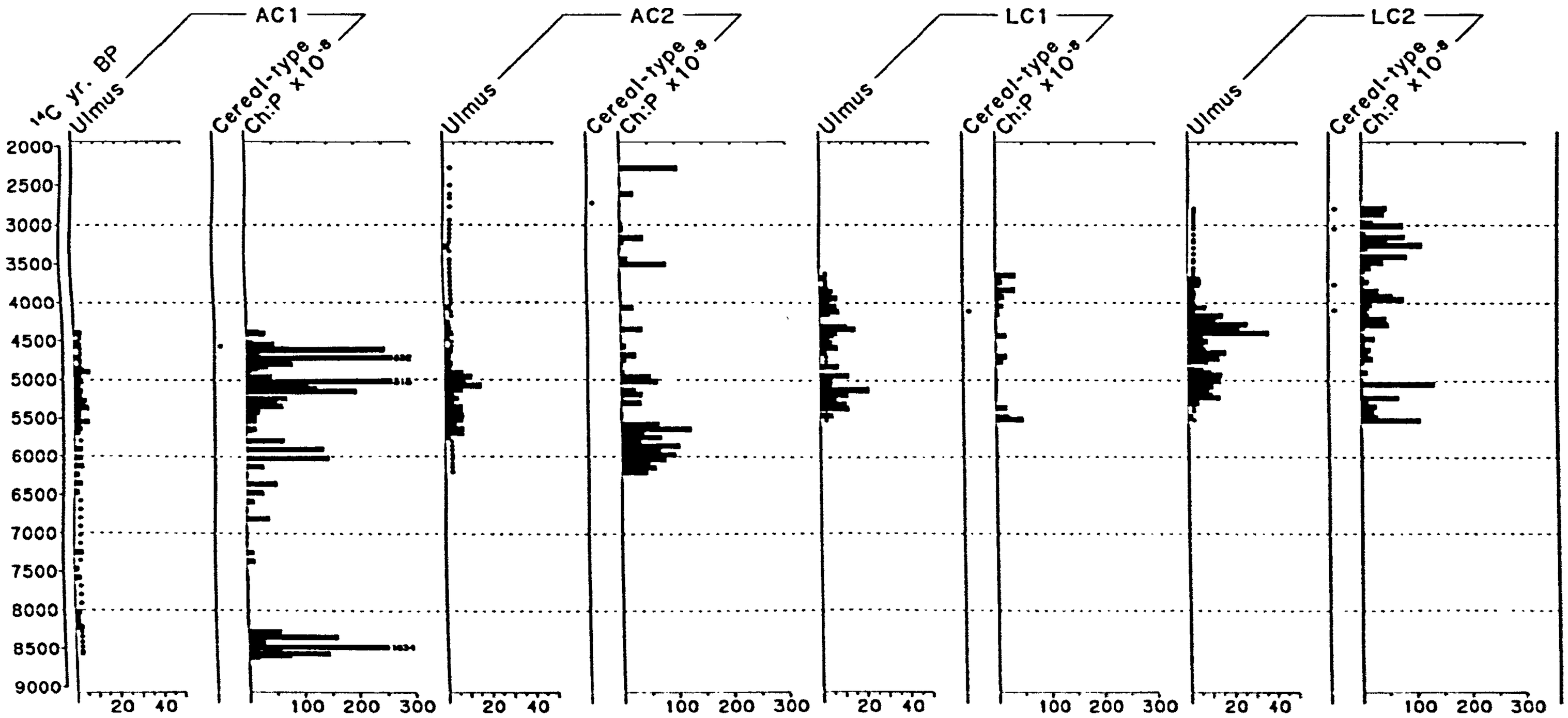


Figure 5.35 Composite diagram of Ulmus influx cu
and Livingstone's Cave basins, Ulva

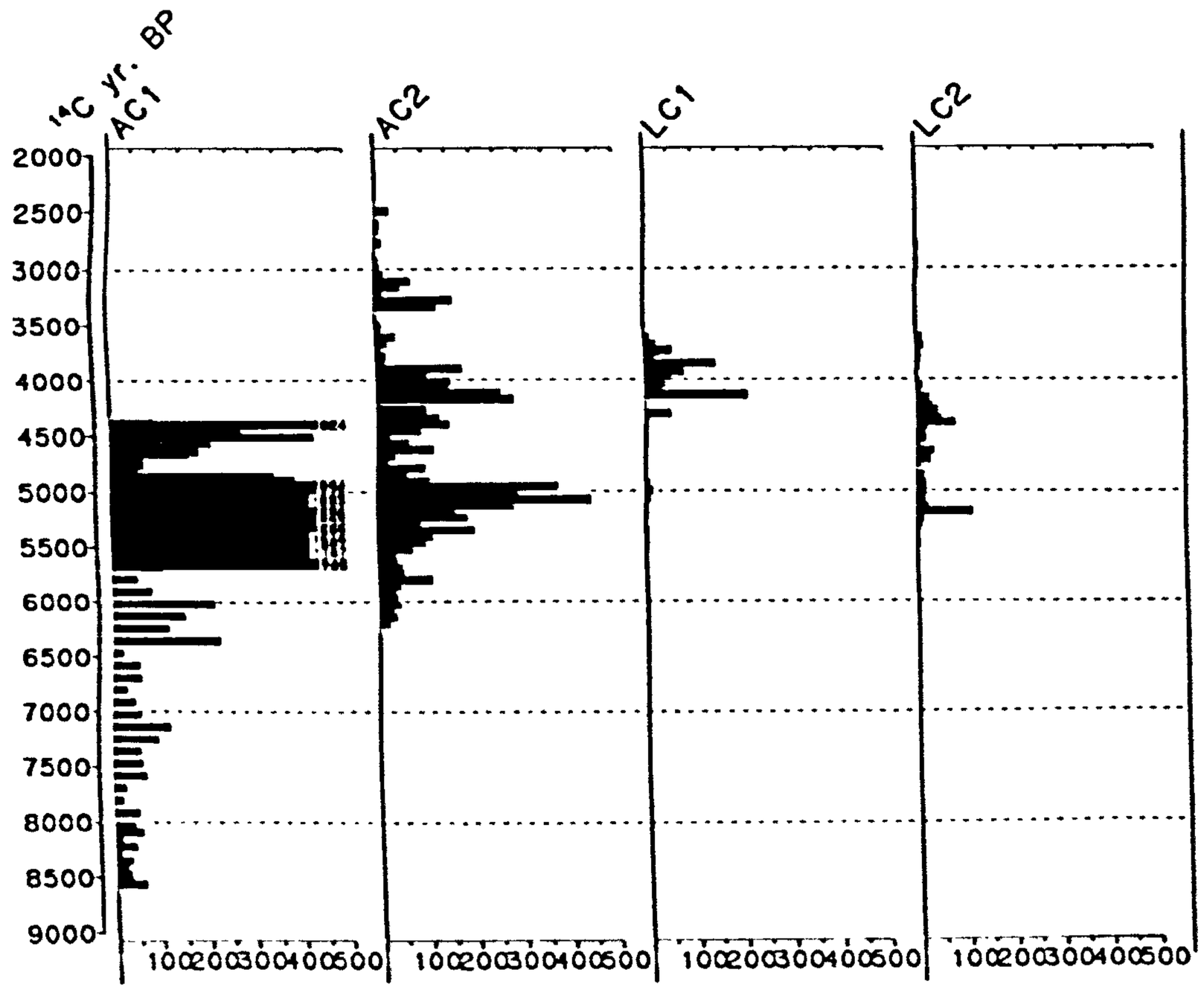


Figure 6.1 Map of Kinloch, Rum, showing locations of monoliths, transect lines and site of archaeological excavation.

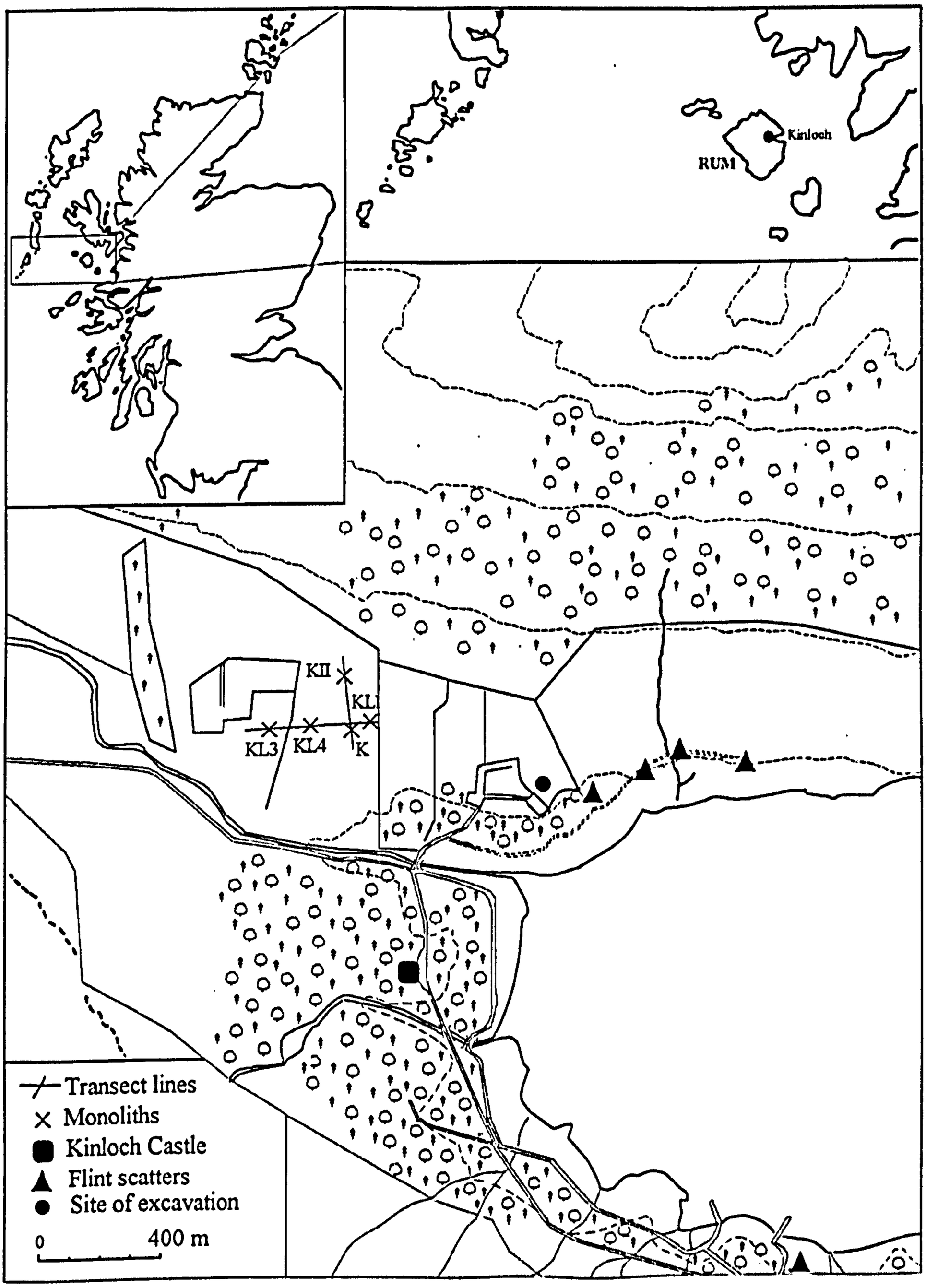
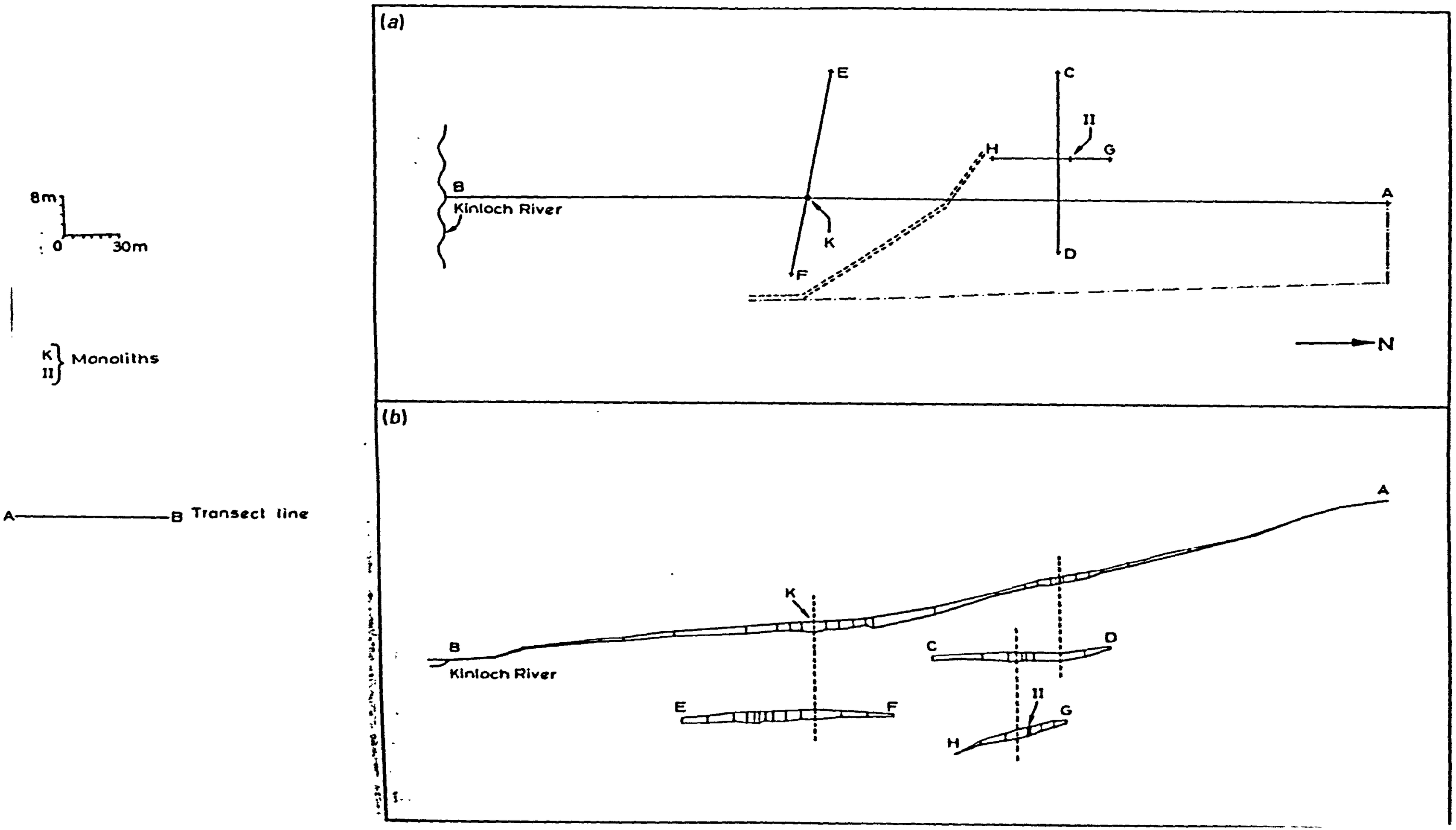


Figure 6.2 North-south depth transects from Kinloch, Rum (Hirons and Edwards, 1990)



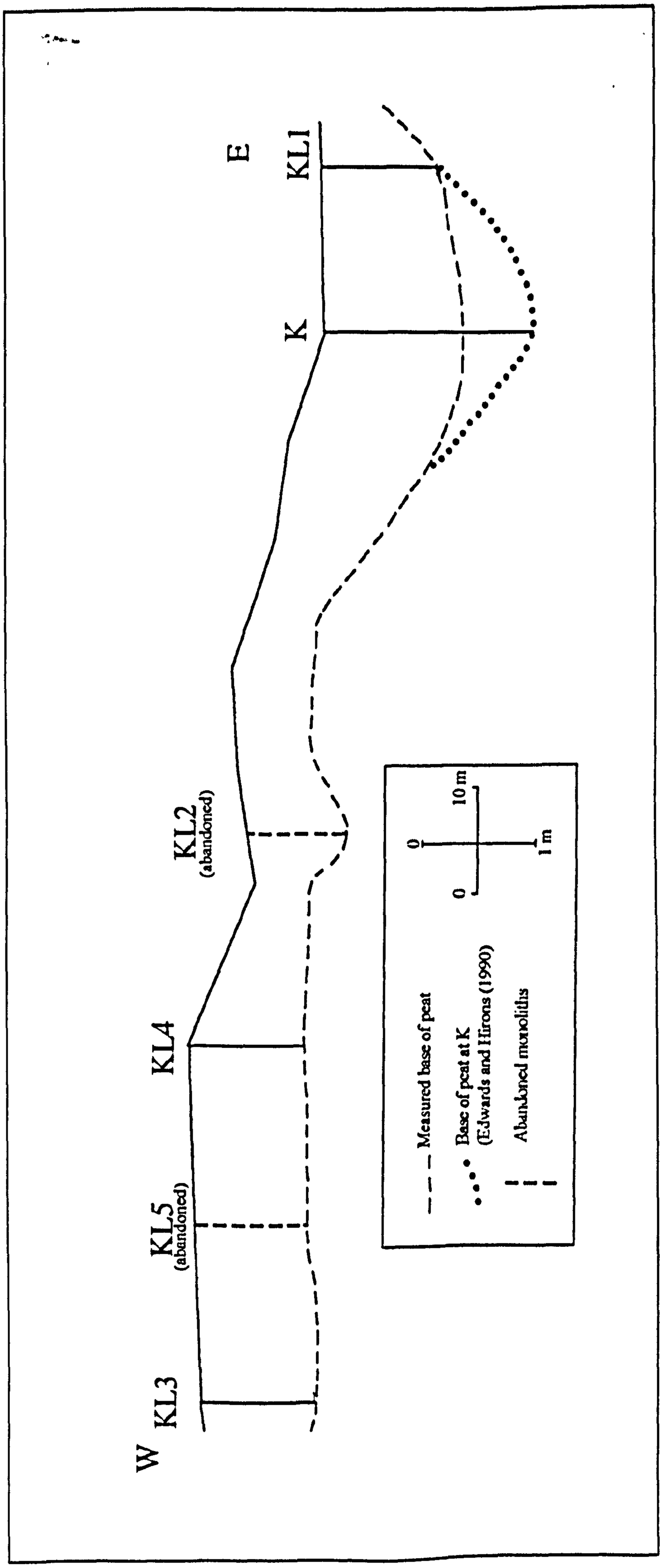
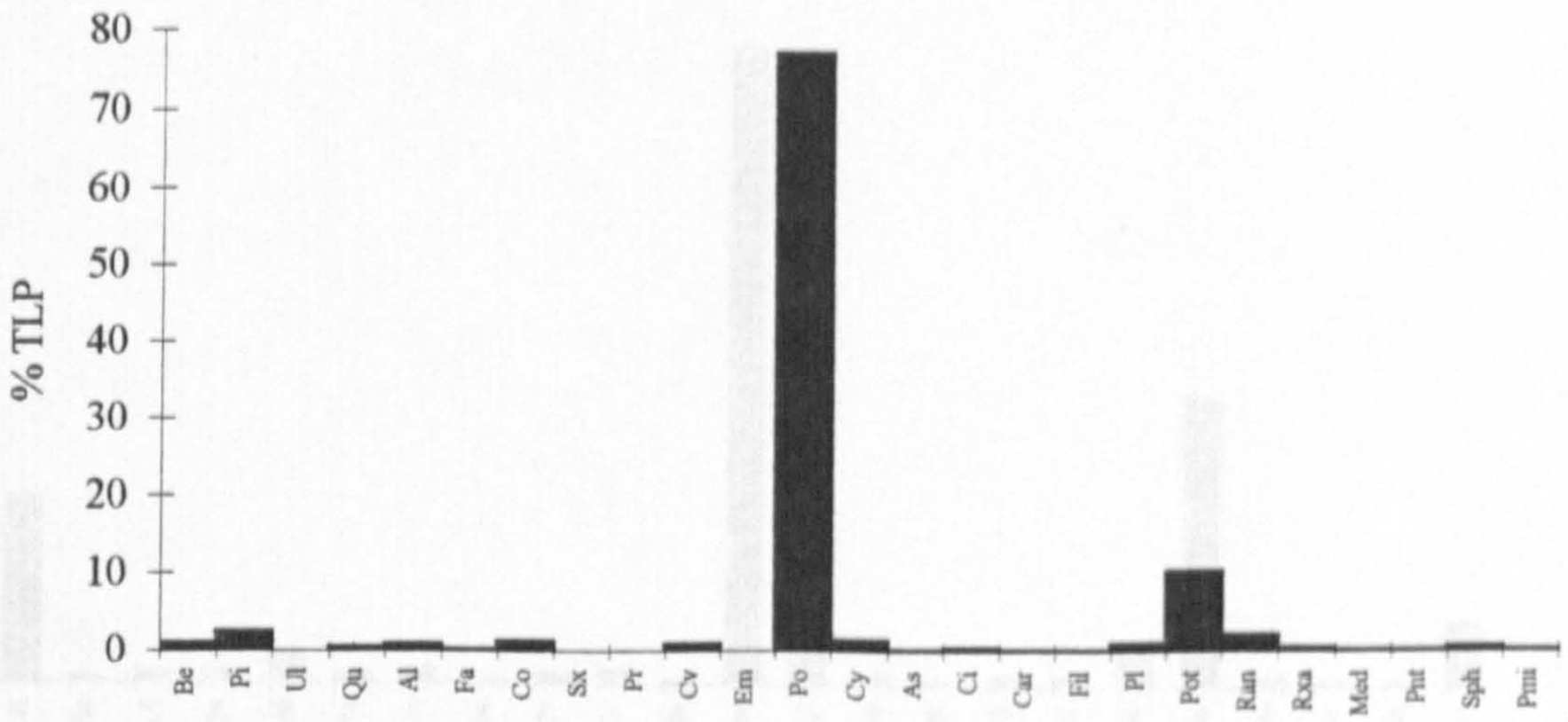


Figure 6.3 Diagram of east-west transect at Kinloch, Rum, showing monolith locations

Figure 6.4a Surface pollen sample percentages from location KL1



Be = *Betula*, Pi = *Pinus*, Ul = *Ulmus*, Qu = *Quercus*, Al = *Alnus*, Fa = *Fagus*, Co = *Corylus avellana*-type, Sx = *Salix*, Pr = *Prunus*, Cv = *Calluna vulgaris*, Em = *Empetrum nigrum*, Po = Poaceae, Cy = Cyperaceae, As = *Aster*-type, Ci = *Cichorium intybus*-type, Car = Caryophyllaceae, Fil = *Filipendula*, Pl = *Plantago lanceolata*, Pot = *Potentilla*-type, Ran = *Ranunculus acris*-type, Rxa = *Rumex acetosa*, Med = *Medicago*, Pnt = *Plantago* undiff., Sph = *Sphagnum*, Pmi = Pteropsida (mono.) indet.

Figure 6.4b Summary of surface pollen sample composition at KL1

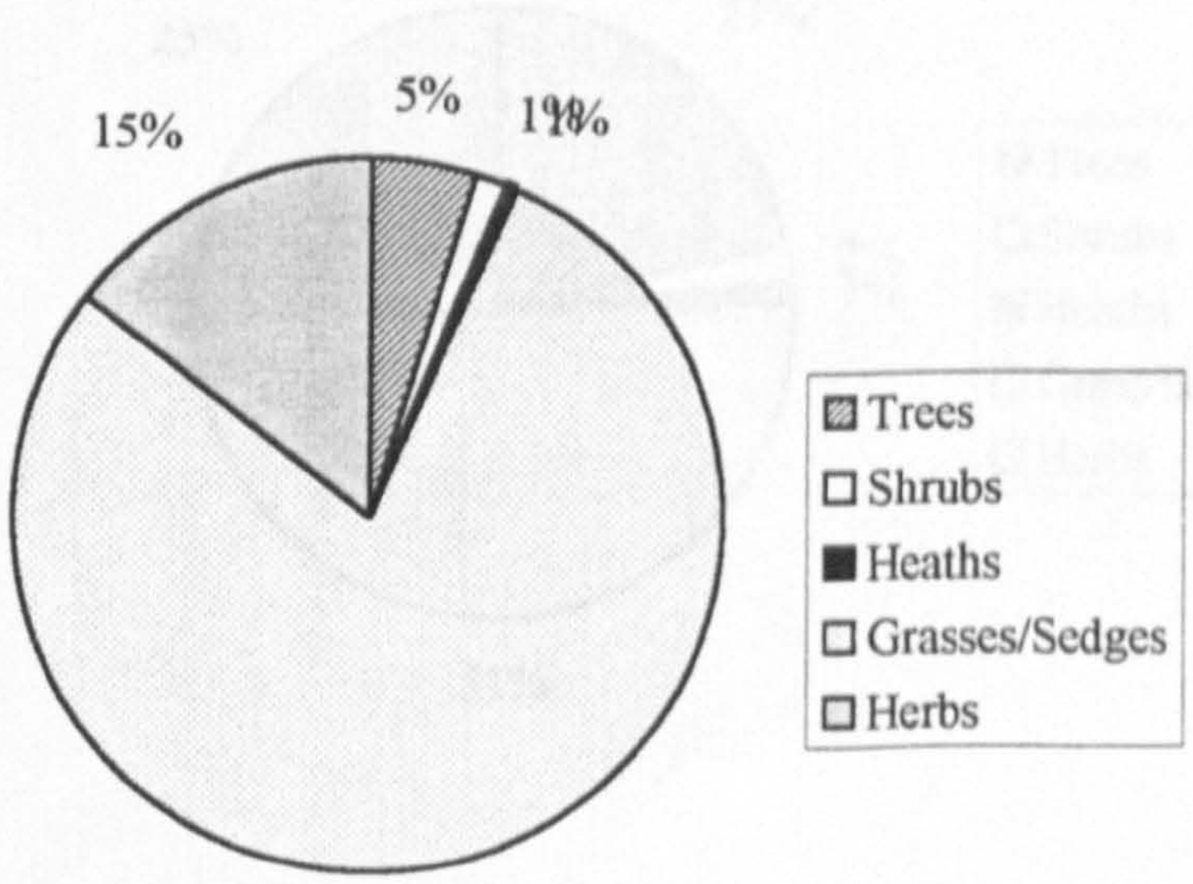
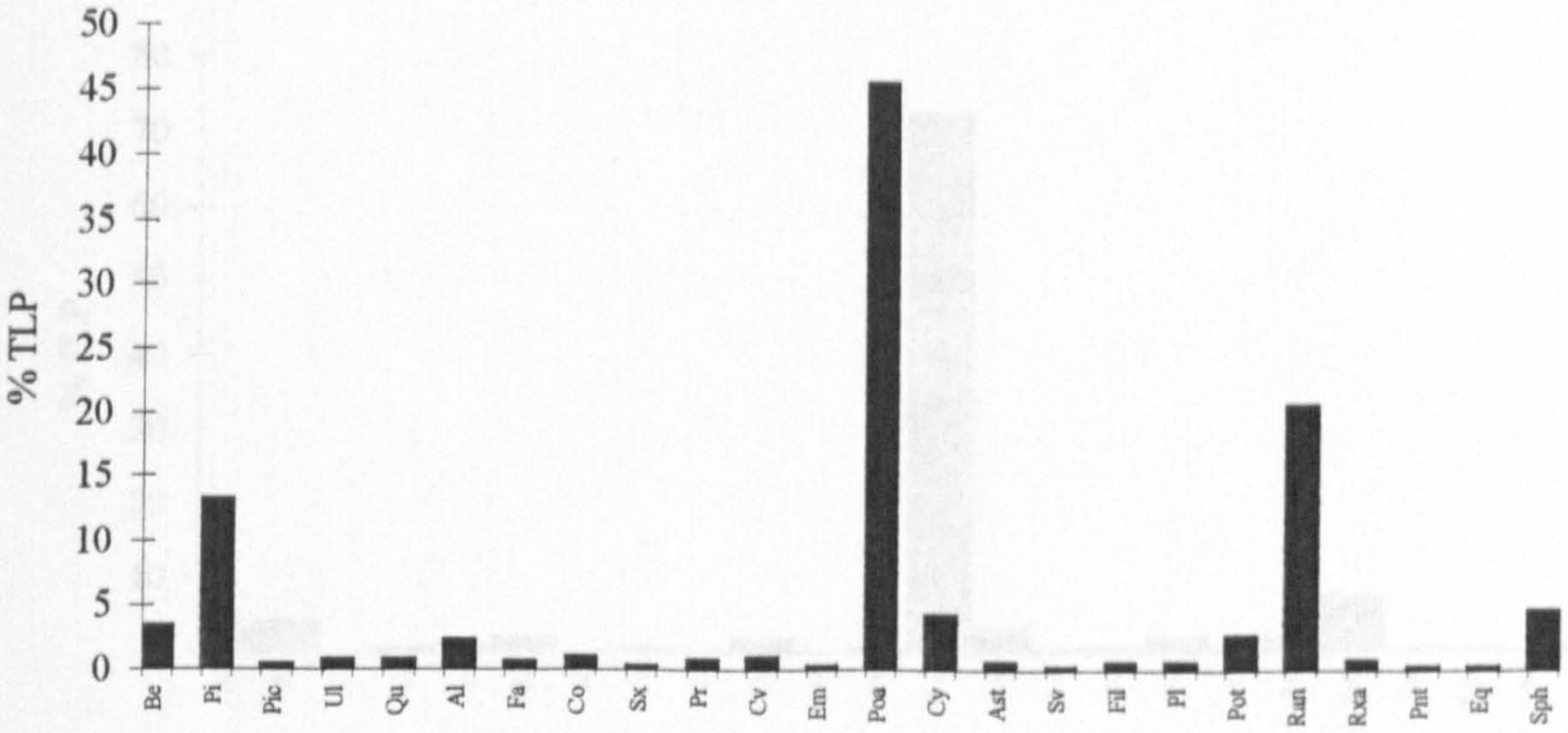


Figure 6.5a Surface pollen sample percentages from location K



Be = *Betula*, Pi = *Pinus*, Pic = *Picea*, Ul = *Ulmus*, Qu = *Quercus*, Al = *Alnus*, Fa = *Fagus*, Co = *Corylus avellana*-type, Sx = *Salix*,, Pr = *Prunus*, Cv = *Calluna vulgaris*, Em = *Empetrum nigrum*, Po = Poaceae, Cy = Cyperaceae, As = *Aster*-type, Sv = *Silene vulgaris*-type, Fil = *Filipendula*, Pl = *Plantago lanceolata*, Pot = *Potentilla*-type, Ran = *Ranunculus acris*-type, Rxa = *Rumex acetosa*, Pnt = *Plantago* undiff., Eq = *Equisetum*, Sph = *Sphagnum*,.

Figure 6.5b Summary of surface pollen sample from location K.

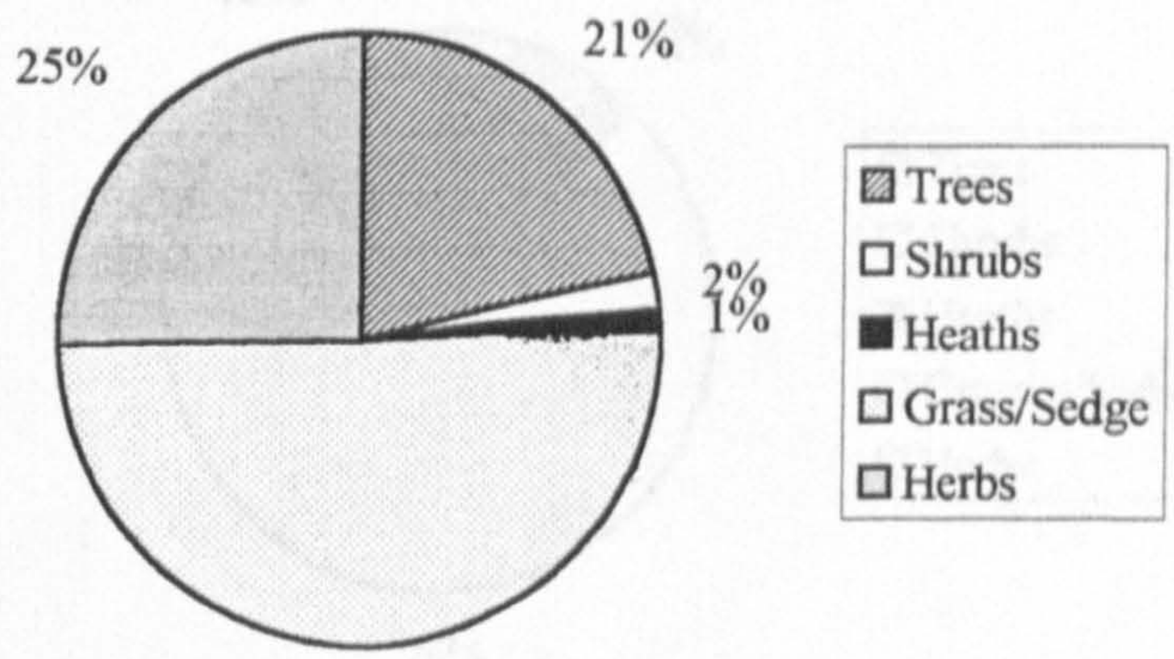
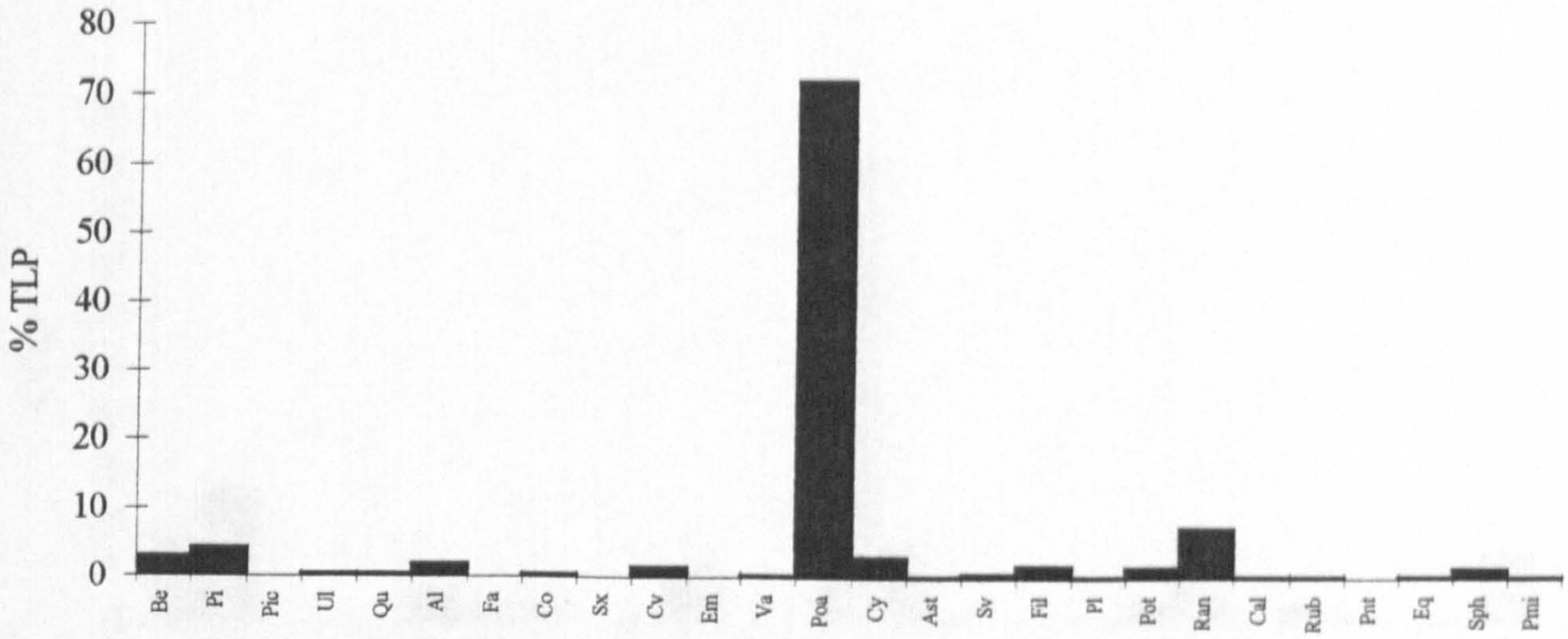


Figure 6.6a Surface pollen sample percentages from location KL3



Be = *Betula*, Pi = *Pinus*, Pic = *Picea*, Ul = *Ulmus*, Qu = *Quercus*, Al = *Alnus*, Fa = *Fagus*, Co = *Corylus avellana*-type, Sx = *Salix*, Cv = *Calluna vulgaris*, Em = *Empetrum nigrum*, Va = *Vaccinium*-type, Po = Poaceae, Cy = Cyperaceae, Ast = *Aster*-type, Sv = *Silene vulgaris*-type, Fil = *Filipendula*, Pl = *Plantago lanceolata*, Pot = *Potentilla*-type, Ran = *Ranunculus acris*-type, Cal = *Caltha*-type, Rub = Rubiaceae, Pnt = *Plantago* undiff., Eq = *Equisetum*, Sph = *Sphagnum*, Pmi = Pteropsida (mono.) indet.

Figure 6.6b Summary of surface pollen sample composition at KL3.

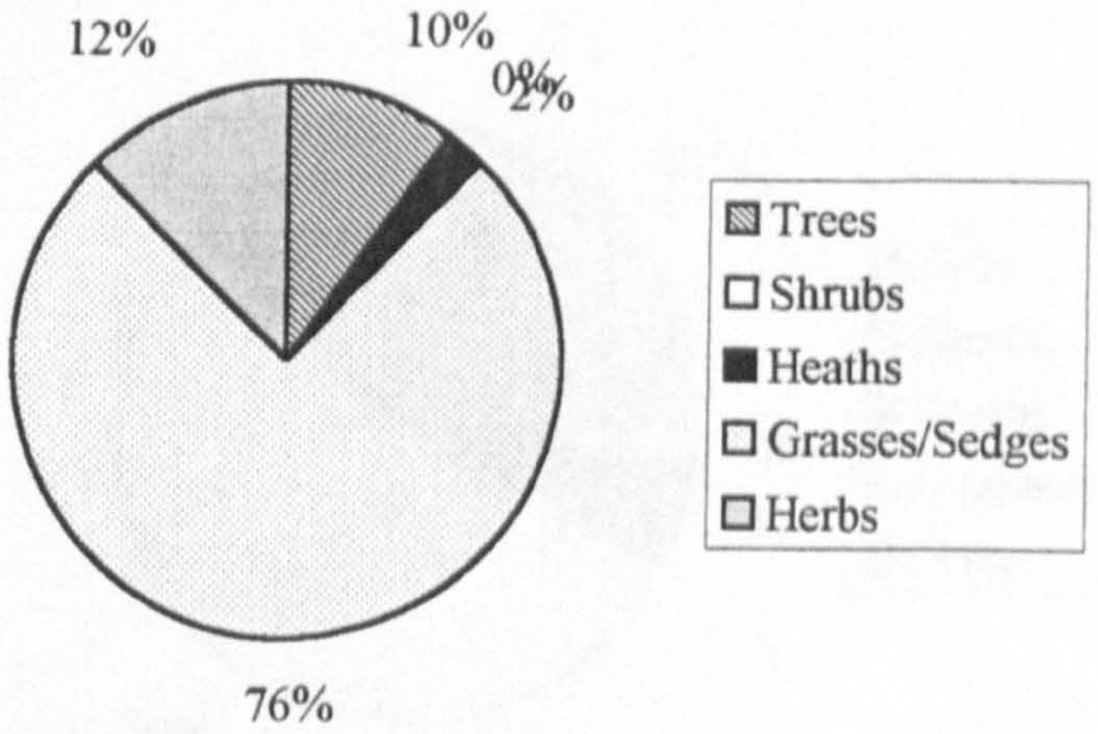
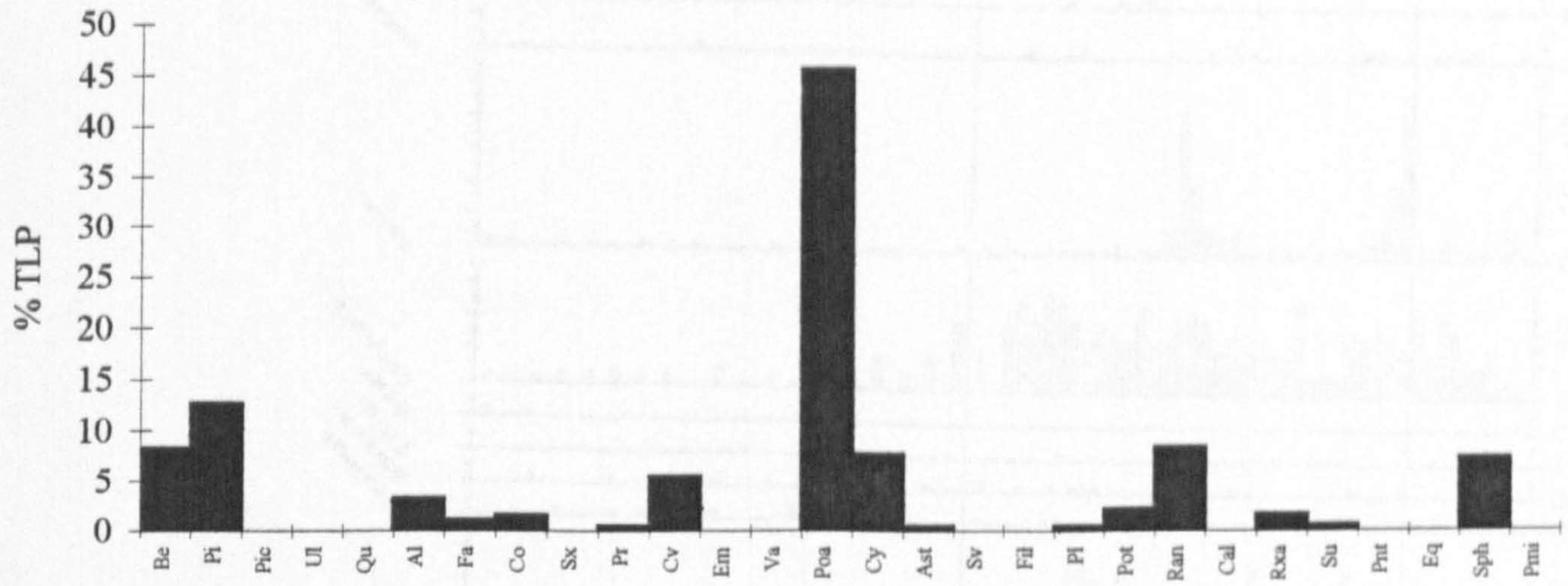


Figure 6.7a Surface pollen sample percentages from location KL4



Be = *Betula*, Pi = *Pinus*, Pic = *Picea*, Ul = *Ulmus*, Qu = *Quercus*, Al = *Alnus*, Fa = *Fagus*, Co = *Corylus avellana*-type, Sx = *Salix*, Pr = *Prunus*, Cv = *Calluna vulgaris*, Em = *Empetrum nigrum*, Va = *Vaccinium*-type, Poa = Poaceae, Cy = Cyperaceae, Ast = *Aster*-type, Sv= *Silene vulgaris*-type, Fil = *Filipendula*, Pl = *Plantago lanceolata*, Pot = *Potentilla*-type, Ran = *Ranunculus acris*-type, Cal = *Caltha*-type, Rxa = *Rumex acetosa*, Su = *Succisa pratensis*, Pnt = *Plantago* undiff., Eq = *Equisetum*, Sph = *Sphagnum*, Pmi = Pteropsida (mono.) indet.

Figure 6.7b Summary of surface pollen sample at KL4.

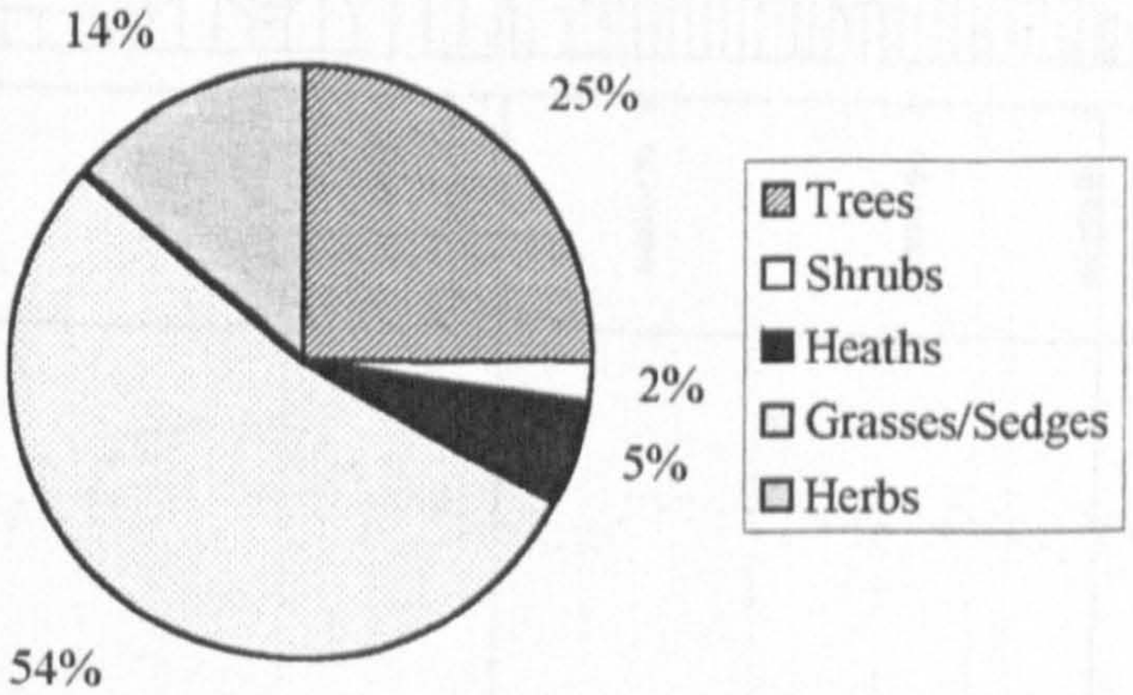


Figure 6.8 Pollen and spore percentage diagram including LOI from core K, Kinloch, Rum.
(Edwards and Hirons, 1990).

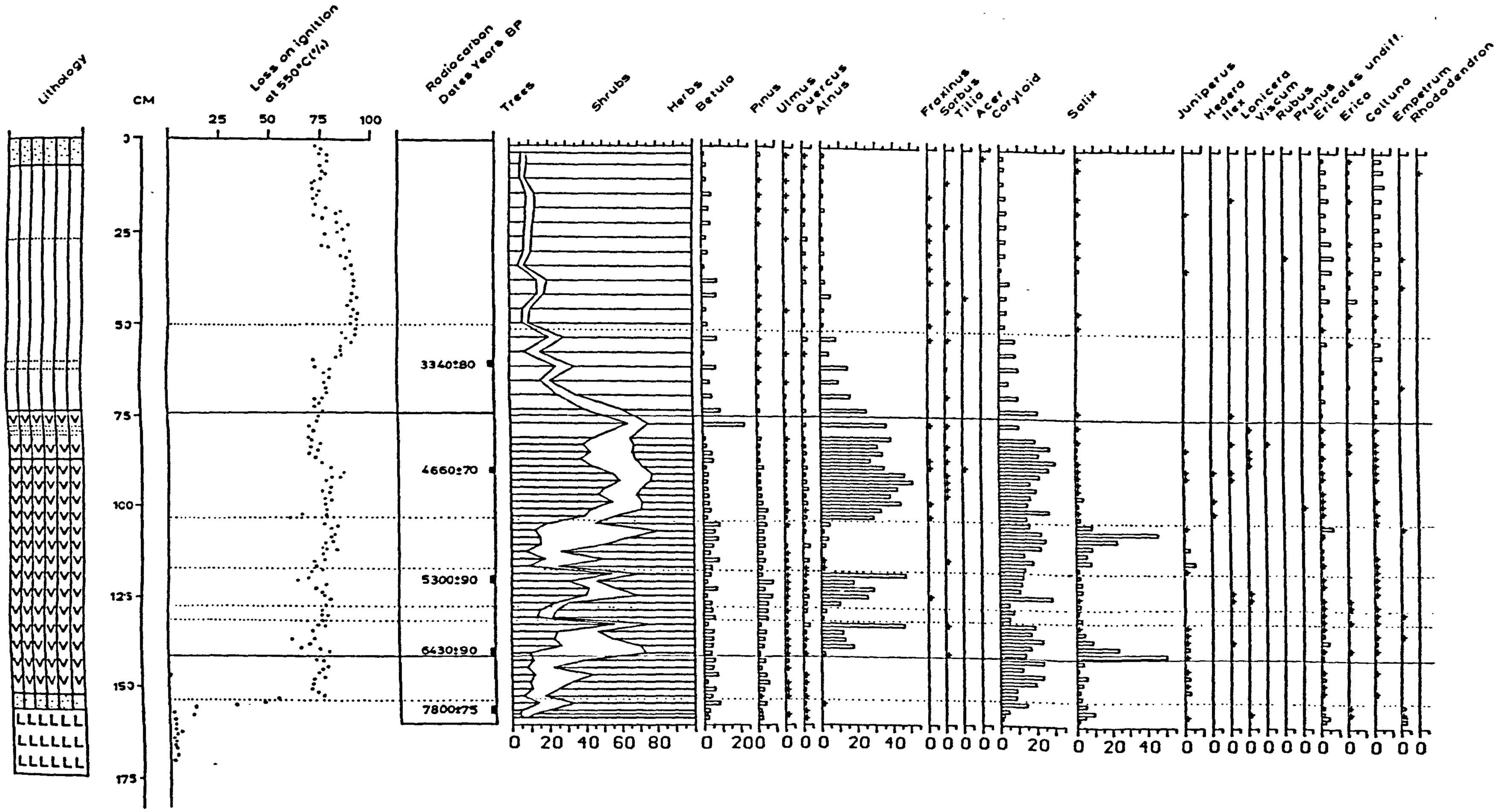


Figure 6.8 continued.

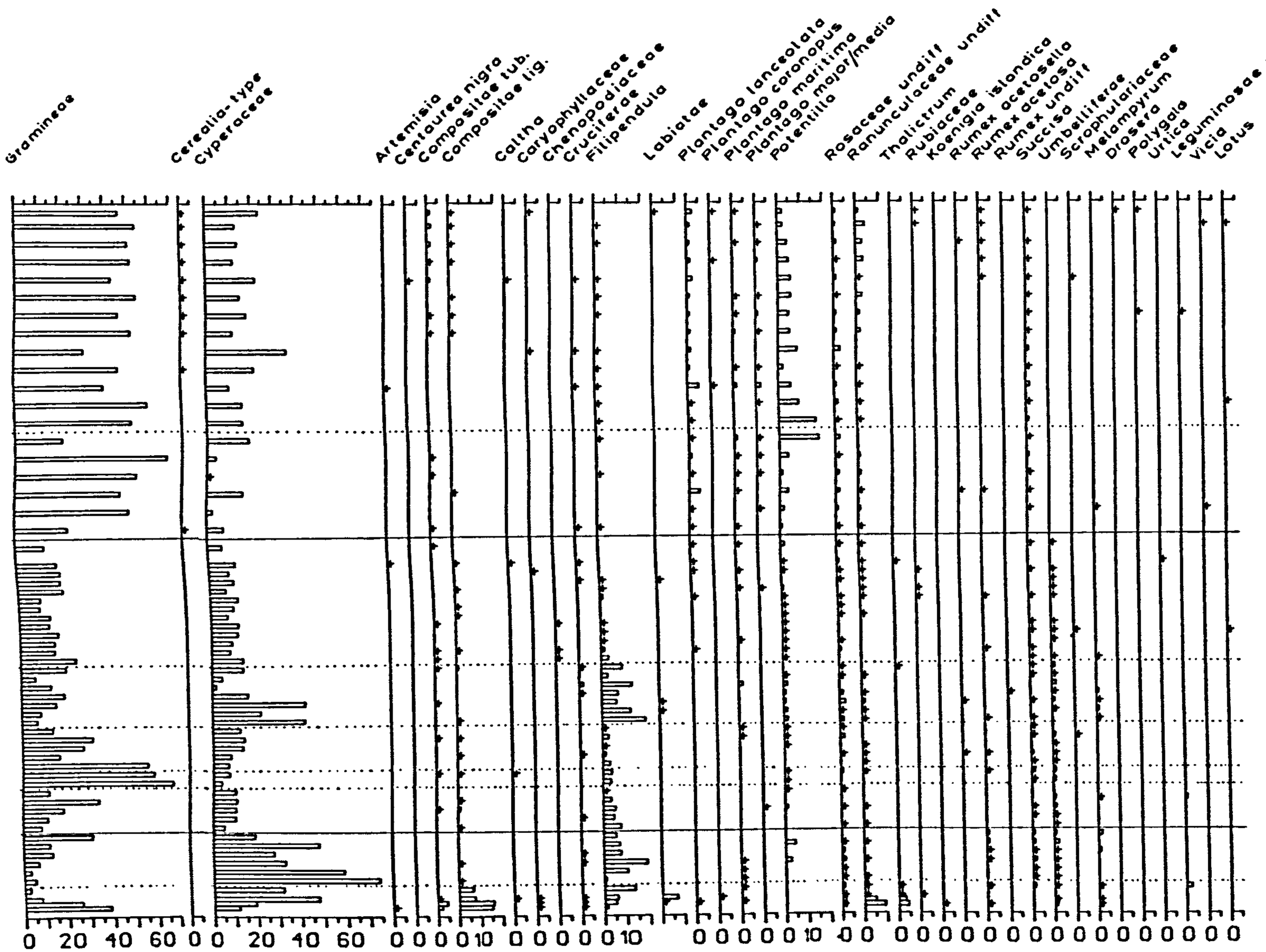


Figure 6.8 continued.

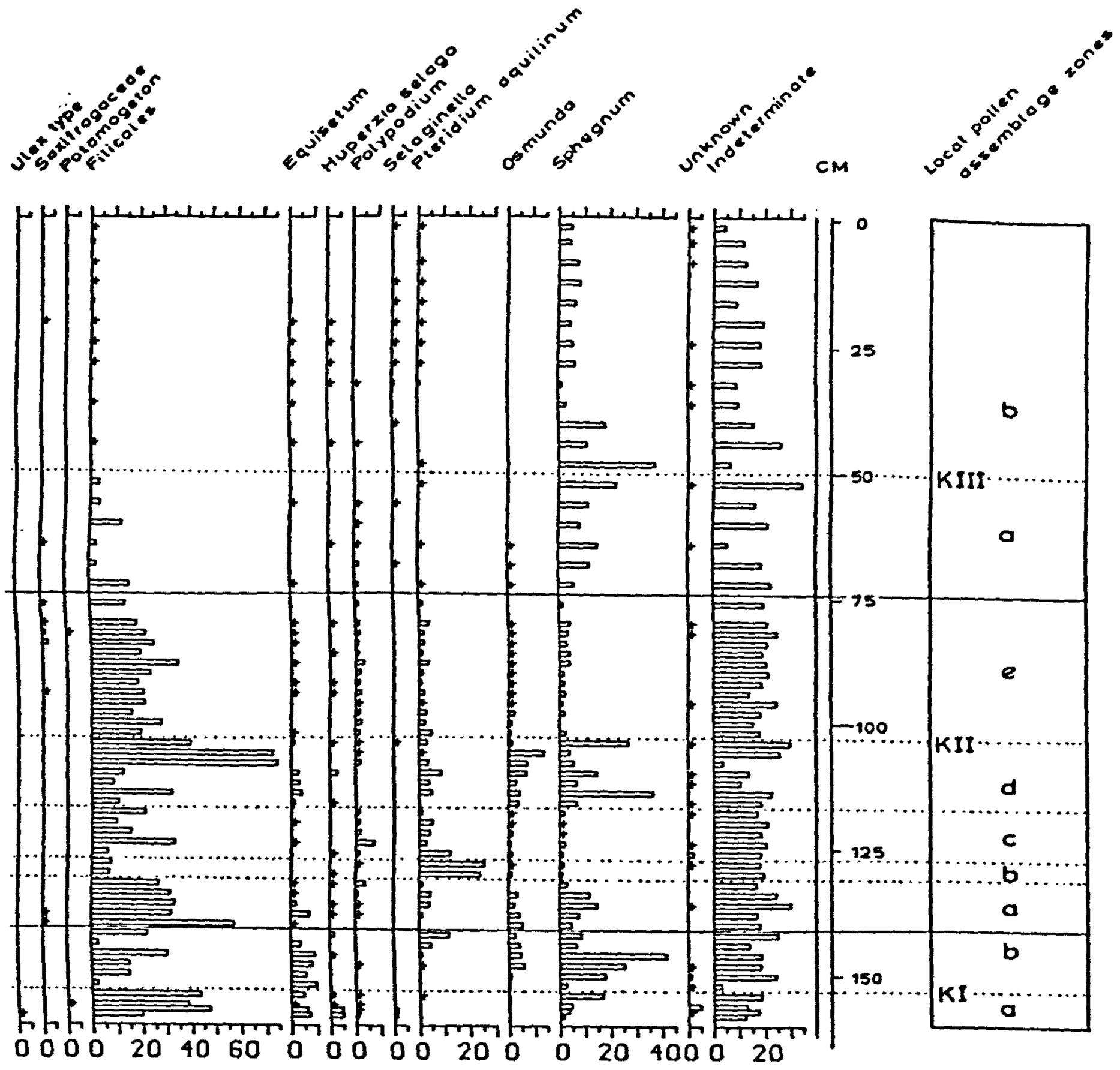
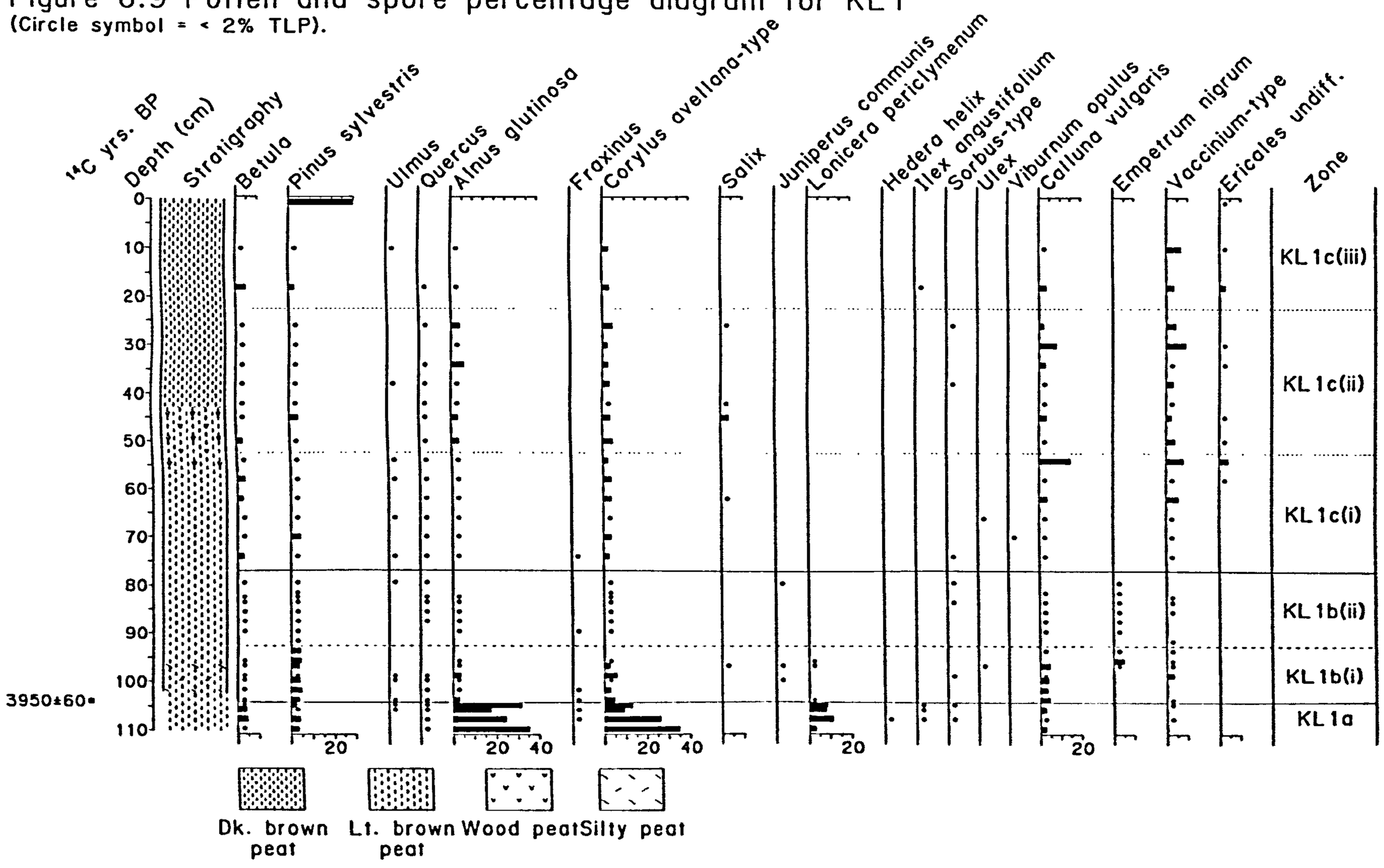


Figure 6.9 Pollen and spore percentage diagram for KL 1
(Circle symbol = < 2% TLP).



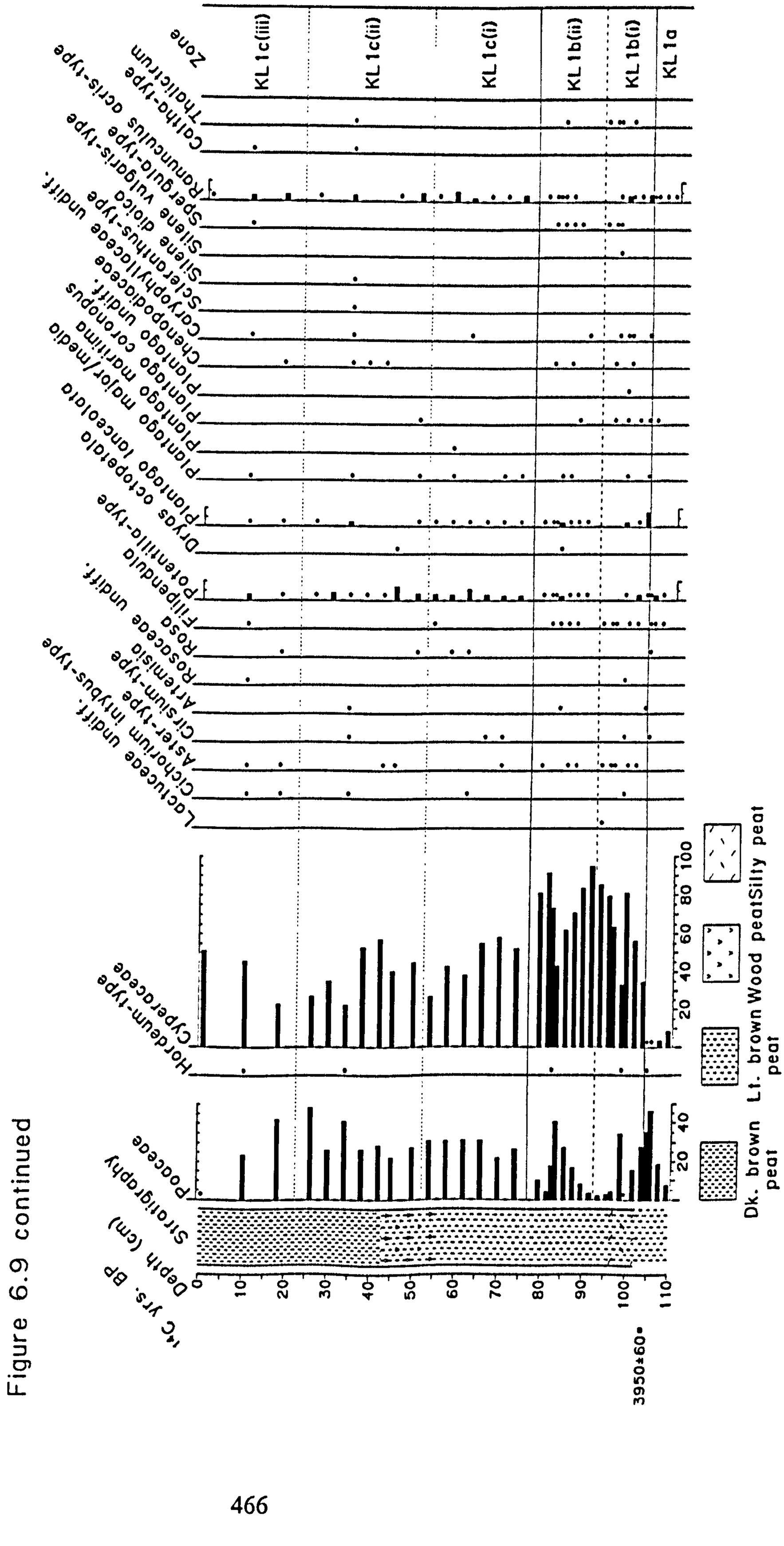


Figure 6.9 continued

Figure 6.9 continued

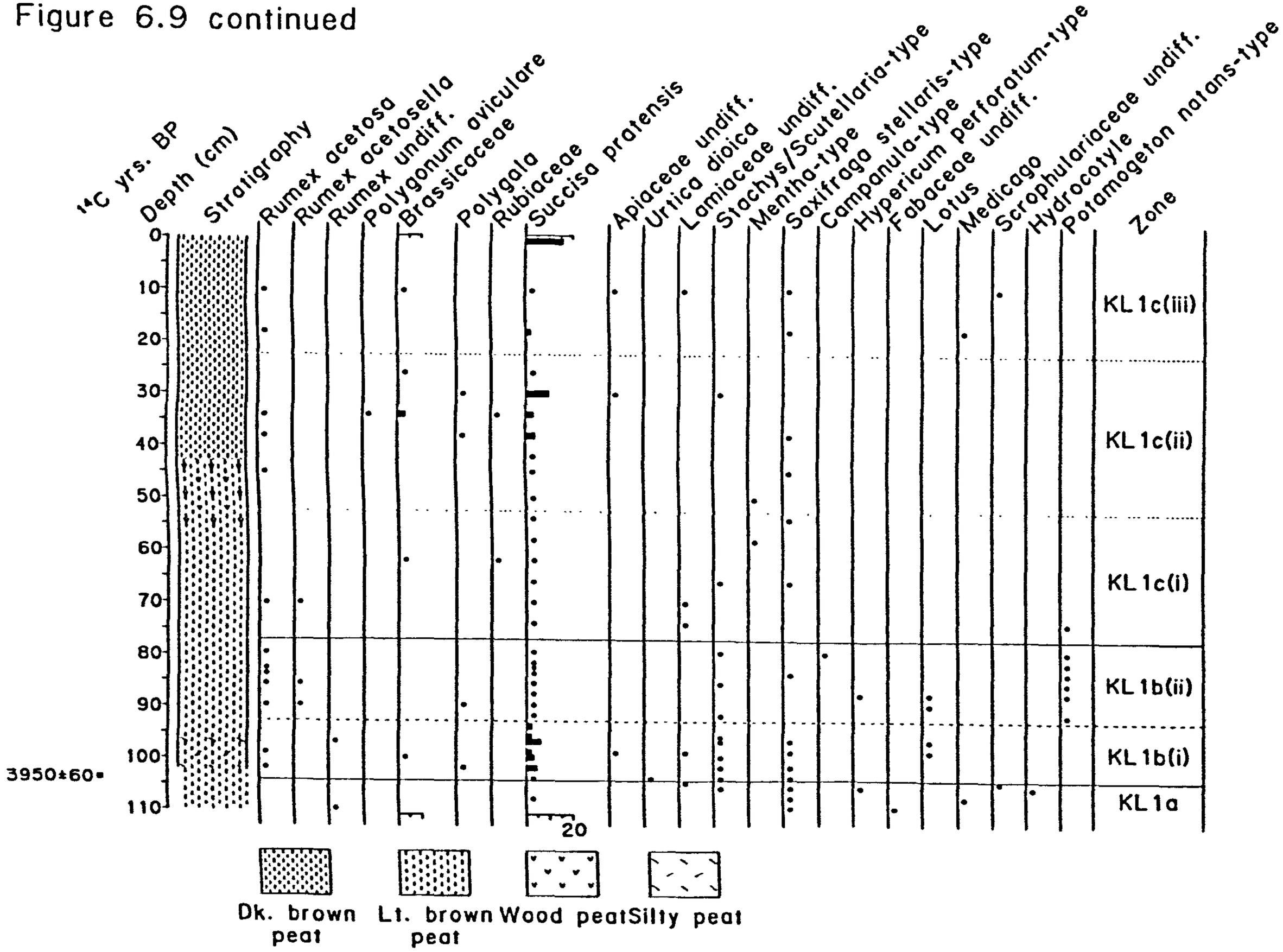


Figure 6.9 continued

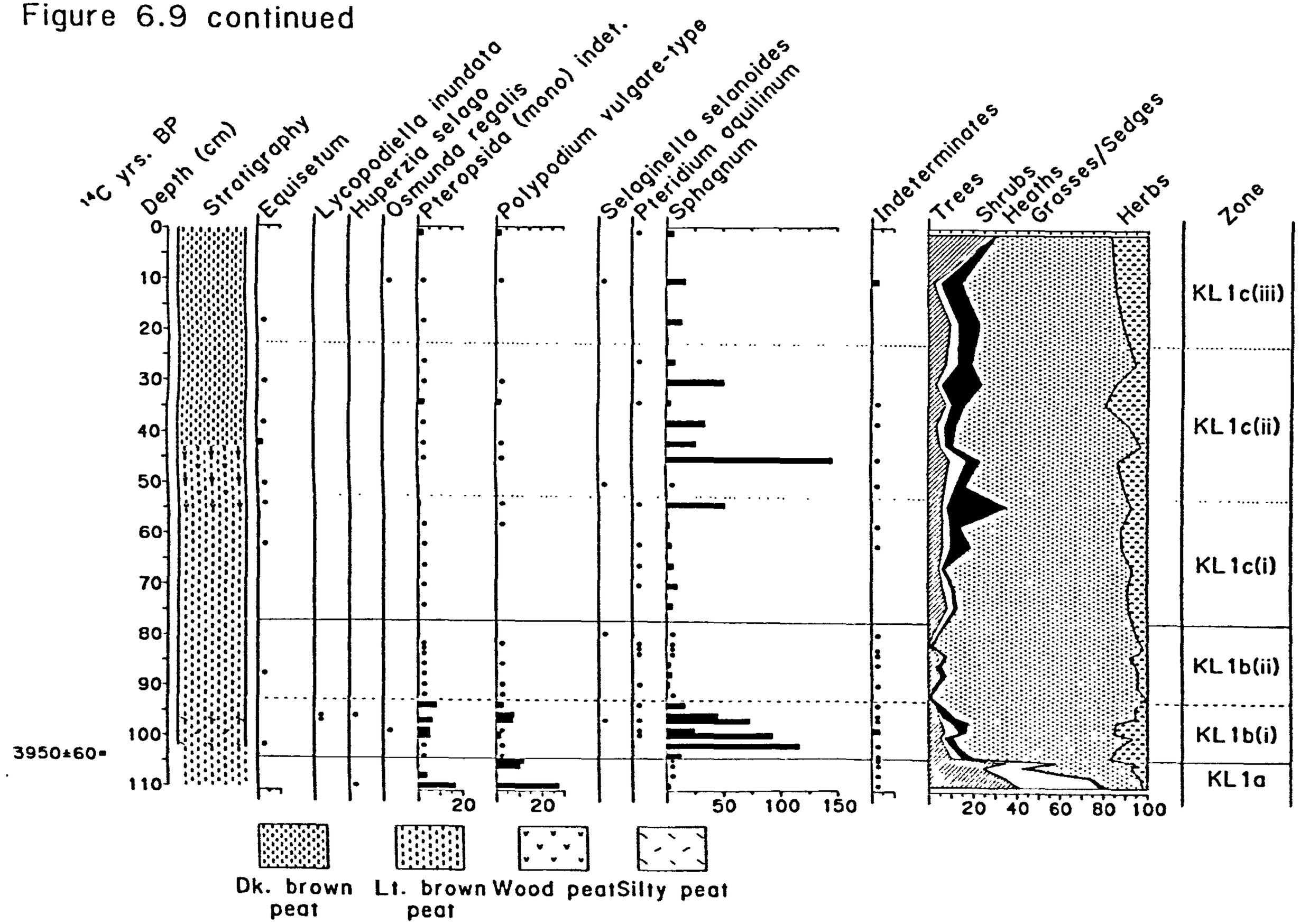
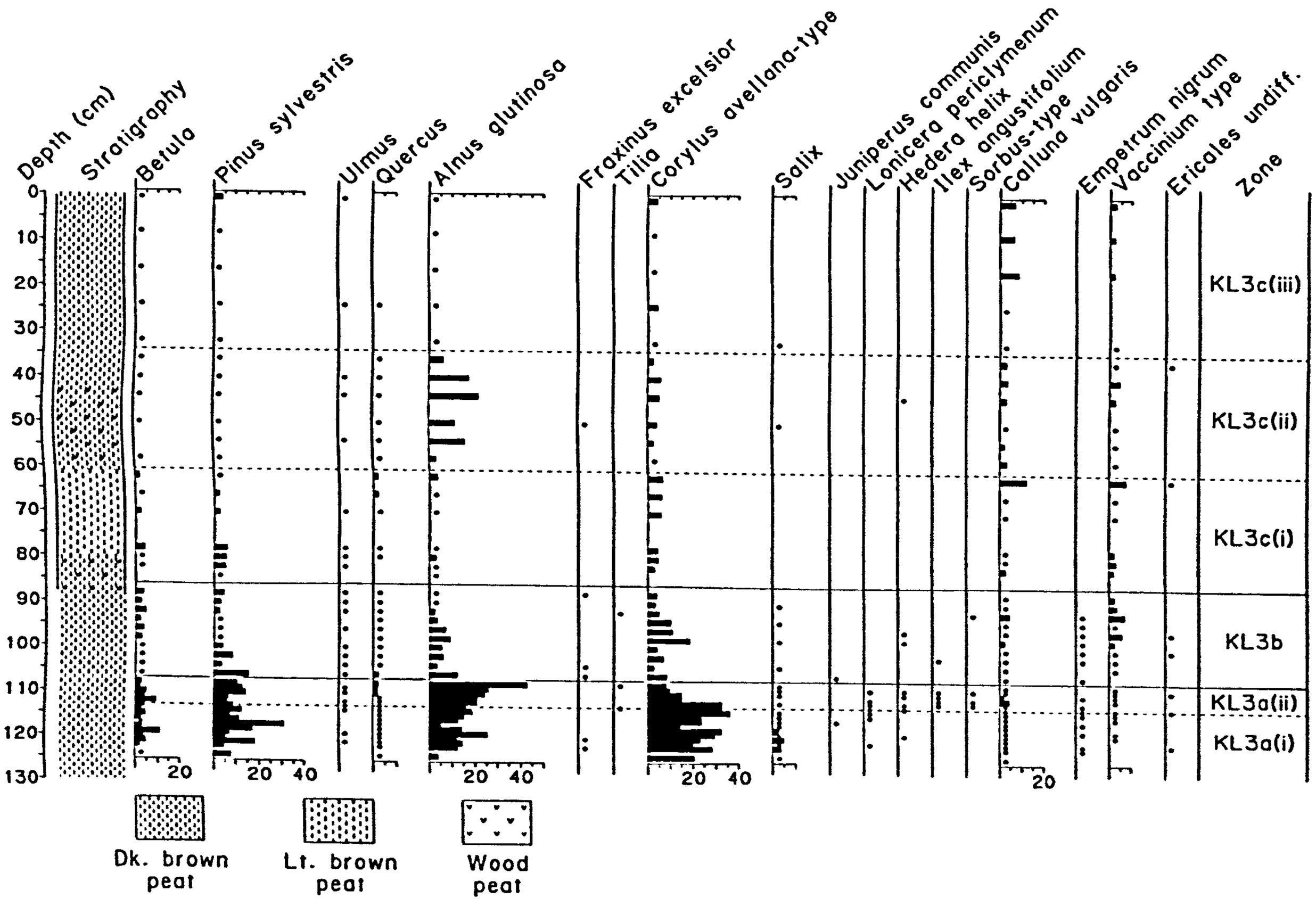


Figure 6.10 Pollen and spore percentage diagram for KL3
(Circle symbol = < 2% TLP)



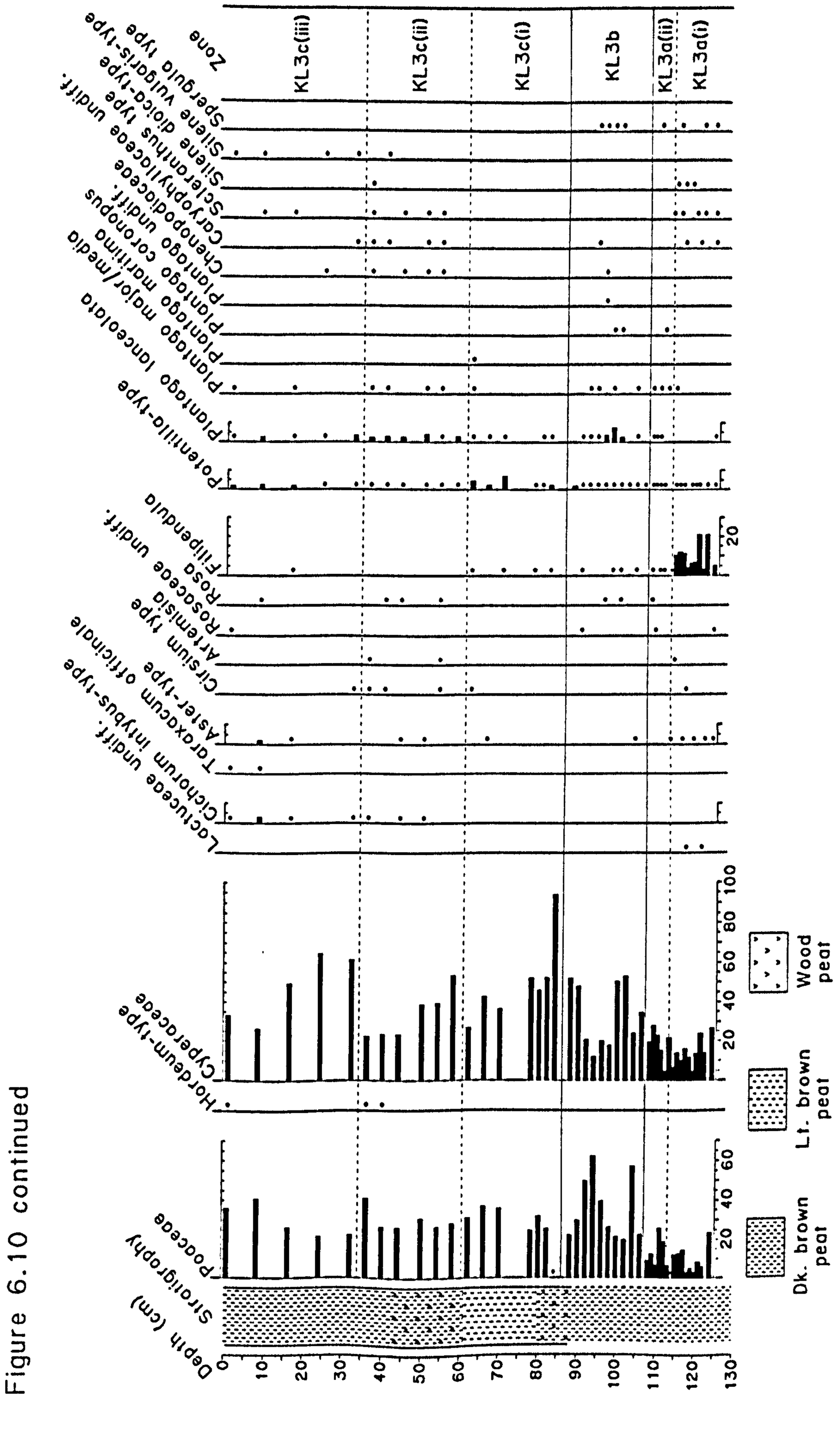


Figure 6.10 continued

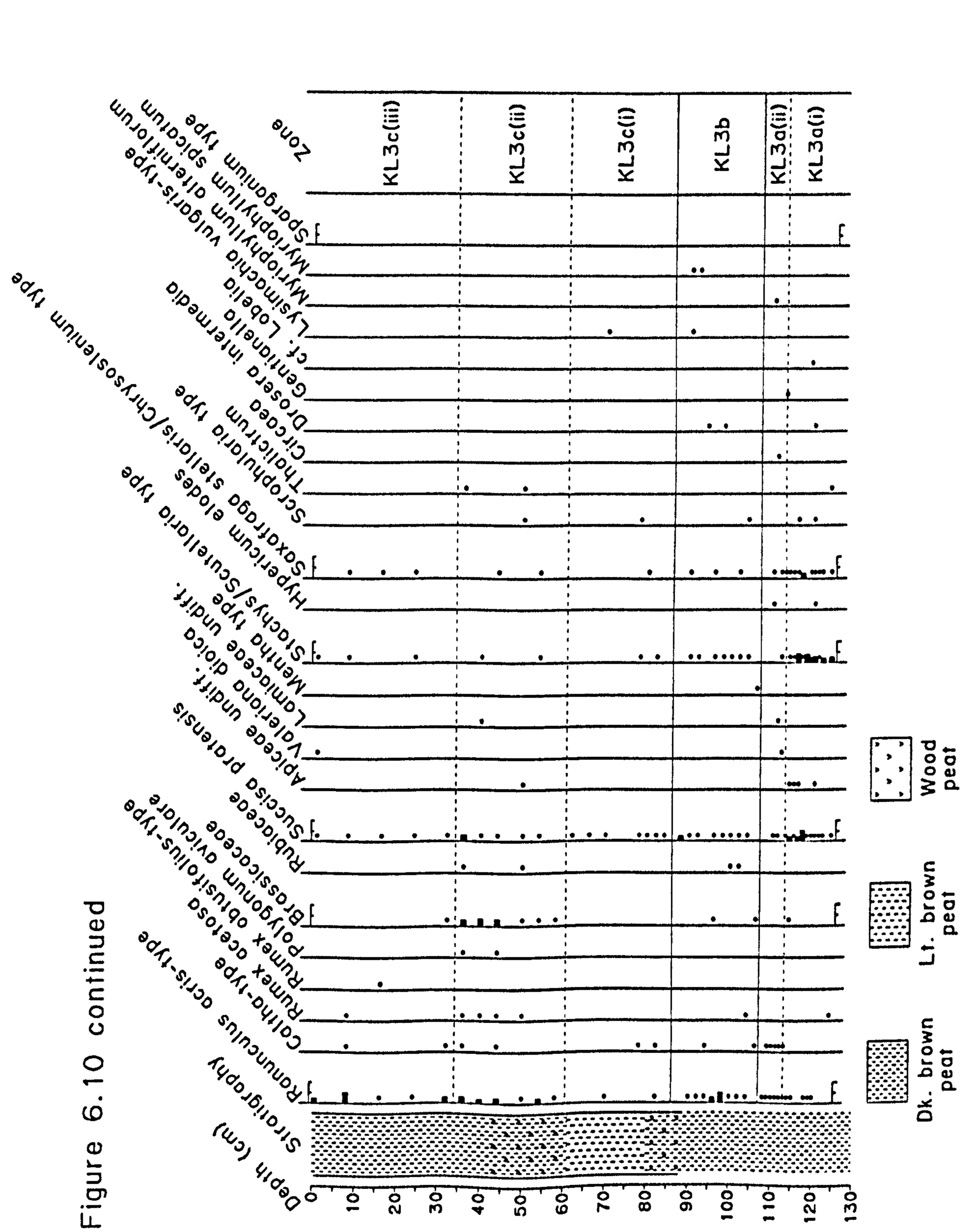


Figure 6.10 continued

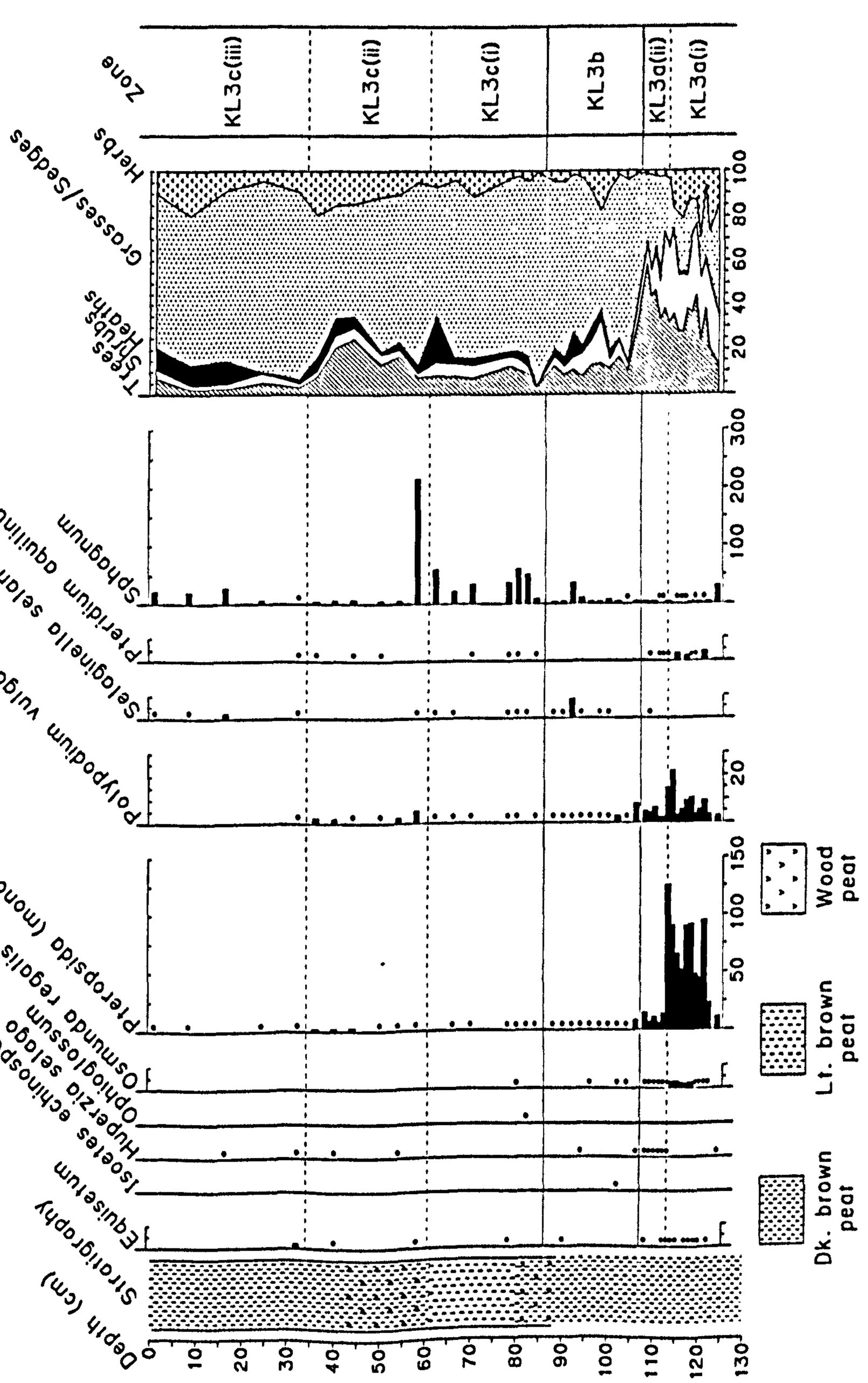


Figure 6.10 continued

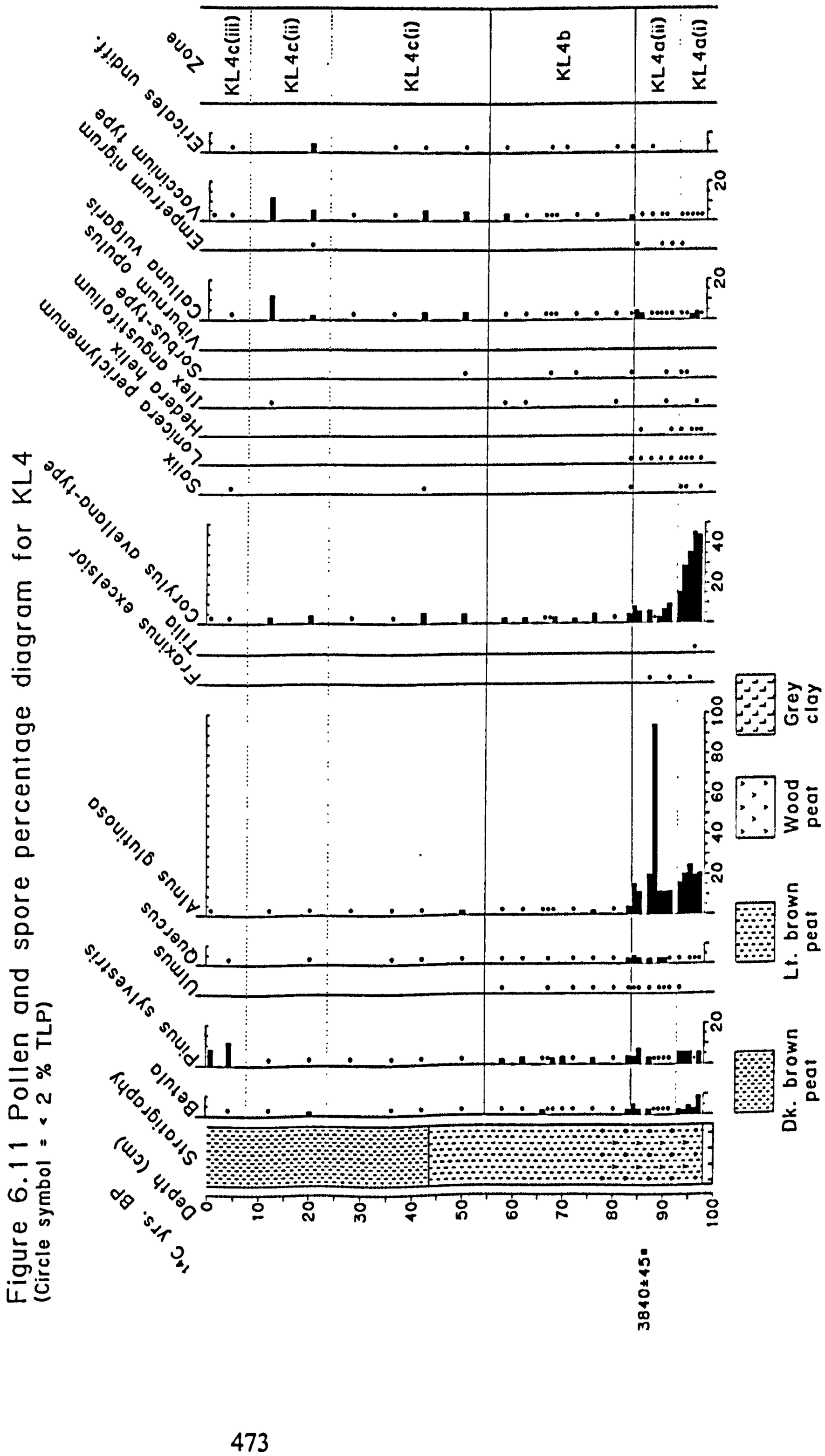
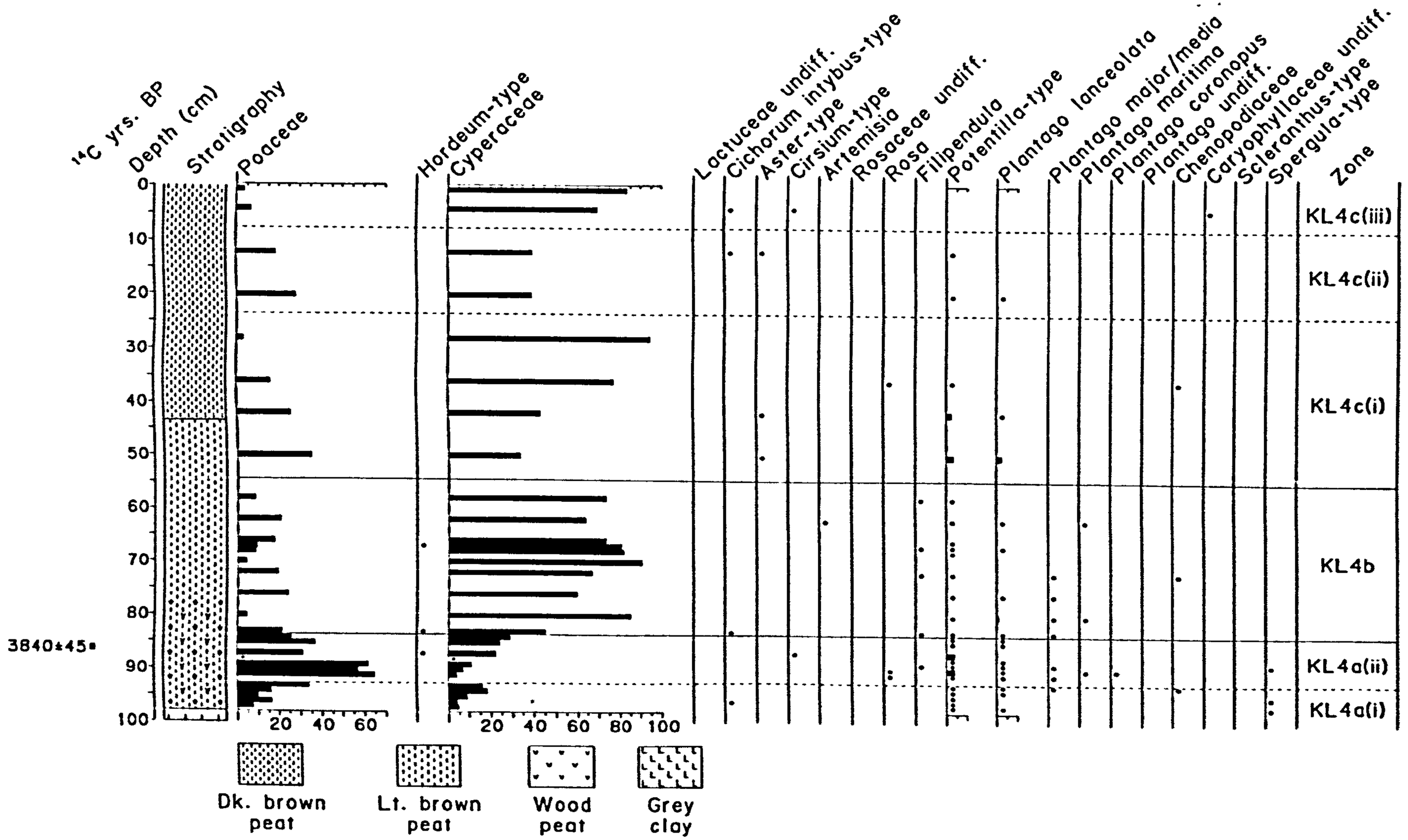


Figure 6.11 Pollen diagram for KL4
(Circle symbol = < 2 % TLP)

Figure 6.11 continued



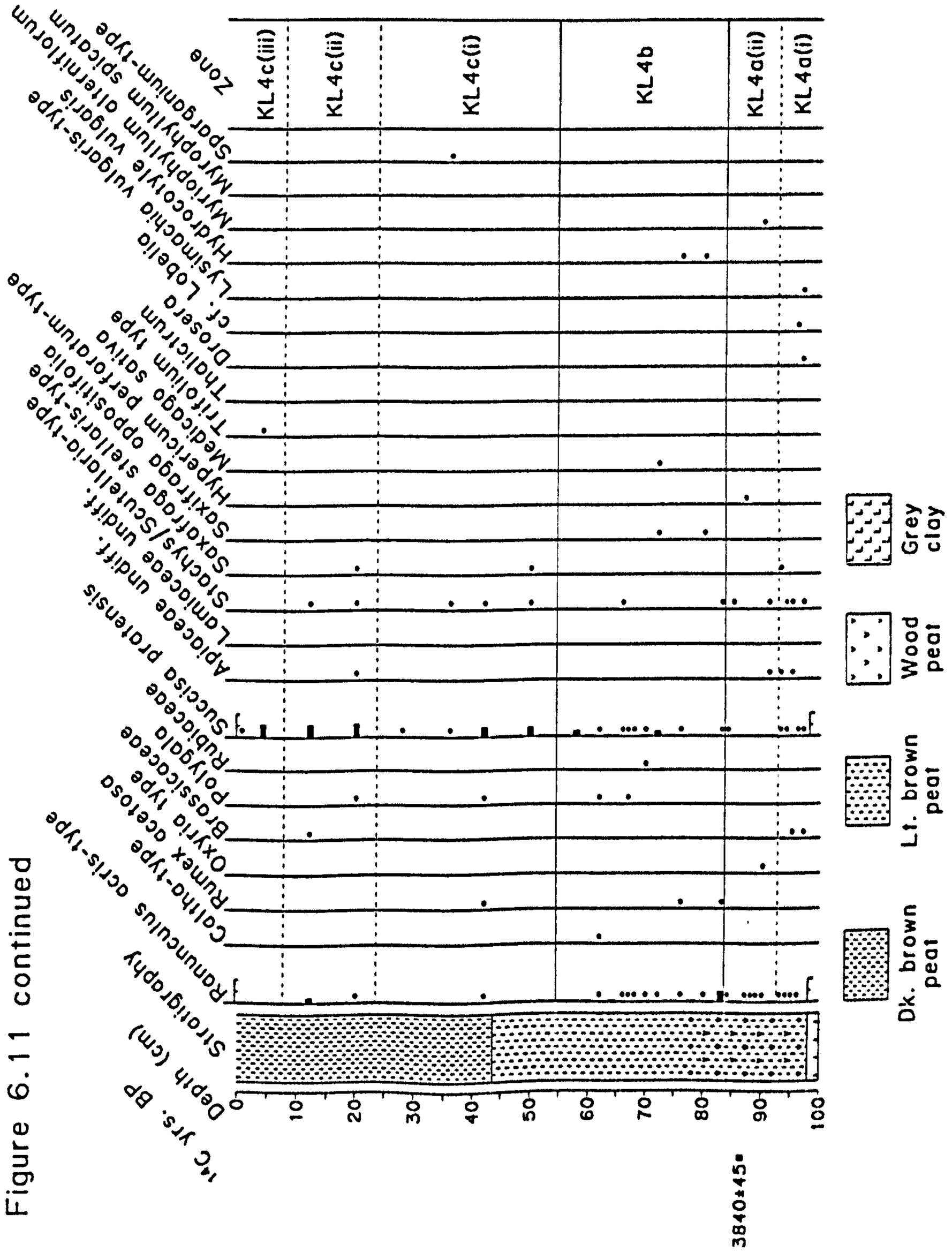


Figure 6.11 continued

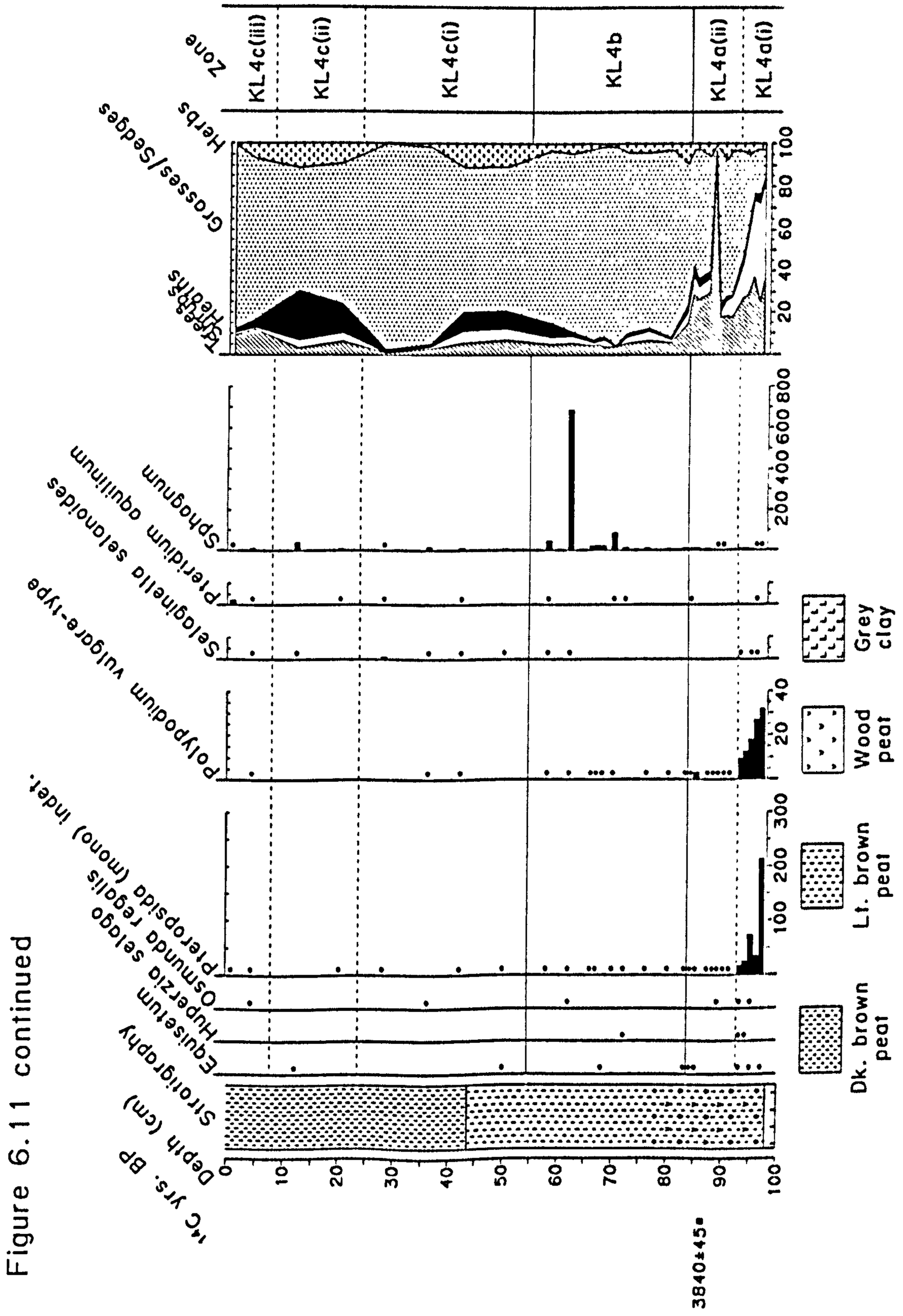


Figure 6.11 continued

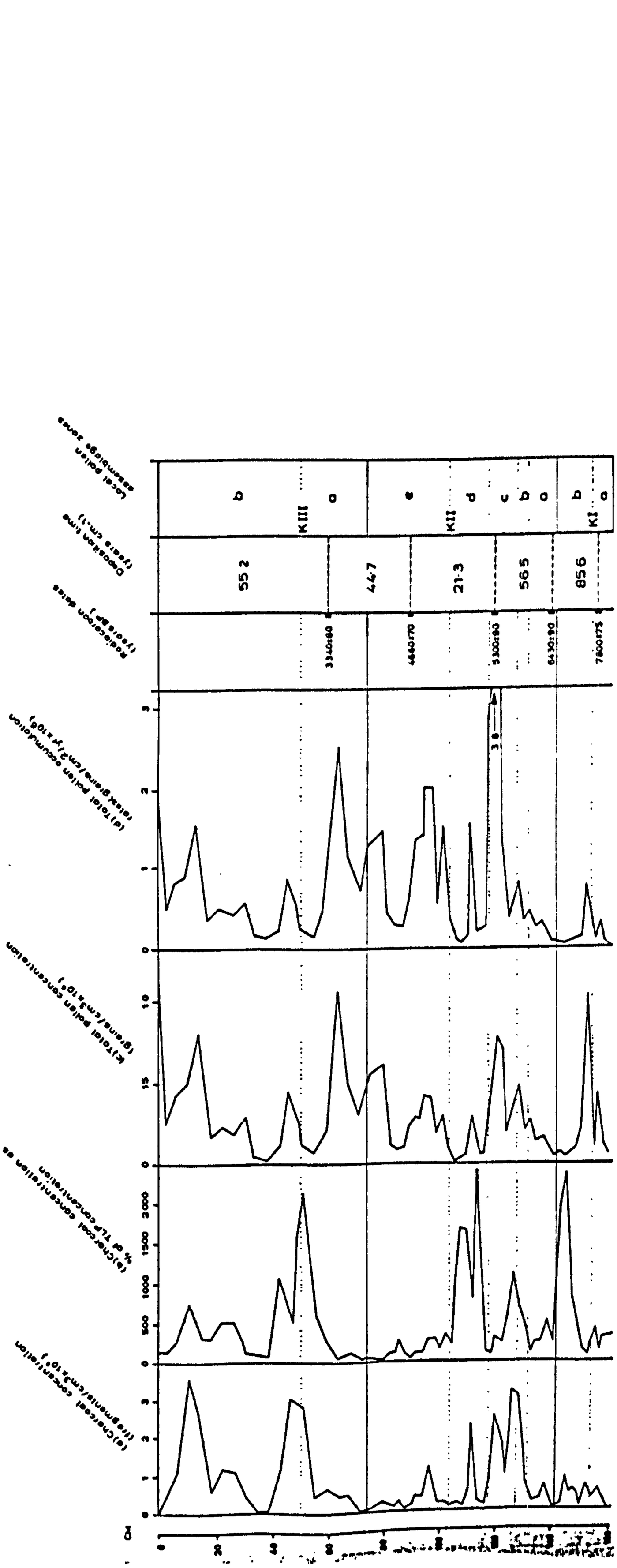


Figure 6.12 Diagram summarizing charcoal, TLP concentration and influx data from core K, Kinloch, Rum. (Edwards and Hirons, 1990).

Figure 6.13 Summary of LOI, microscopic charcoal, TLP concentration and damaged pollen data from KL1

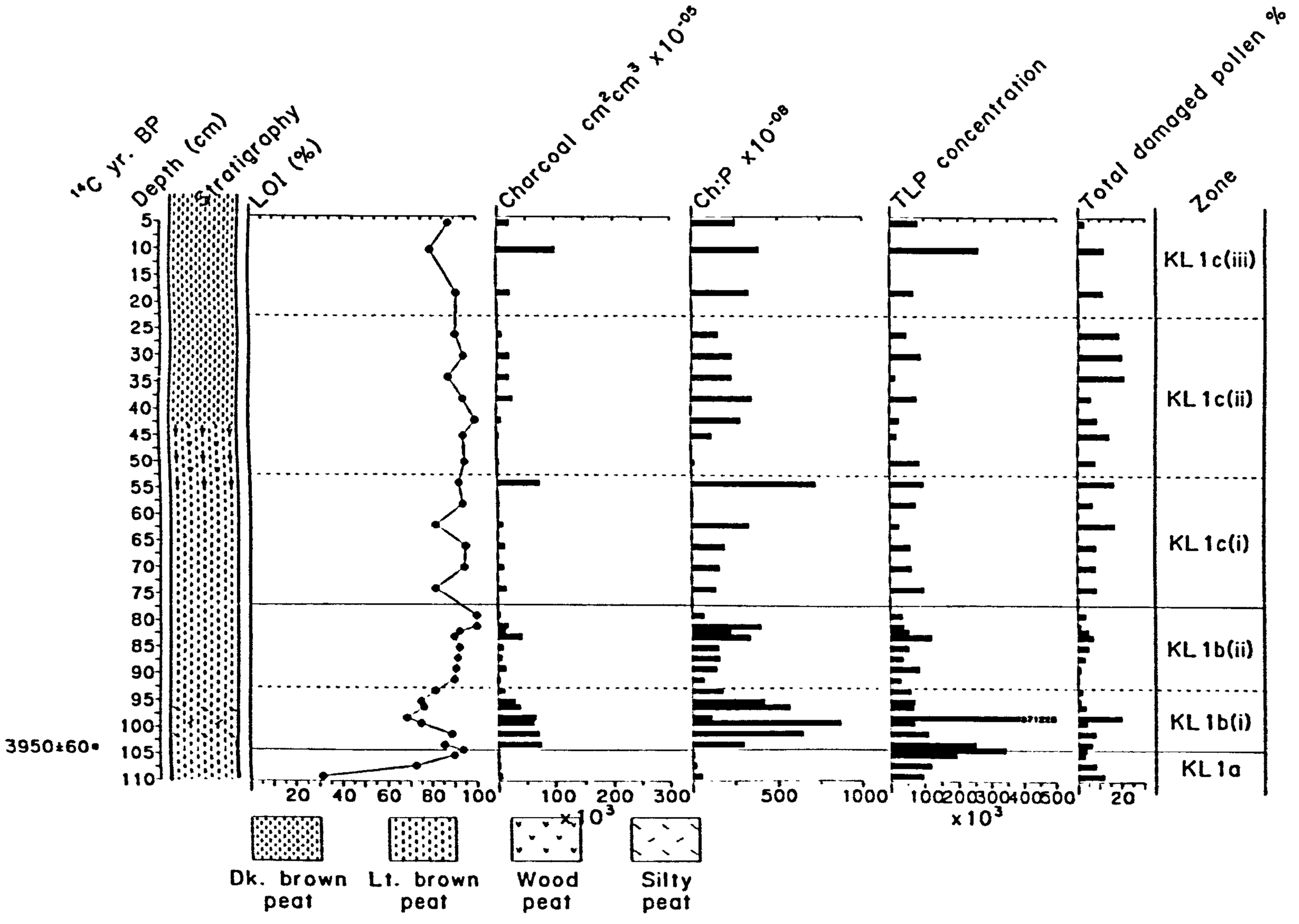


Figure 6.14 Summary diagram of LOI, charcoal, TLP concentration and total damaged pollen for KL3

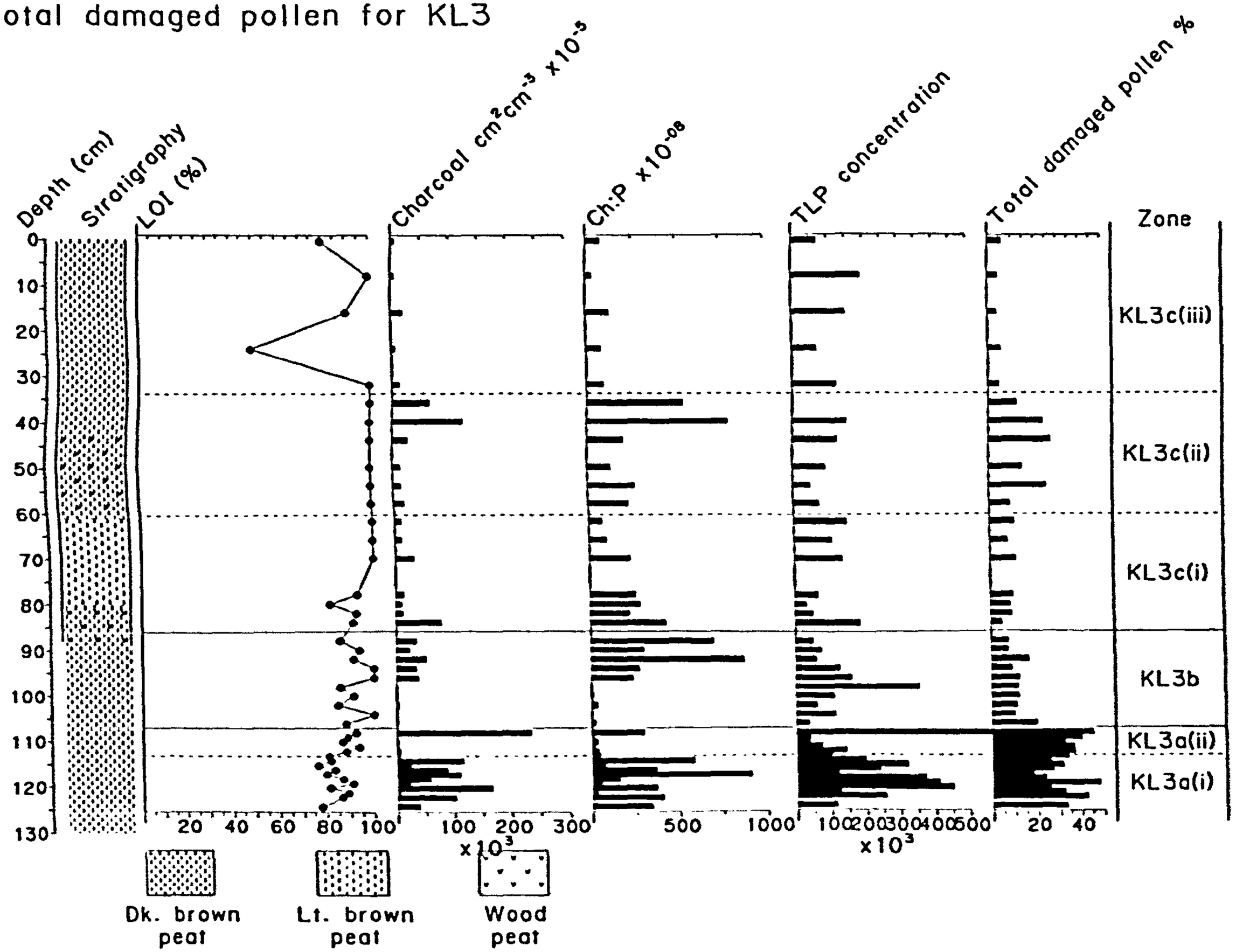


Figure 6.15 Summary of LOI, microscopic charcoal, TLP concentration and damaged pollen data for KL4

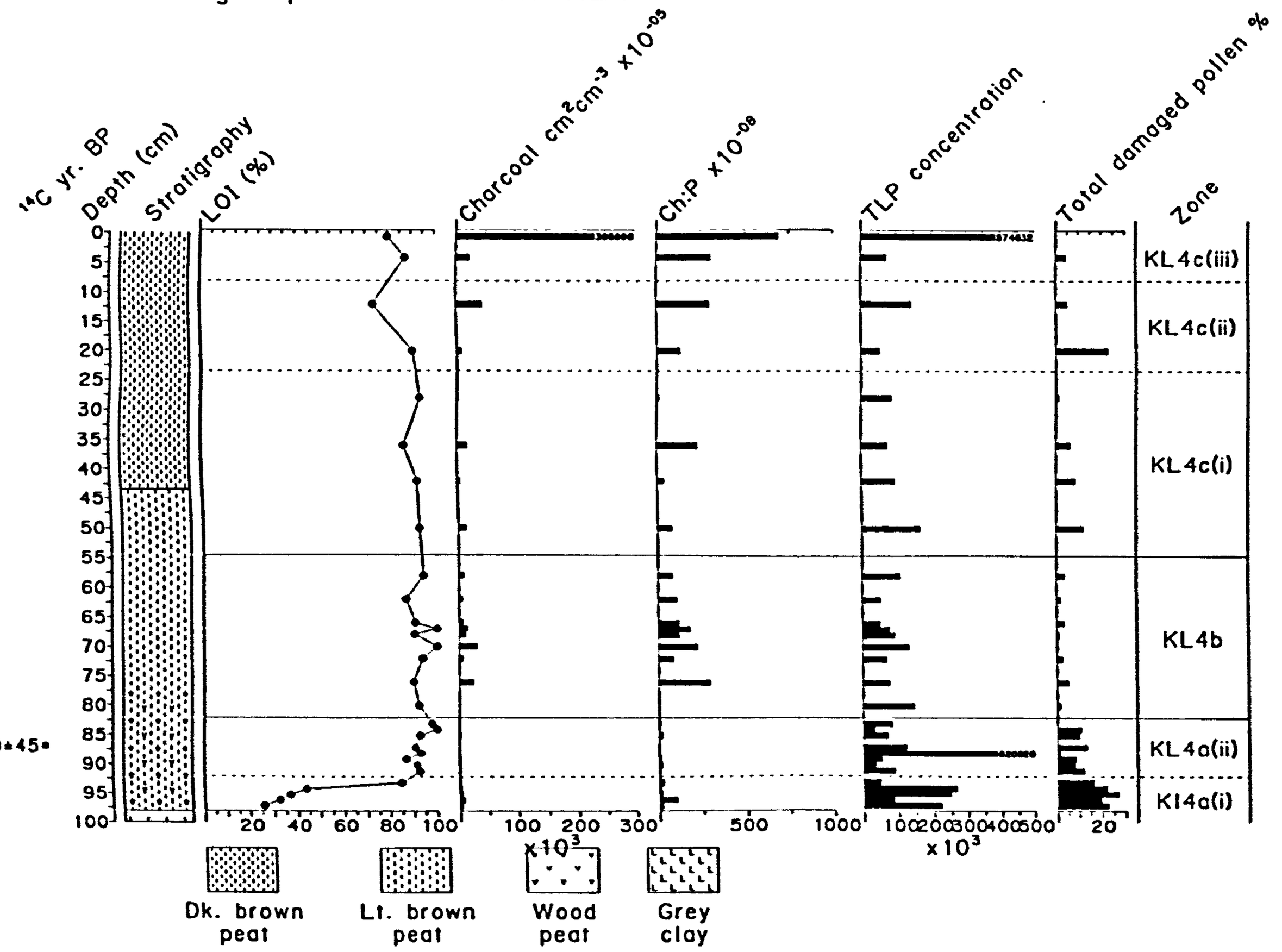


Figure 6.16 Pollen and spore concentration diagram of selected taxa from KL1
(Unshaded exaggeration curve = x10)

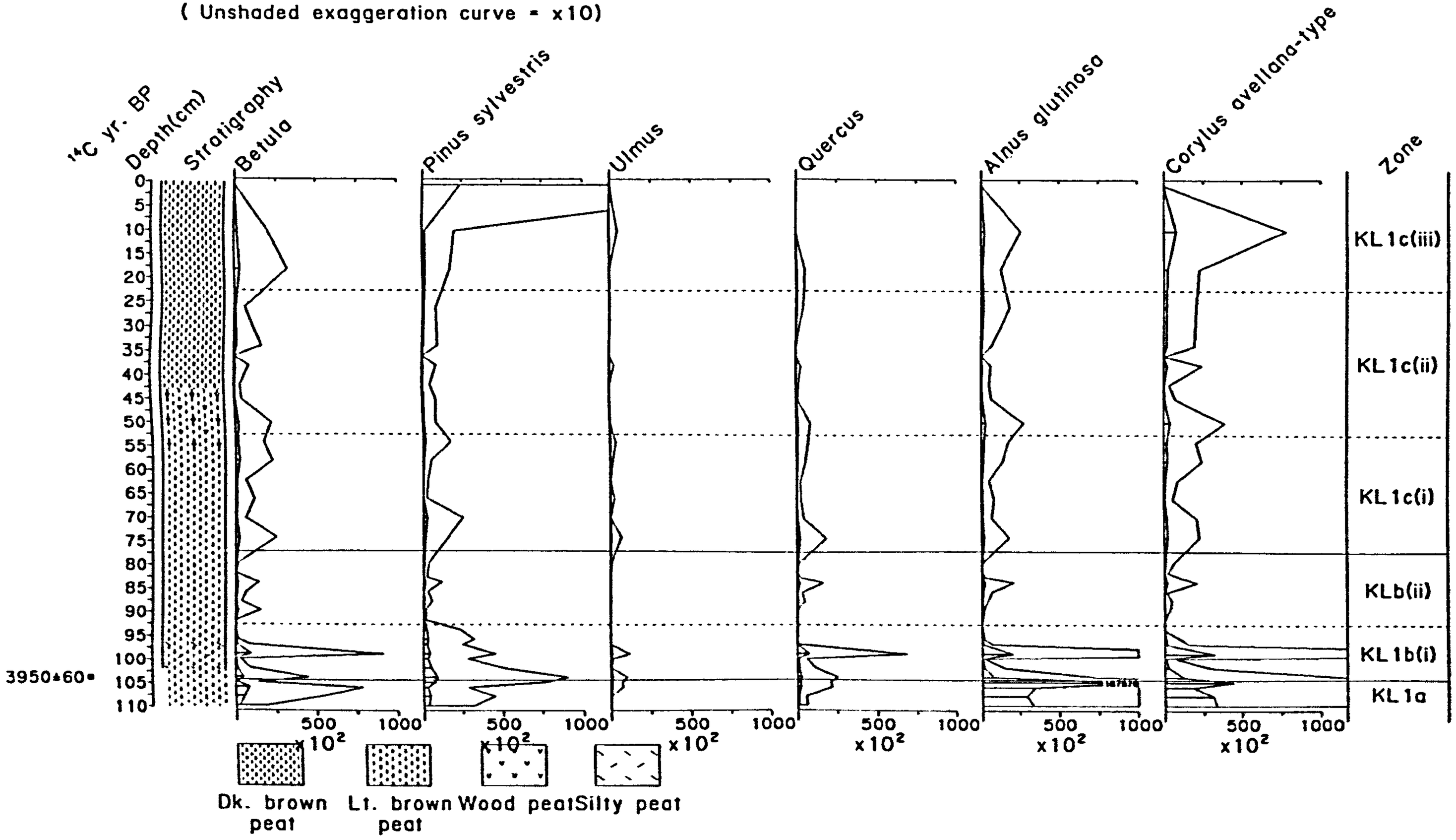


Figure 6.16 continued

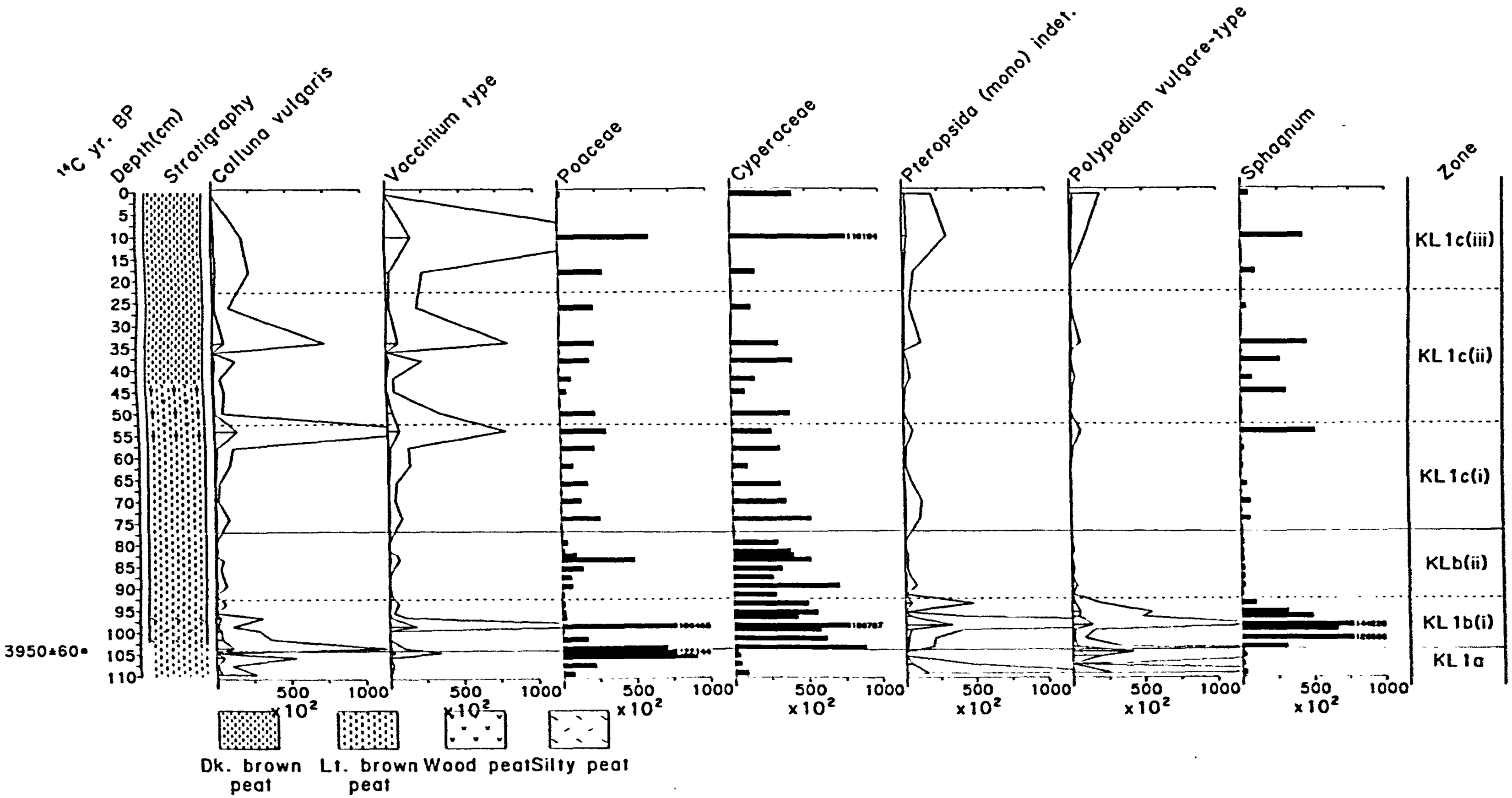
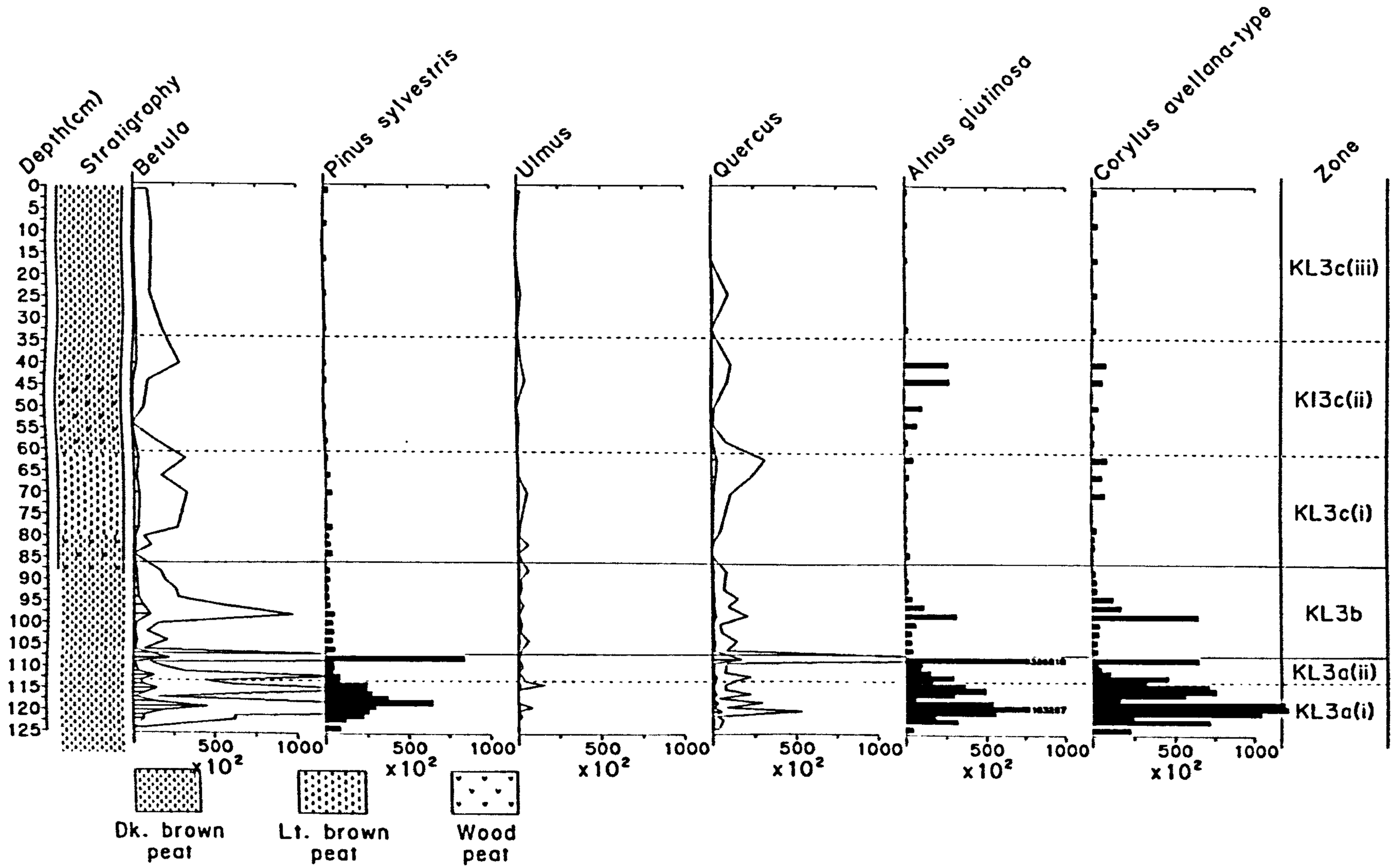


Figure 6.17 Pollen and spore concentration diagram of selected taxa from KL3
(Unshaded exaggeration curves = x10).



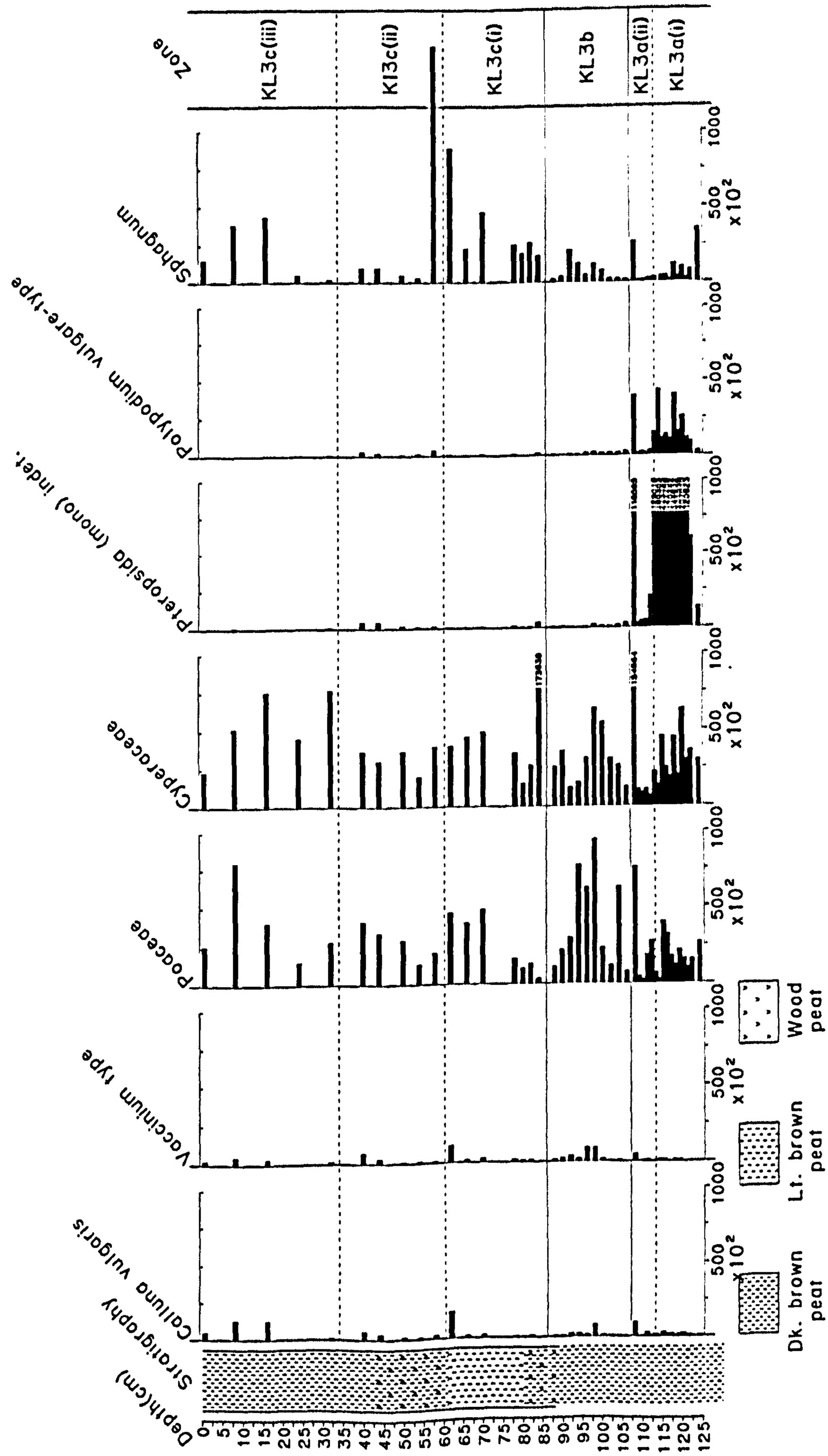


Figure 6.17 continued

Figure 6.18 Pollen and spore concentration diagram for selected taxa from KL4.
(Unshaded exaggeration curves = x10)

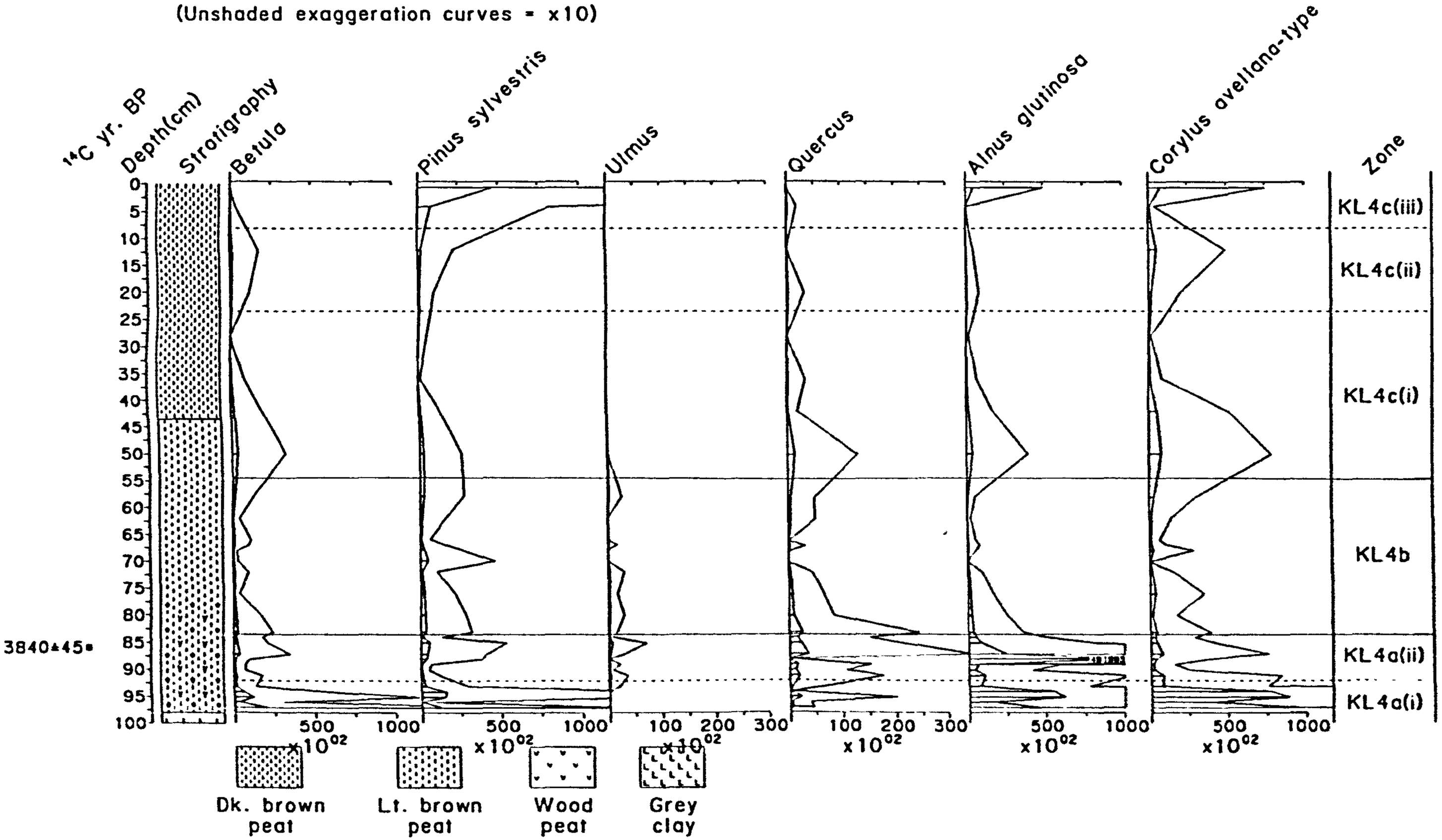


Figure 6.18 continued

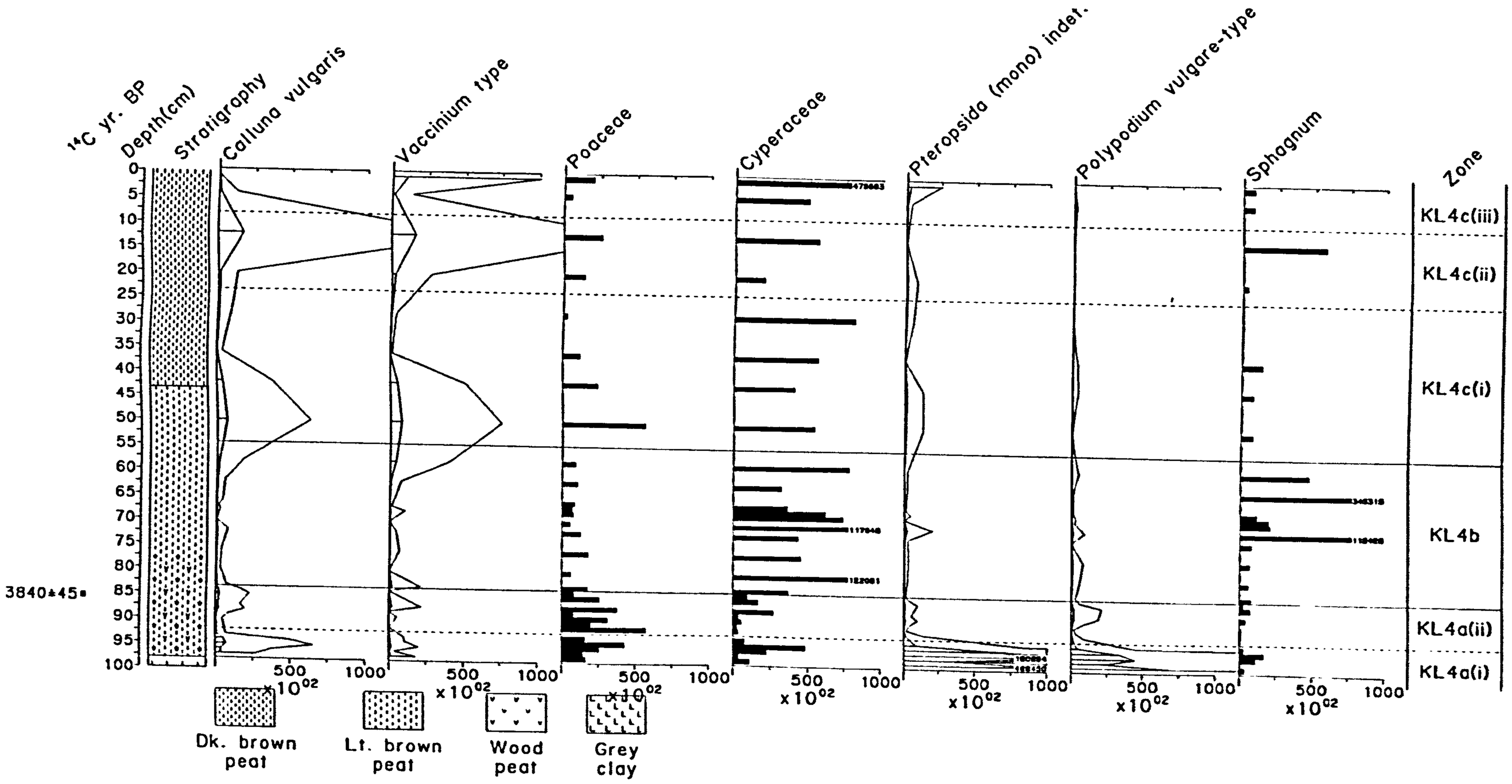
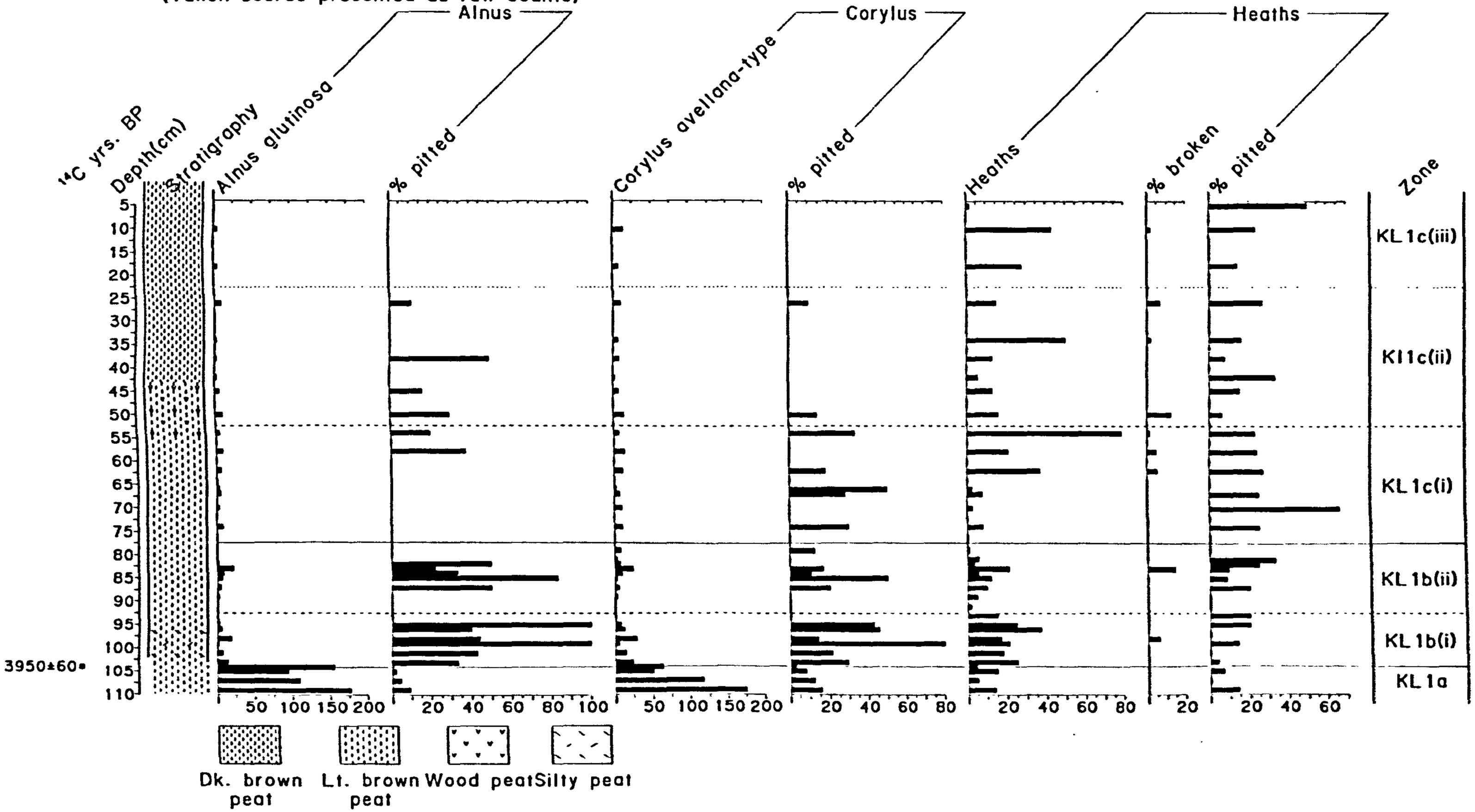


Figure 6.19 Percentage diagram of damaged pollen types for selected taxa from KL1

(Taxon scores presented as raw counts)



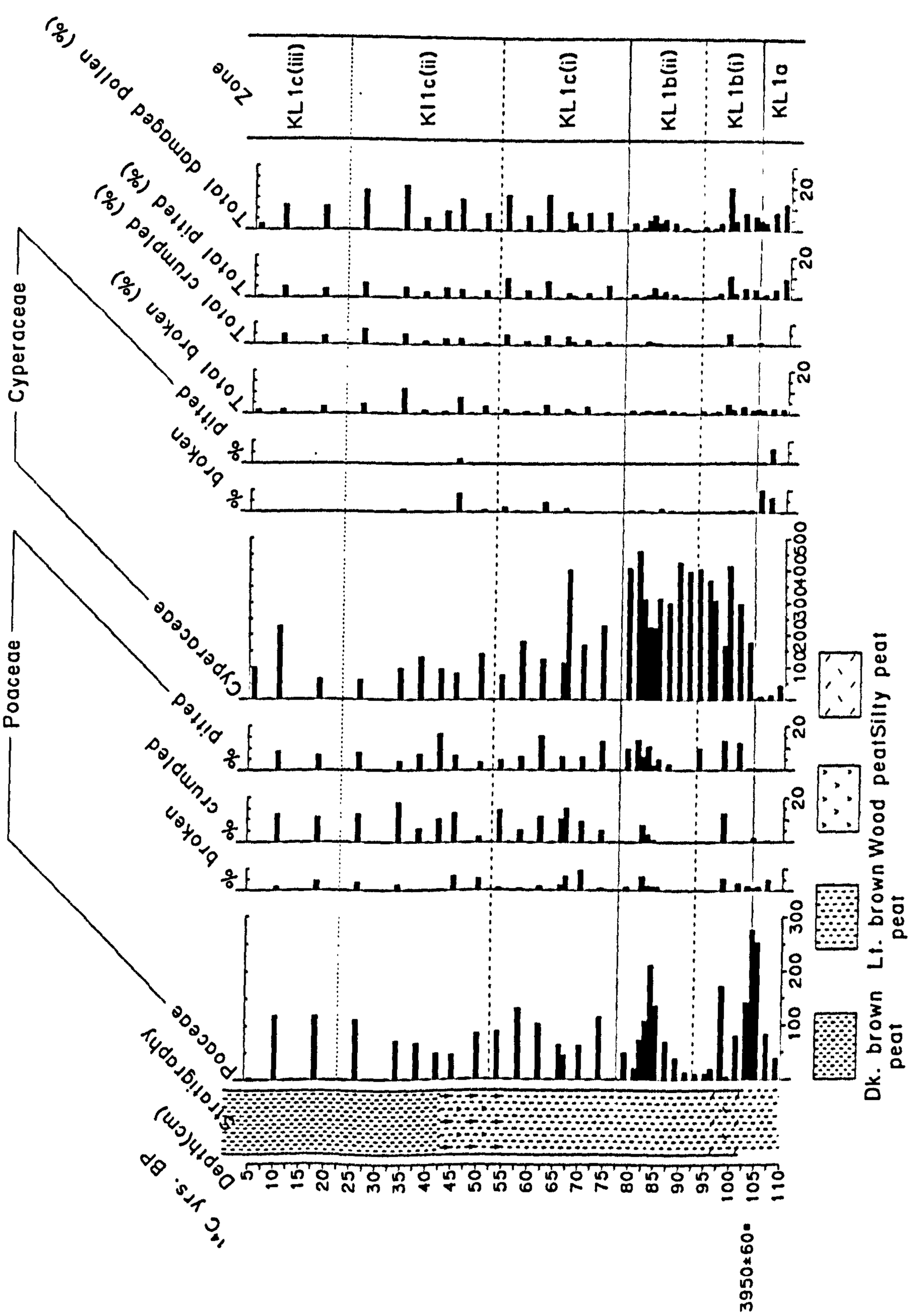


Figure 6.19 continued

Figure 6.20 Percentage diagram of damaged pollen types for selected taxa from KL3
(Taxon scores presented as raw counts)

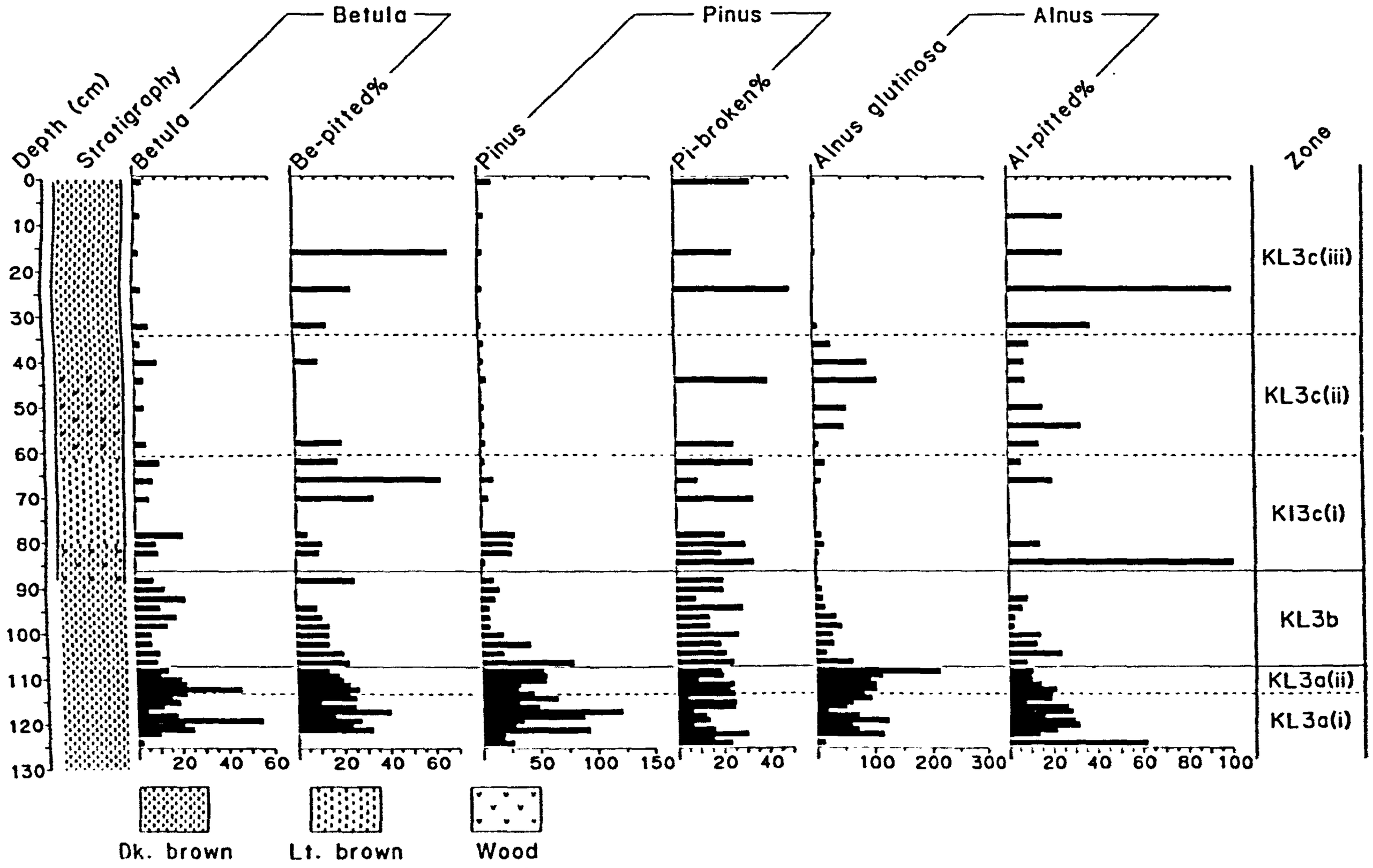


Figure 6.20 continued

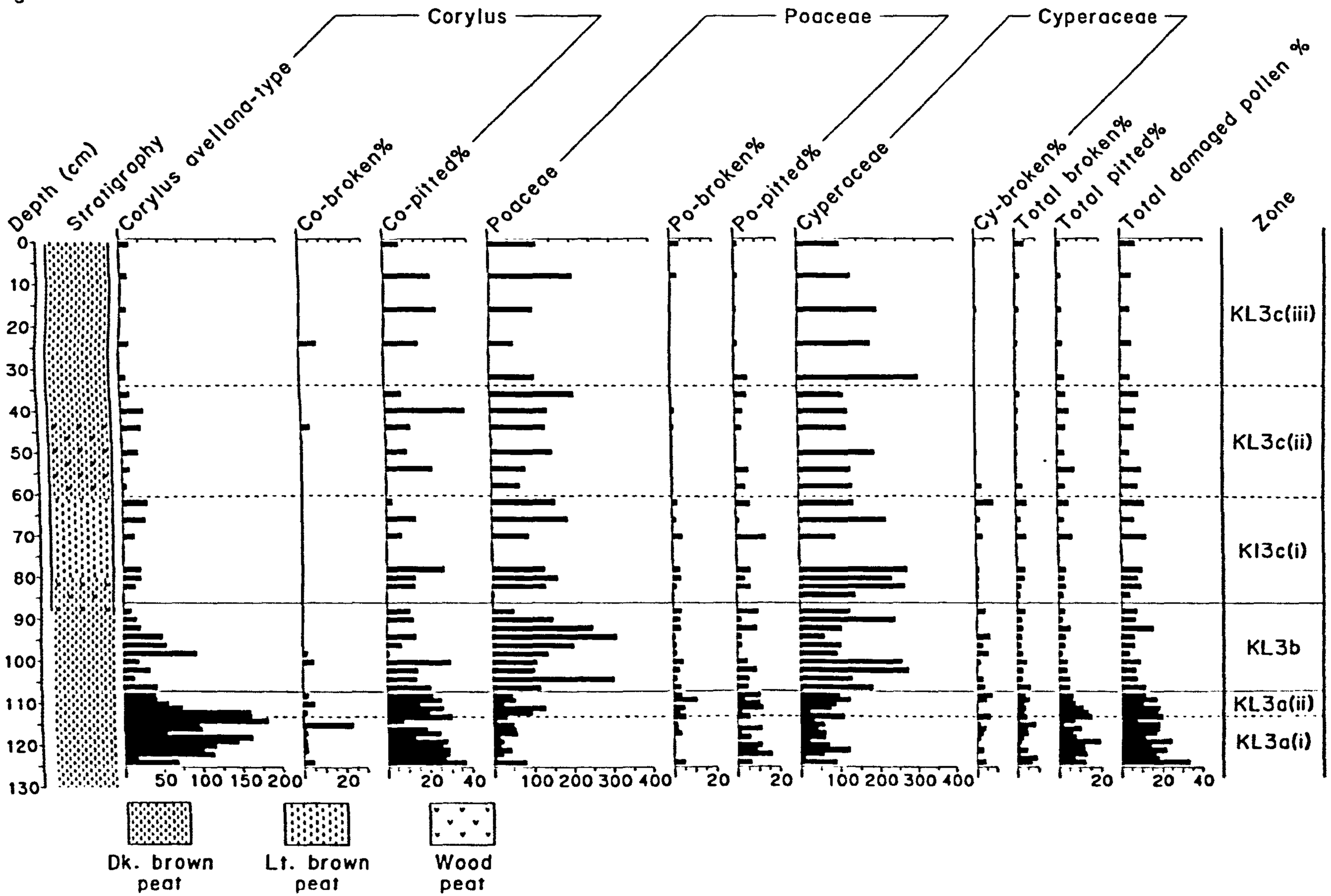
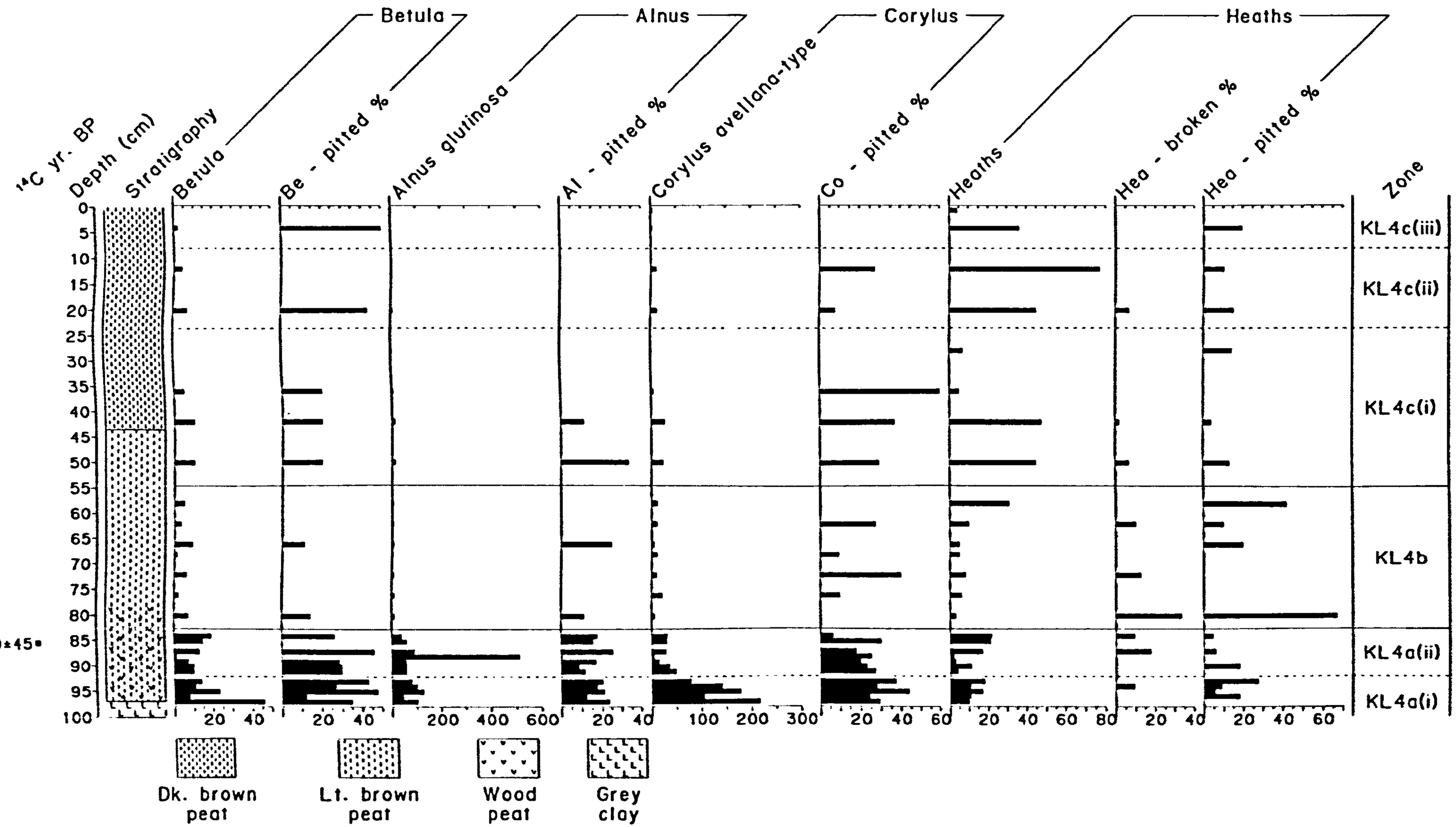


Figure 6.21 Percentages of damaged pollen types for selected taxa from KL4
(Taxon scores presented as raw counts)



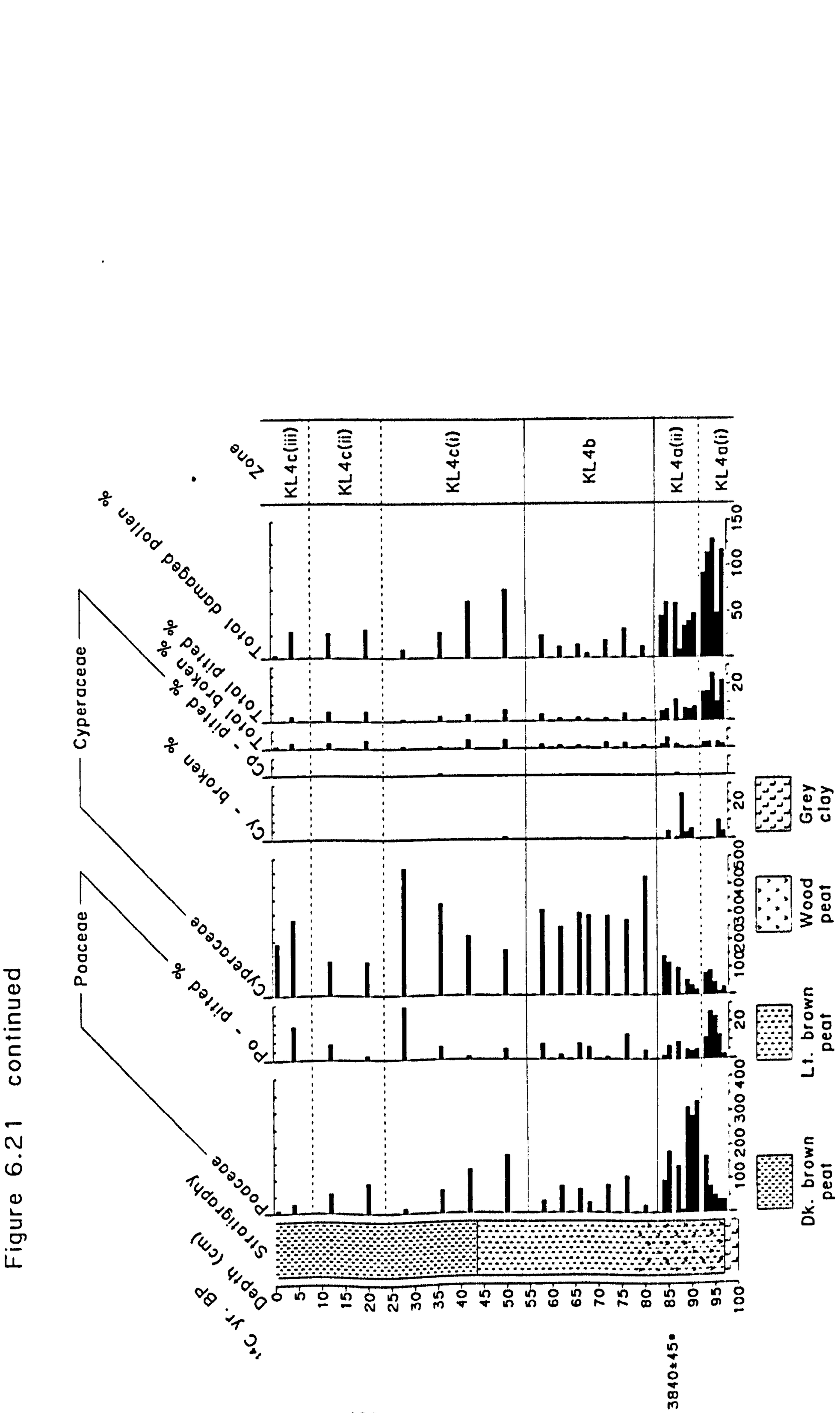


Figure 6.21 continued

Figure 6.23 Diagram linking similar local pollen assemblage zones from Kinloch, Rum

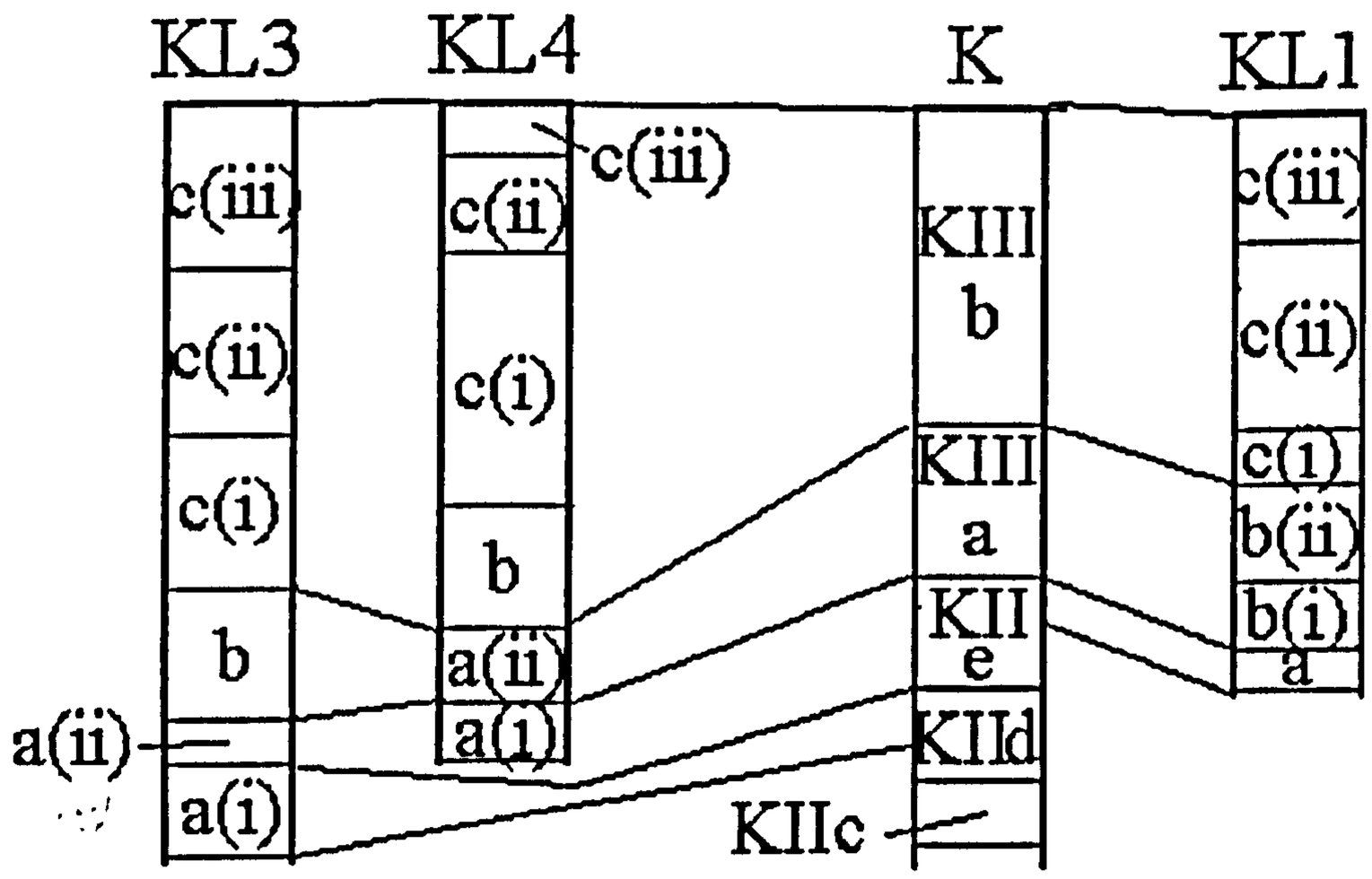


Figure 7.1 Map of sites in western Scotland, Inner Hebrides and Outer Hebrides referred to in the text (Key to sites overleaf)

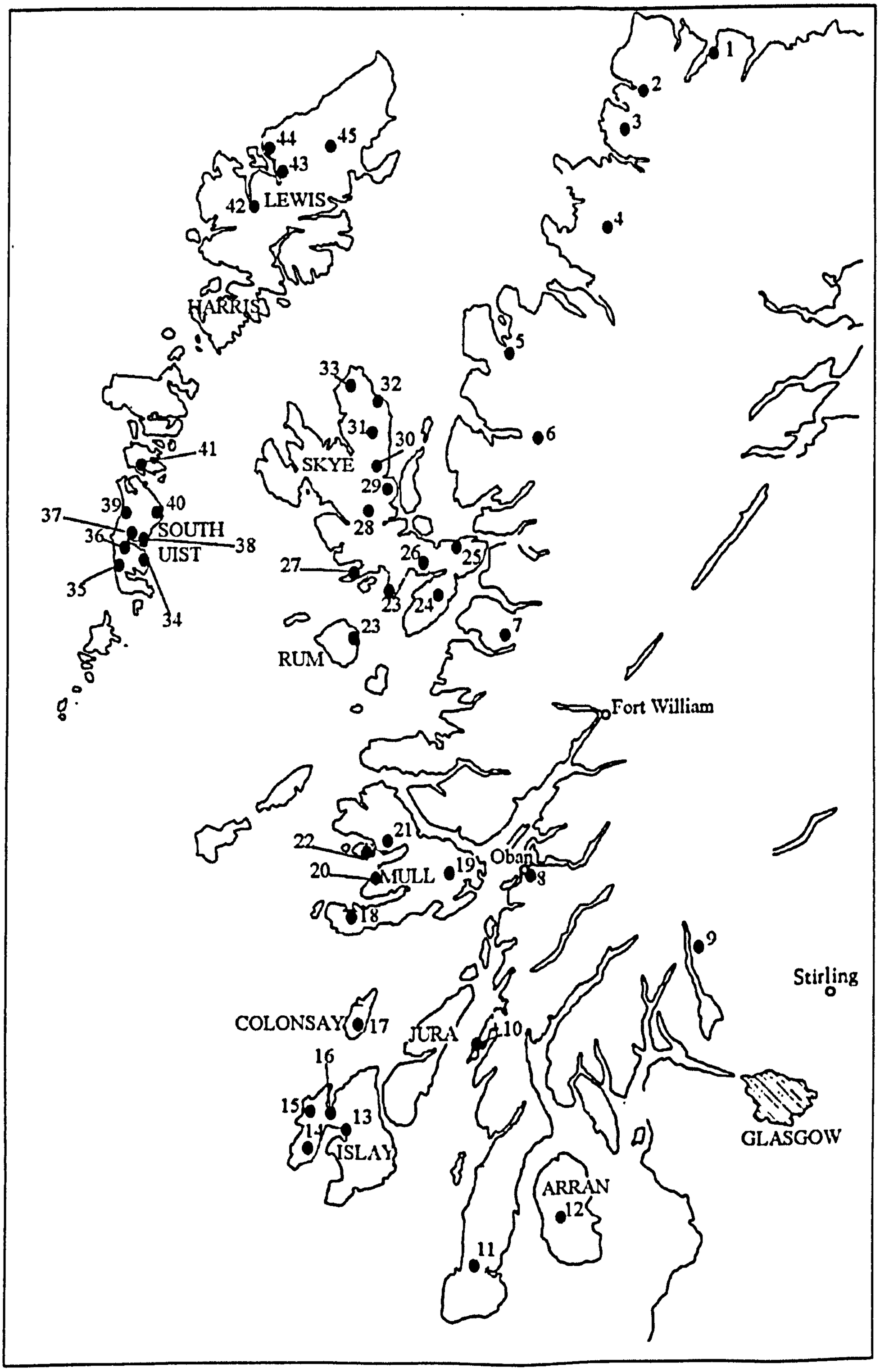
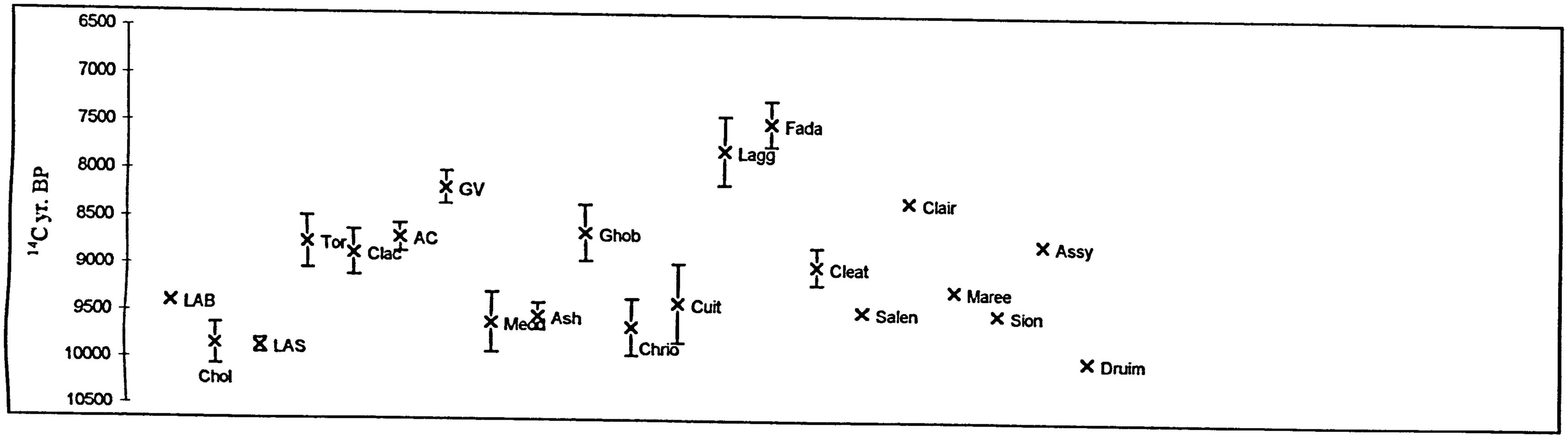


Figure 7.1 continued

Key to sites

1. An Druim, Sutherland 2. Loch Assynt, Sutherland 3. Loch Sionascaig 4. Loch Maree 5. Loch Clair 6. Salen 7. Pulpit Hill and Gallanach Beag, Oban 8. Dubh Lochan, Loch Lomond 9. Drimnagell, Kintyre Peninsula 10. Aros Moss and Rhoin Farm, Kintyre Peninsula 11. Machrie Moor, Arran 12. Newton, Islay 13. Loch a'Bhogaidh, Rhinns of Islay 14. Ballinaby, Loch Gorm, Islay 15. Gruinart Flats, Islay 16. Loch Cholla, Colonsay 17. Loch an t'Suidhe, Bunessan, Mull 18. Coire Claccach and Torness, Mull 19. Gribun, Mull 20. Beinn Reudle, Mull 21. A'Chrannag bog and Livingstone's Cave bog, Ulva 22. Kinloch, Rum 23. Elgol, Skye 24. Loch Meodal, Skye 25. Loch Ashik, Skye 26. Loch Cill Chriosd, Skye 27. Lochan Coir a'Ghobhainn, Skye 28. Glen Varragill, Skye 29. Druim Loch, Skye 30. Loch Fada, Skye 31. Loch Cuithir, Skye 32. Loch Mealt, Skye 33. Loch Cleat, Skye 34. Loch airigh na h-Aon Oidhche, South Uist 35. Loch an t'Sil, South Uist 36.Reineval, South Uist 37. Lochneynort, South Uist 38. Loch Lang, South Uist 39. Penereine, South Uist 40. Phuinnd, South Uist 41. Borve, Benbecula 42. Little Loch Roag, Lewis 43. Callanish, Lewis 44. Loch na Beinne Bige, Lewis 45. Shesader, Lewis

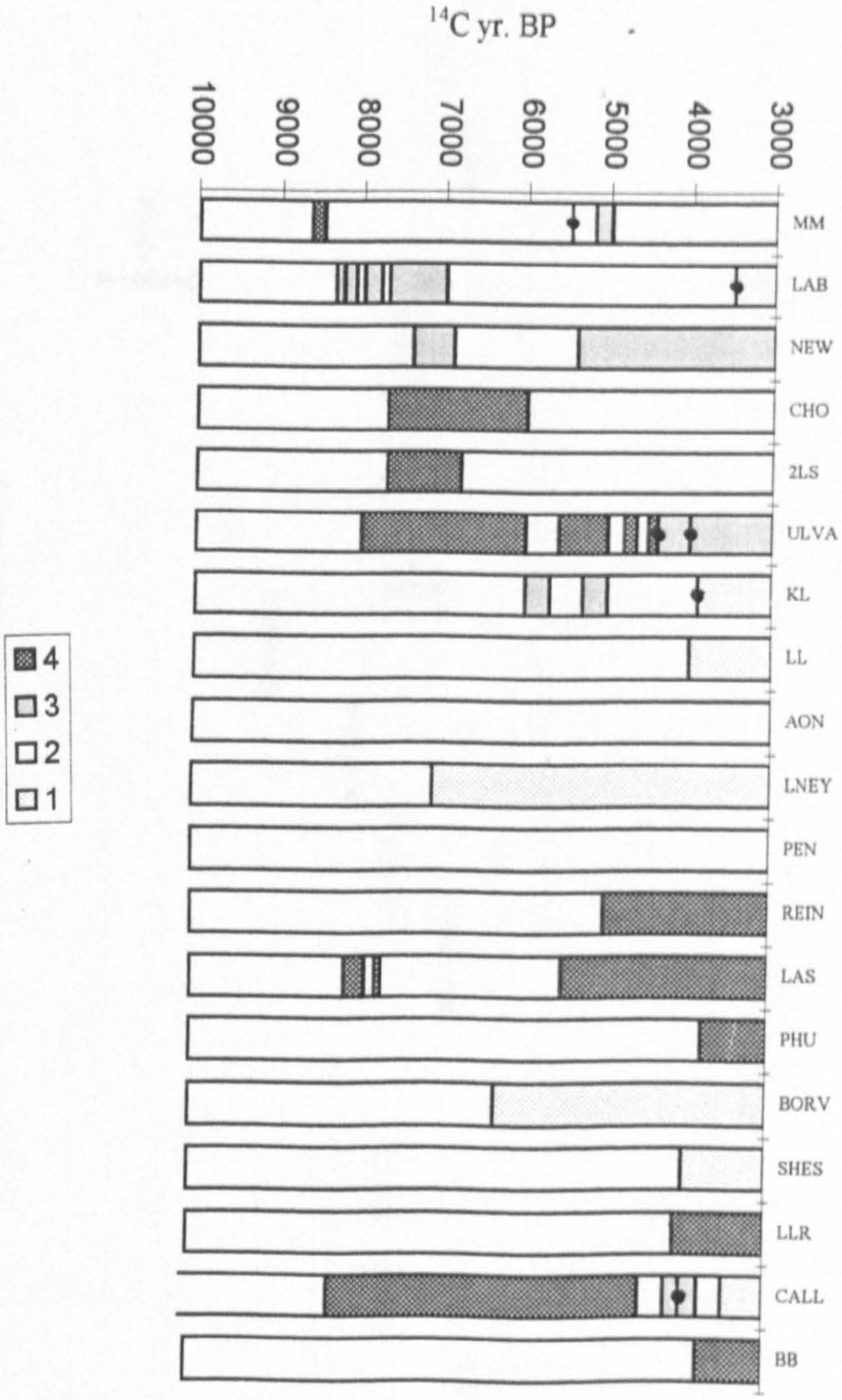
Figure 7.2 Chart of dates for the *Corylus* rise at various sites in the Inner Hebrides and western Scotland (Error bars at 2SD. No error bar = extrapolated date). Order of sites = south-north, Inner Hebrides followed by south - north, western Scotland



Key to sites.

LAB = Loch a'Bhogaidh, Islay. Cho = Loch Cholla, Colonsay. LAS = Loch an t'Suidhe, Mull. Tor = Torness, Glen More, Mull. Clac = Coir Claccach, Glen More, Mull. AC = A'Chrannag, Ulva. Meod = Loch Meodal, Skye. Ash = Loch Ashik, Skye. GV = Glen Varragill, Skye. Ghob = Loch Coir a'Ghobhainn, Skye. Chrio = Loch Cill Chriosd, Skye. Fada = Loch Fada, Skye. Cuit = Loch Cuithir, Skye. Lagg = Coire Laggan, Skye. Cleat = Loch Cleat, Skye. Salen = Loch Salen, west Scotland. Clair = Loch Clair, west Scotland. Maree = Loch Maree, west Scotland. Sion = Sionascaig, west Scotland. Assy = Loch Assynt, Sutherland. Druim = An Druim Loch, Sutherland.

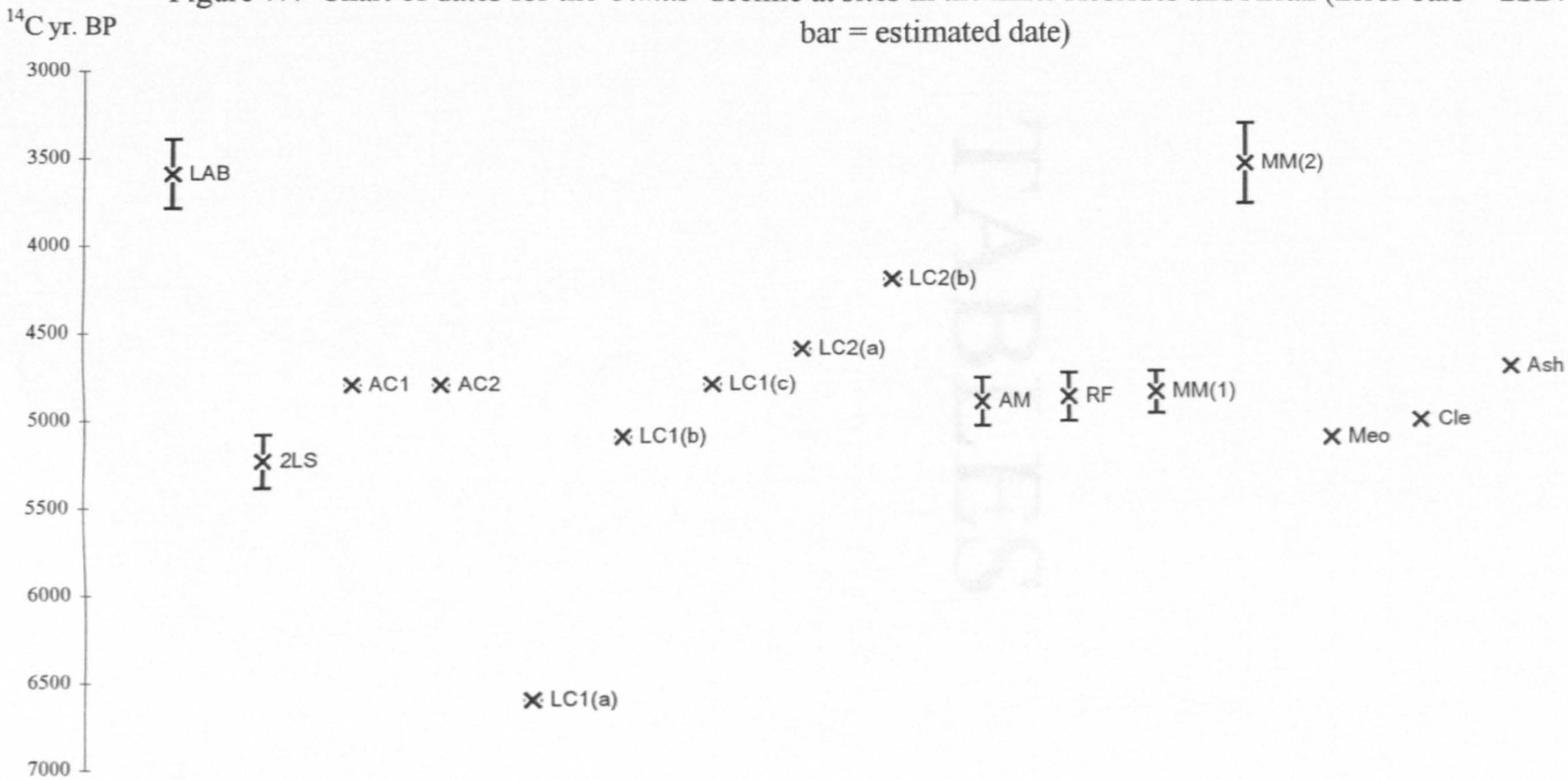
Figure 7.3 Diagram showing phases of possible human impact for the Inner Hebrides and Outer Isles



1 = Permanent grassland 2 = Woodland 3 = Temporary increases in *Calluna* and charcoal 4 = Temporary reduction in woodland and increases in grasses and herbs —●— Cereal-type pollen

MM = Machrie Moor, Arran. LAB = Loch a'Bhogaidh, Rinns of Islay. New = Newton, Islay. 2LS = Loch an t'Suidhe, Ross of Mull. Cho = Loch Cholla, Colonsay. Ulva = A'Chrannag bog and Livingstone's Cave bog, Ulva. KL = Kinloch, Rum. LAS = Loch an t'Sil, South Uist. Lney = Lochneynort, South Uist. Borv = Borve, Benbecula. Call = Callanish, Lewis. LL = Loch Lang, South Uist. LLR = Little Loch Roag, Lewis. BB = Bealuival Beag, Lewis. Phuinnd = Loch Phuinnd, S. Uist. Shes = Shesader, Lewis. Pen = Penereine, South Uist. Rein = Reineval, South Uist. Aon = Loch Airigh na h' Aon Oidhche

Figure 7.4 Chart of dates for the *Ulmus* decline at sites in the Inner Hebrides and Arran (Error bars = 2SD. No error bar = estimated date)



Key LAB = Loch a'Bhogaidh, Islay 2LS = Loch an t'Suidhe, Mull AC1a, AC1b, AC2a, AC2b = A'Chrannag profiles, Ulva LC1a, LC1b, LC2a, LC2b = Livingstone's Cave bog profiles, Ulva
AM = Aros Moss, Kintyre peninsula RF = Rhoin Farm profile, Aros Moss, Kintyre peninsula
MMa and MMb = Machrie Moor profiles, Arran Meo = Loch Meodal, Skye Cle = Loch Cleat, Skye
Ash = Loch Ashik, Skye

TABLES

Table 3.1 - Local pollen assemblage zones for profiles from Loch a'Bhogaidh, Islay

Abbreviations: *Bet* = *Betula*; *Pin* = *Pinus*; *Aln* = *Alnus*; *Cor* = *Corylus*; Poa = Poaceae; Cyp = Cyperaceae; Ast = Asteraceae; *Cic* = *Cihorium intybus*-type; Car = Caryophyllaceae; *Iso* = *Isoetes lacustris*.

LABI			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABIc(ii)	586 - 508	*Bet* - *Cor* - *Iso*	c. 6940 - 6000
LABIc(i)	850 - 586	*Bet* - *Cor* - *Iso*	c. 9780 - 6940
LABIb(ii)	910 - 850	*Bet* - Poa - Cyp	c. 9700 - 9400
LABIb(i)	964 - 910	*Bet* - Poa - Cyp	c. 10000 - 9700
LABIa(ii)	1024 - 964	Cyp - *Cic*	c. 11750 -10000
LABIa(i)	1084 - 1024	Cyp - *Cic*	c.12430 - 11750
LABII			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABIIe	**196 - 252**	*Pin* - Cyp	
LABIId(ii)	279 - 252	*Bet* - *Cor*	
LABIId(i)	339 - 279	*Bet* - *Cor*	
LABIIc	354 - 339	*Bet* - Poa	
LABIIb	434 - 354	Cyp - Ast - Car	
LABIIa	490 - 354	Poa - Cyp	
LABIII			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABIIId	376 - 388	*Bet* - *Pin* - Cyp	c. 7300 - 7100
LABIIIc	388 - 402	*Cor* - Cyp - *Iso*	c. 7700 - 7300
LABIIIb(iii)	402 - 408	*Cor*	c. 8700 - 7700
LABIIIb(ii)	438 - 455.5	*Cor*	c. 9200 - 8700
LABIIIb(i)	455.5 - 463.5	*Cor* - Cyp	c. 9400 - 9200
LABIIIa	463.5 - 468	*Bet* - Poa - Cyp	c. 9550 - 9400

Table 3.1 continued

LABIV			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABIVd	377 - 386.5	*Cor*	c. 7000 - 6250
LABIVc	386.5 - 397.5	*Pin* - Cyp - *Iso*	c.7700 - 7000
LABIVb(ii)	397.5 - 408.5	*Cor* - Cyp	c. 8550 -7700
LABIVb(i)	408.5 - 420.5	*Cor*	c.9300 - 8550
LABIVa	420.5 - 433	*Bet* - Poa - Cyp - *Fil*	c.9650 - 9300
LABV.			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABVd	355 - 363	*Bet* - Cyp - *Iso*	c.7210 - 7000
LABVc(ii)	363 - 371	*Bet* - *Cor* - Cyp	c.7500 - 7210
LABVc(i)	371 - 382.5	*Cor*	c.7800 - 7500
LABVb(iii)	382.5 - 394	*Cor*	c.8000 - 7800
LABVb(ii)	394 - 405	*Cor* - *Iso*	c.8000 - 8300
LABVb(i)	405 - 416.5	*Cor*	c.9000 - 8300
LABVa	416.5 - 427	*Bet* - Poa - Cyp	c.9600 - 9000
LABVI.			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABVId	395 - 402.5	*Cor*	c. 7300 - 6800
LABVIc	402.5 - 410	*Pin* - *Cor* - *Iso*	c. 7900 - 7300
LABVIb(ii)	410 - 424	*Cor*	c. 9000 - 7900
LABVIb(i)	424 - 436.5	*Cor*	c. 9250 - 9000
LABVIa	436.5 - 446	*Bet* - Poa - Cyp - *Fil*	c. 9600 - 9250

Table 3.1 continued.

LABVII			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABVIId(ii)	940 - 969	*Aln* - Cyp	c.7170 -
LABVIId(i)	969 - 988	*Pin* - *Cor* -	c.7350 -
LABVIIc	988 - 1034	*Cor* - Cyp	c.7700 -
LABVIIb(ii)	1034 - 1148	*Cor* - *Iso*	c.8800 -
LABVIIb(i)	1148 - 1178	*Cor*	c.9150 -
LABVIIa	1178 - 1210	*Bet* - *Poa* -	c.9800 -

LABVIII.			
Zone	**Depth (cm)**	**Assemblage**	**Date (^{14}C yr. BP)**
LABVIIId	720 - 747	*Cor*	c. 7300 - 6650
LABVIIIc	747 - 782	*Cor* - Cyp - *Iso*	c. 7700 - 7300
LABVIIIb	782 - 881	*Cor*	c. 9350 - 7700
LABVIIIa	881 - 930	*Bet* - Poa - Cyp	c.10,000 - 9350

Table 3.2 Radiocarbon dates for LABI, Loch a'Bhogaidh (Edwards and Berridge, 1994)

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
I-15290	120 - 130	520±80
I-15258	240 - 250	1570±80
I-15257	360 - 370	3590±100
I-15256	480 - 490	5910±120
I-15255	720 - 730	8360±190
I-15254	945 - 955	10910±450

Table 3.3 Radiocarbon dates for profiles LABIII to LABVIII, Loch a'Bhogaidh

LABIII

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
AA-25526	463 - 464	9415±65
AA-25527	403 - 404	8215±80
AA-25528	397 - 398	7720±70
AA-25529	391 - 392	7710±100

LABIV

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
AA-25530	422.5 - 423.5	9565±75
AA-25531	408 - 409	8545±70
AA-25532	401 - 402	8000±70
AA-25533	397 - 398	7670±70
AA-25534	390.5 - 391.5	7350±70
AA-25535	386 - 387	7080±80

LABV

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
AA-25536	403 - 404	8270±70
CAMS-46743	362.5 - 363.5	7260±50

LABVI

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
AA-25537	436 - 437	9255±75
AA-25538	426 - 427	9000±75
AA-25539	415 - 416	8155±80
AA-25540	408 - 409	7690±120

Table 3.3 continued

LABVII

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
AA-25518	1199.5 - 1200.5	9615±65
AA-25519	1187.5 - 1188.5	9410±90
AA-25520	1170.5 - 1171.5	9030±65
AA-25521	1073.5 - 1074.5	7955±65
AA-25522	1050.5 - 1051.5	7860±60
AA-25523	1033.5 - 1034.5	7695±60
AA-25524	1011.5 - 1012.5	7505±60

LABVIII

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
AA-25525	881 - 882	9360±75

Table 3.4 Characteristics of Feature 1, c. 9000 BP (8230 cal. BC) in the Loch a'Bhogaidh profiles. (Blank spaces = no change)

	LABVII b(i)	LABVIIIb	LABIII b(ii)	LABIV b(i)	LABVb(i)	LABVI b(i)
% hazel	70-55%		a. 65-55% b. 70-60%		60 - 40%	80 - 65%
conc. hazel	130,000-50,000	100,000 - 70,000	a &b 70,000 - 50,000	125,000 - 65,000	120,000 - 50,000	300,000 - 100,000
TLP influx	-	100,000 - 50,000	-	300,000 - 25,000	Present	100,000 - 50,000
TD%		Small increase	a. Small increase b. None			
Ch:P					Slight increase	
LOI		30-15%	a. 40-80% b. Down 20%	30 - 15%	25 - 12%	Inc. 30 - 40%
Lithology						
Taxon increases	% only *Ul*, *Qu*	-	a. *Ul, Qu, Is*, Cy b. Po, Cy		*Ul, Is*	*Pi, Ul.*

Be = *Betula, Pi* = *Pinus*, *Ul* = *Ulmus, Qu* = *Quercus*, Po = Poaceae, Cy = Cyperaceae, *Is* = *Isoetes lacustris.*

Table 3.5 Summary of data for Features 2 - 6 in Loch a'Bhogaidh pollen profiles (Blank space = no change)

	Feature 2	Feature 2	Feature 3	Feature 4	Feature 5	Feature 5	Feature 6
Core	**IVb(ii)**	**VIIb(ii)**	**Vb(ii)**	**VIb(ii)**	**IVb(ii)**	**VIIb(ii)**	**IId(i)**
% hazel	75 - 58	65 - 45	60 - 40	70 - 60	70 - 50	65 - 50	60 - 45 %
conc. hazel grains/cm^3	125,000 - 50,000		30,000 - 12500	60,000 - 40,000	50,000 - 25,000		50,000 - 10,000
TD %				20 - 30		10 - 30	
Ch:P	Slight inc.		Slight inc.			Increase	Increase
LOI	20 - 10 %		20 - 10 %	30 - 18%	Inc. 30 - 60 %		c. 20 - 10 %
Lithology			Yellow gyttja				Clay
Taxon increases	*Pi. Ul, Qu*, Cy, slight *Is*	Po, Cy, *Fil, Eq*, Py	*Pi, Ul,* Po, Cy, *Eq. Is* 50,000 -	*Ul, Qu,* Cy. *Is* slight.	Cy, *Fil*	Po, Pmi	Cy, *Is* .
Estimated date (^{14}C yr. B)	8500	c. 8500	8300	8200	8000	c. 8000	? c. 8500 - 8200

Be = *Betula, Pi* = *Pinus, Ul* = *Ulmus, Qu* = *Quercus*, Po = Poaceae, Cy = Cyperaceae, *Fil* = *Filipendula, Eq* = *Equisetum, Is* = *Isoetes lacustris, Py* = *Polypodium*, Pmi = Pteropsida (mono) indet.

Table 3.6 Summary of the characteristics of Feature 7, c. 7700 - 7300 BP (6600 - 6190 cal. BC) in the Loch a'Bhogaidh profiles. (Blank spaces = no change)

	LABIc(i)	LABVIIc	LABVIIIc	LABIIIc	LABIVc	LABVc(i)and (ii)	LABVIc
% hazel	50 - 30	60 - 30	60 - 50	80 - 60	70 - 55	60 - 55	60 - 40
Hazel conc.	30,000-25,000	100,000-20,000	75,000-25,000	50,000-20,000	60,000-20,000	No change ~ 35000	50,000-20,000
TLP influx	No change	23,000 - 5000	Est. 5000-2500	2500 - 1500	2500 - 2000	No change	2500 - 1750
TD %	N/A	10 - 25	Decrease 20 - 10	5 - 25	No change	5 - 15	20 - 30
Ch:P	None	5 - 50	None	25 - 150	None	None	10 - 35
LOI %	Reduction 40 - 20	Reduction 30 - 15	Reduction 30 - 10 %	Stable 20 - 30	Reduction 40 - 15	Stable c. 50	Reduction 40 - 5
Lithology	No change	No change	No change	Yellow gyttja	Greysilty clay	No change	Greysilty clay
Increases in other taxa	*Fil*	*Be, Pi,* Po, Cy, Pmi	*Pi,*Cy, *Py, Is*	*Be, Pi, Ul, Qu, Sx,* Cy, *Fil, Is, Py,*	Cyp, Pmi.	Pmi	*Be,Pi,Ul, Qu,* Po,Cy,*Fil, Is*

Be = *Betula, Pi* = *Pinus, Ul* = *Ulmus, Qu* = *Quercus, Sx* = *Salix*, Po = Poaceae, Cy = Cyperaceae, *Fil* = *Filipendula, Is* = *Isoetes lacustris, Py* = *Polypodium vulgare*-type, Pmi = Pteropsida (mono) indet.

Figure 3.7 Summary of the characteristics of Feature 7 in the Loch a'Bhogaidh profiles, c. 7300 - 7000 BP (6190 - 5870 cal. BC) (Blank space = no change)

	LABIc(i)	LABVIIdi	LABVIIId	LABIIId(i)	LABIVc	LABVd	LABVId	LABIId(ii)
% hazel	Increase 30 - 50	Fluctuating 50 - 10	Increase 50 - 80	Fluctuating 20 - 60	60 - 30	Reduction 60 - 25	Increase 40 - 60	60 - 30
Hazel conc.	No change	Fluctuating 75000-	Inc. 20000 - 50000	~25000	30000 - 10,000	35000 - 15000	Inc. 20000 - 100000	50,000 - 250
TLP influx	No change	Fluctuating 5000-15000	2500 - 5000	1500 - 2500	2500 - < 1000	No change	1500 - 2500	N/A
TD %	N/A	Fluctuating 10 - 20	~ 25	Stable ~ 20	10 - 30	10 - 25	Reduced to c.15	N/A
Ch:P		50 - 5		Falling from peak to c. 50	10 - < 250	10 - 150	Reduced to c. 10	10 - 100
LOI %	No change	~ 35		Fluctuating c. 20 - 40.	Decrease 20 -0	~ 10 rising to 80	Increase to 45 %	40 - 10
Lithology	No change	No change gyttja			Grey silty clay	Yellow gyttja/change to peat	Gyttja	No change
Increases in other taxa	None	*Pi*, Cy, *Py*, Pmi	*Py*	*Be*, *Pi*, Cy, Pmi	*Pi*, Po, Cy, *Fil*, *Is*	*Be*, Cy, *Is*.	None	*Be*, *Pi*, *Ul*, *Qu*, Cy, *Eq*.

Be = *Betula*, *Pi* = *Pinus*, *Ul* = *Ulmus*, *Qu* = *Quercus*, *Sx* = *Salix*, Po = Poaceae, Cy = Cyperaceae, *Fil* = *Filipendula*, *Eq* = *Equisetum*, *Is* = *Isoetes lacustris*, *Py* = *Polypodium vulgare*-type, Pmi = Pteropsida (mono) indet.

Table 4.1 Radiocarbon dates for 2LS, Loch an t'Suidhe, Mull

Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
AA-28149	739.5 - 740.5	9870±75
AA-28150	725.5 - 726.5	7875±60
AA-28151	707.5 - 708.5	6845±55
AA-28152	687.5 - 688.5	6110±65
AA-28153	585.5 - 586.5	5235±55

Table 4.2 Summary of zones for profiles LS (Lowe and Walker, 1986b) and 2LS (this study)

LS zone	Depth (cm)	2LS zone	Depth (cm)	Date (^{14}C yrs. BP)
LS - 7	685 - 554	**2LSd**	588 - 550	c. 5200 - 4550
Alnus - Corylus - Quercus		*Betula - Alnus - Corylus* - Poaceae		
		2LSc	685 - 588	c. 6850 - 5200
		Alnus - Corylus - Betula - Quercus		
LS - 6	718 - 685	**2LSb(ii)**	693 - 685	7000 - 6850
Corylus - Betula		*Corylus - Betula*		
		2LSb(i)	725 - 693	c. 7900 - 7000
		Poaceae - Cyperaceae - *Calluna*		
LS - 5	735 - 718	**2LSa(ii)**	737 - 725	c. 9200 - 7900
Betula - Corylus		*Betula - Corylus*		
		2LSa(i)	740 - 737	c. 9870 - 9200
		Betula - Cyperaceae - *Filipendula*		

Figure 5.1 Local pollen assemblage zones, A'Chrannag basin, Ulva

Key *Bet* = *Betula, Que* = *Quercus, Aln* = *Alnus, Cor* = *Corylus, Call* = *Calluna vulgaris,* Poa = Poaceae, Cyp = Cyperaceae, *Fil* = *Filipendula, Pot* = *Potentilla, Sph* = *Sphagnum*

Zone	Subzone	Depth (cm)	Date (^{14}C yr. BP)	LPAZ
AC1				
	AC1e(ii)	117 - 88	c. 4800 - 4400	*Cor - Call*
AC1e	AC1e(i)	148 - 117	c. 4900 - 4800	*Bet - Cor*
AC1d		183 - 148	c. 5250 - 4900	*Bet - Cor - Call*
AC1c		237 - 183	c. 6900 - 5250	*Bet - Que - Aln*
	AC1b(iii)	249 - 237	c. 7130- 6900	Cor - Poa - Cyp
	AC1b(ii)	262 - 249	c. 7800 - 7130	*Cor* - Poa - Cyp
AC1b	AC1b(i)	284 - 262	c. 8500 - 7800	*Cor - Call - Sph*
AC1a		305 - 284	c. 8700 - 8500	*Bet* - Cyp - *Fil*
AC2				
	AC2c(iii)	155 - 140	c. 2900 - 2200	*Cor* - Cyp
	AC2c(ii)	188 - 140	c. 4200 - 2900	*Ulm - Que - Aln*
AC2c	AC2c(i)	214 - 188	c. 4900 - 4200	*Aln* - Poa
AC2b		240 - 214	c. 5700 - 4900	*Bet* - Poa - *Pot*
AC2a		260 - 240	c. 6300 - 5700	*Bet* - Poa - *Pot*

Table 5.2 Local pollen assemblage zones, Livingstone's Cave bog profiles, Ulva

Key *Bet* = *Betula, Aln* = *Alnus, Cor* = *Corylus,* Poa = Poaceae, Cyp = Cyperaceae, *Cichorium intybus*-type, *Fil* = *Filipendula, Pot* = *Potentilla, Sph* = *Sphagnum*

Where two sets of dates are provided, the first is based on extrapolation from c. 5515 BP, the second from c. 7765 BP.

Zone	Subzone	Depth (cm)	Date (^{14}C yrs BP)	LPAZ
LC1				
LC1e		183.5 - 150	3800 - 3600	*Bet* - Poa - *Pot*
LC1d		205 - 183.5	4000 - 3800	*Aln* - *Cor*
	LC1c(iii)	237 - 205	4900 - 4000/5740 - 4000	*Aln* - *Cor* - Cyp
	LC1c(ii)	312 - 237	5420- 4900/ 7520 - 5740	*Aln* - *Cor* - Cyp
LC1c	LC1c(i)	320 - 312	5515 - 5420/7765 - 7520	*Cor* - Cyp
LC1b		340 - 320	10000 - ?	No pollen
LC1a		370 - 340	11000 - 10000	Cyp - *Cic*
LC2				
LC2f		157 - 140	3600 - 3200 / 2900 - 2500	*Aln* - Cor - Poa
	LC2e(ii)	193 - 157	4100 - 3600 / 4250 - 2900	*Bet* - Cyp - *Fil*
LC2e	LC2e(i)	208 - 192	4280 - 4100 / 4750 - 4250	*Bet* - *Aln* - *Cor* - Poa
	LC2d(ii)	231 - 208	4650 - 4280 / 5700 - 4750	*Aln* - *Cor* - Poa
LC2d	LC2d(i)	252 - 231	4910 - 4650 / 6400 - 5700	*Aln* - *Cor* - Poa
	LC2c(ii)	281 - 252	5350 - 4910 / 7500 - 6400	*Aln* - *Cor* - Poa
LC2c	LC2c(i)	292 - 281	5515 -5350 / 7765 - 7500	*Cor* - Cyp
LC2b		318 - 292	10000 - ?	No pollen
LC2a		330 - 318	11000 - 10000	Cyp

Table 5.3 List of AMS dates for the Ulva profiles

Publication Code	Core	Depth (cm)	Age (^{14}C yr. BP)
AA-28160	AC1	185	5335±60
AA-28159	AC1	266	8025±95
AA-28157	AC1	282	8705±75
AA-28155	AC1	304	8625±75
AA-28162	AC2	187	4235±70
AA-28161	AC2	239	5695±55
AA-28167	LC1	230	4185±75
AA-28165	LC1	318	7765±60
AA-28164	LC1	342	11120±100
AA-28163	LC1	366	10760±85
AA-28169	LC2	154	3010±60
AA-28168	LC2	292	5515±55

Table 5.4 Summary of subzone comparisons between profiles AC1 and AC2

AC1			AC2		
Zone or sub-zone	**Depth (cm)**	**Estimated age (^{14}C yrs. BP)**	**Zone or sub-zone**	**Depth (cm)**	**Estimated age (^{14}C yrs. BP)**
			AC2c(iii)	140 - 115	2900 - 2200
			AC2c(ii)	188 - 140	4200 - 2900
AC1e(ii)	117 - 88	4800 - 4400	AC2c(i)	214 - 188	4900 - 4200
AC1e(i)	148 - 117	4900 - 4800			
AC1d	183 - 148	5250 - 4900	AC2b	240 - 214	5700 - 4900
AC1c	237 - 183	6900 - 5250	AC2a	260 - 240	6300 - 5700
AC1b(ii)	262 - 237	7800 - 6900			
AC1b(i)	284 - 262	8500 - 7800			
AC1a	305 - 284	8700 - 8500			

Table 5.5 Summary of subzone comparisons for profiles LC1 and LC2, Ulva

LC1			LC2		
Zone or sub-zone	**Depth (cm)**	**Estimated age (yrs. BP)**	**Zone or sub-zone**	**Depth (cm)**	**Estimated age (yrs. BP)**
			LC2f	140 - 157	3600 - 3200
LC1e	150 - 183.5	3800 - 3600	LC2e(ii)	157 - 192	4100 - 3600
LC1d	183.5 - 205	4000 - 3800	LC2e(i)	192 - 210	4280 - 4100
LC1c(iii)	205 - 287	4900 - 4000	LC2d(ii)	210 - 231	4650 - 4280
			LC2d(i)	231 - 252	4910 - 4650
LC1c(ii)	287 - 312	5350 - 4900	LC2c(ii)	252 - 283	5350 - 4910
LC1c(i)	312 - 320	5550 - 5350	LC2c(i)	283 - 292	5515 - 5350
HIATUS			**HIATUS**		
LC1b	320 - 340	10000 - ?	LC2b	292 - 318	10000 - ?
LC1a	340 - 370	11000 - 10000	LC2a	318 - 330	11000 - 10000

Table 6.1 Radiocarbon dates for the Kinloch profiles, Rum

Core	Laboratory reference no.	Depth (cm)	Radiocarbon Age (^{14}C yr. BP)
K	GU-2109	59 - 62	3340±80
	GU-2110	89 - 91	4660±70
	GU-2107	119 - 121	5300±60
	GU-2108	139 - 141	6430±90
	GU-2062	155 - 157	7800±75
KL1	AA-28170	103.5 - 104.5	3950±60
KL4	AA-28171	86.5 - 87.5	3840±45

Table 6.2 Local pollen assemblage zones from Kinloch, Rum

Abbreviations: Pin = *Pinus*; Aln = *Alnus;* Cor = *Corylus*; Sx = Salix; Poa = Poaceae; Cyp = Cyperaceae; Fil = *Filipendula;* Pot = *Potentilla*; Sph = *Sphagnum.*

Zone	Depth (cm)	Assemblage
KL1		
KL1c(iii)	22.5 - 0	Poa - Cyp
KL1c(ii)	52.5 - 22.5	Poa - Cyp - Aln
KL1c(i)	77 - 52.5	Poa - Cyp - Pot
KL1b(ii)	92.5 - 77	Poa - Cyp
KL1b(i)	104 - 92.5	Poa - Cyp
KL1a	110 - 104	Aln - Cor - Poa
K		
KIIIb	50 - 0	Poa - Cyp
KIIIa	74 - 50	Poa - Cyp
KIIe	103 - 74	Aln - Cor - Sx
KIId	117 - 103	Aln - Cor - Sx
KIIc	121 - 117	Aln - Cor - Sx
KIIb	131 - 127	Aln - Cor - Sx
KIIa	141 - 131	Aln - Cor - Sx
KIb	153 - 141	Cyp - Cor - Fil
KIa	157 - 153	Cyp - Cor - Fil
KL3		
KL3c(iii)	34-0	Cyp - Poa
KL3c(ii)	60.5-34	Aln - Cyp - Poa
KL3c(i)	86-60.5	Cyp - Poa
KL3b	107-86	Poa - Cyp
KL3a(ii)	114-107	Pin - Aln - Cor
KL3a(i)	125-114	Pin - Cor - Fil
KL4		
KL4c(iii)	8 - 0	Pin - Cyp
KL4c(ii)	23.5 - 8	Poa - Cyp
KL4c(i)	54.5 - 23.5	Cyp
Kl4b	82.5 - 54.5	Poa - Cyp
KL4a(ii)	92 - 82	Aln - Poa - Cyp
KL4a(i)	100 - 92	Aln - Cor -Poa

Table 7.1 - Summary of dates for the *Corylus* rise at sites referred to in the text

Site	Island	NGR	Rise ^{14}C yrs. BP	Altitude m O.D.	Source
LAB	Islay	NR 225 576	9500 (e)	65	This volume
Loch Cholla	Colonsay	NR 382 917	9850±110	30	Andrews *et al.*, 1987
Kinloch	Rum	NM 401 999	7800 ± 75	10	Hirons and Edwards, 1990
Loch an t'Suidhe	Mull	NM 370 215	9870±75	< 85	This volume
Torness	Mull	NM 643 333	8760±140	110	Walker and Lowe, 1986
Coire Clachach	Mull	NM 613 304	8870±120	200	Walker and Lowe, 1986
AC1, A'Chrannag	Ulva	NM 432 391	8705±75	74	This volume
Coir a'Ghobhain	Western Skye	NG 417 183	8650±120	82	Birks, 1973
Cill Chriosd	Southern Skye	NG 614 245	9610 ± 160	105	Birks and Williams, 1983
Loch Fada	North-east Skye	NG 492 485	7500±120	450	Birks, 1973
Loch Meodal	Southern Skye	NM 656 112	9610±160	105	Birks and Williams, 1983
Cuithir	North-east Skye	NG 471 600	9400±210		Vasari, 1977
Coire Laggan	Skye	NG 433 200	7780±180		Walker and Lowe, 1990
Loch Cleat	North-east Skye		9500 (e)		Birks and Williams, 1983
Loch Ashik	South-east Skye	NG 691 232	9500 (e)	40	Birks and Williams, 1983

Table 7.2 - Dates of elm declines at various sites in the Inner Hebrides and western Scotland referred to in the text.

(P = permanent decline; (e) = estimated date)

Core/Site	Decline 1 (^{14}C yrs. BP)	Duration (^{14}C yrs. BP)	Decline 2 (^{14}C yrs. BP)	Duration (^{14}C yrs. BP)	Source
LABI, Islay	3590±100	P			Edwards and Berridge, 1994
2LS, Mull	5235±55	P			This volume
AC1, Ulva	4800 (e)	P			This volume
AC2, Ulva	4800 (e)	500	4235 (e)	P	This volume
LC1, Ulva 290 cm	5100 (e)	100			This volume
LC1, Ulva, 270 cm	4850 (e)	100	3790±55	P	This volume
LC2, Ulva 240 cm	4600 (e)	200	4400 (e)	P	This volume
LC2, Ulva 220 cm	4200 (e)	P			This volume
Machrie Moor, Arran	4900±70	P			Robinson and Dickson, 1988
Machrie Moor, Arran	4840+60	530	3535±115	P	Edwards, 1990
Rhoin Farm, Aros Moss	4870±70	P			Edwards and McIntosh, 1988

PLATES

Plate 3.1 View of Loch a'Bhogaidh, Islay, looking north-east.

Plate 4.1 View of Loch an t'Suidhe, Bunessan, looking north-east, with location of 2LS marked

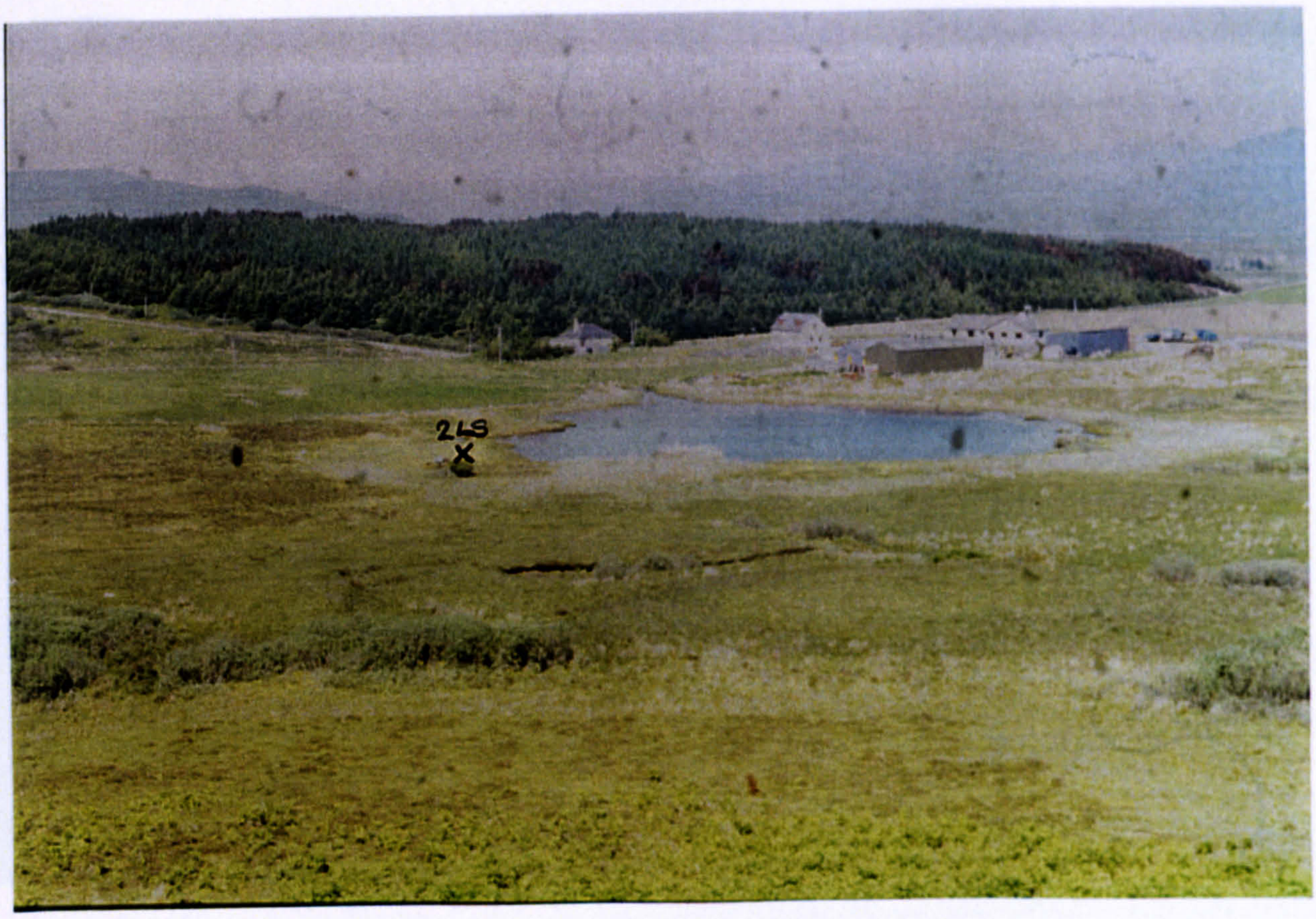
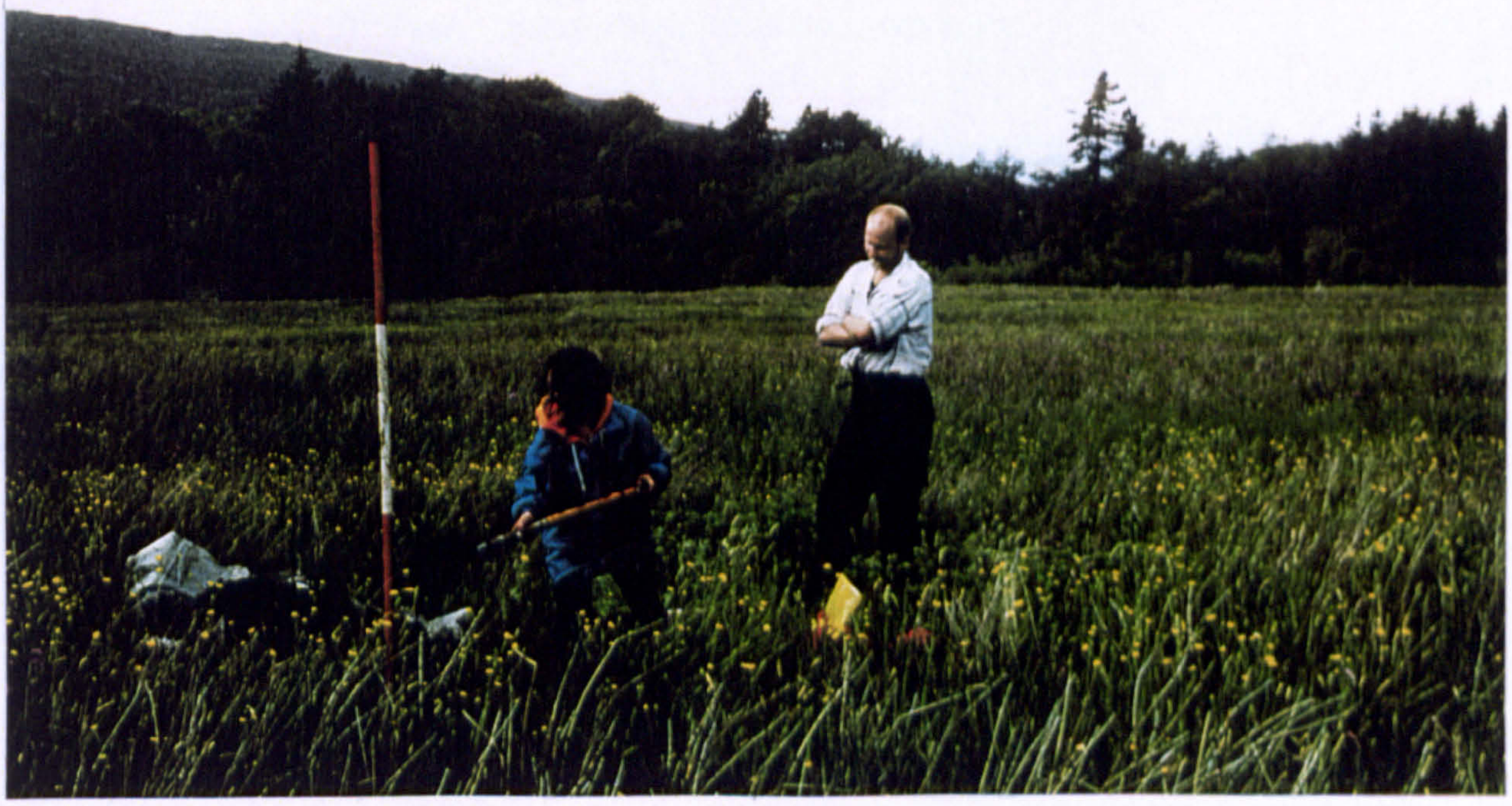


Plate 5.1 View of A'Chrannag bog from position of AC1 looking south-east to AC2

Plate 5.2 View of the northern margin of Livingstone's Cave bog, Ulva

Plate 6.1 View of the Kinloch pollen site, Rum, facing west



APPENDICES

Appendix A Calibrations of radiocarbon dates

(Stuiver and Reimer, 1993; Calib3)

1. Loch a'Bhogaidh

LABIII 463.5cm AA-25526 Radiocarbon Age BP 9415 ñ 65

Calibrated age(s) cal BC 8430

cal BP 10379

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8587 - 8562 (10537 - 10512)

8533 - 8393 (10483 - 10343)

8371 - 8354 (10321 - 10304)

two Sigma** cal BC 8848 - 8804 (10798 - 10754)

8625 - 8337 (10575 - 10287)

8304 - 8262 (10254 - 10212)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8587 (8430) 8354

cal BP 10537 (10379) 10304

2å cal BC 8848 (8430) 8262

cal BP 10798 (10379) 10212

LABIII 403.5cm AA-25527 Radiocarbon Age BP 8215 ñ 80

Calibrated age(s) cal BC 7254, 7212, 7209 7172, 7148, 7113, 7105

cal BP 9203, 9161, 9158, 9121, 9097, 9062, 9054

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7412 - 7362 (9362 - 9312)

7313 - 7044 (9263 - 8994)

two Sigma** cal BC 7475 - 7463 (9425 - 9413)

7437 - 7009 (9387 - 8959)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7412 (7254, 7212, 7209, 7172, 7148, 7113, 7105) 7044

cal BP 9362 (9203, 9161, 9158, 9121, 9097, 9062, 9054) 8994

2å cal BC 7475 (7254, 7212, 7209, 7172, 7148, 7113, 7105) 7009

cal BP 9425 (9203, 9161, 9158, 9121, 9097, 9062, 9054) 8959

LABIII 397.5cm AA-25528 Radiocarbon Age BP 7720 ñ 70

Calibrated age(s) cal BC 6475

cal BP 8424

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6594 - 6576 (8544 - 8526)

6566 - 6455 (8516 - 8405)

two Sigma** cal BC 6626 - 6411 (8576 - 8361)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6594 (6475) 6455

cal BP 8544 (8424) 8405

2å cal BC 6626 (6475) 6411

cal BP 8576 (8424) 8361

LABIII 391.5cm AA-25529 Radiocarbon Age BP 7710 ñ 100

Calibrated age(s) cal BC 6470

cal BP 8419

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6599 - 6421 (8549 - 8371)

two Sigma** cal BC 6750 - 6749 (8700 - 8699)

6704 - 6366 (8654 - 8316)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6599 (6470) 6421

cal BP 8549 (8419) 8371

2å cal BC 6750 (6470) 6366

cal BP 8700 (8419) 8316

LABIV 422.5cm AA-25530 Radiocarbon Age BP 9565 ñ 75

Calibrated age(s) cal BC 8849, 8805, 8624

cal BP 10798, 10754, 10573

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8955 - 8525 (10905 - 10475)

two Sigma** cal BC 9009 - 8419 (10959 - 10369)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8955 (8849, 8805, 8624) 8525

cal BP 10905 (10798, 10754, 10573) 10475

2å cal BC 9009 (8849, 8805, 8624) 8419

cal BP 10959 (10798, 10754, 10573) 10369

LABIV 408.5cm aa25531 Radiocarbon Age BP 8545 ñ 70

Calibrated age(s) cal BC 7540

cal BP 9489

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7578 - 7498 (9528 - 9448)

two Sigma** cal BC 7696 - 7477 (9646 - 9427)

7460 - 7440 (9410 - 9390)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7578 (7540) 7498

cal BP 9528 (9489) 9448

2å cal BC 7696 (7540) 7440

cal BP 9646 (9489) 9390

LABIV 401.2cm AA-25532 Radiocarbon Age BP 8000 ñ 70

Calibrated age(s) cal BC 7001, 6835, 6818

cal BP 8950, 8784, 8767

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7035 - 6752 (8985 - 8702)

6747 - 6709 (8697 - 8659)

two Sigma** cal BC 7132 - 7128 (9082 - 9078)

7046 - 6609 (8996 - 8559)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7035 (7001, 6835, 6818) 6709

cal BP 8985 (8950, 8784, 8767) 8659

2å cal BC 7132 (7001, 6835, 6818) 6609

cal BP 9082 (8950, 8784, 8767) 8559

LABIV 397.5 cm AA-25533 Radiocarbon Age BP 7670 ñ 70

Calibrated age(s) cal BC 6460

cal BP 8409

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6537 - 6520 (8487 - 8470)

6489 - 6418 (8439 - 8368)

two Sigma** cal BC 6602 - 6374 (8552 - 8324)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6537 (6460) 6418

cal BP 8487 (8409) 8368

2å cal BC 6602 (6460) 6374

cal BP 8552 (8409) 8324

LABIV 391cm AA-25534 Radiocarbon Age BP 7350 ñ 70

Calibrated age(s) cal BC 6175

cal BP 8124

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6215 - 6114 (8165 - 8064)

6093 - 6053 (8043 - 8003)

two Sigma** cal BC 6362 - 6273 (8312 - 8223)

6265 - 6004 (8215 - 7954)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6215 (6175) 6053

cal BP 8165 (8124) 8003

2å cal BC 6362 (6175) 6004

cal BP 8312 (8124) 7954

LABIV 386.5cm AA-25535 Radiocarbon Age BP 7080 ñ 80

Calibrated age(s) cal BC 5950, 5903, 5894

cal BP 7899, 7852, 7843

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 5981 - 5836 (7931 - 7786)

two Sigma** cal BC 6046 - 5731 (7996 - 7681)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 5981 (5950, 5903, 5894) 5836

cal BP 7931 (7899, 7852, 7843) 7786

2å cal BC 6046 (5950, 5903, 5894) 5731

cal BP 7996 (7899, 7852, 7843) 7681

LABV 403.5cm AA-25536 Radiocarbon Age BP 8270 ñ 70

Calibrated age(s) cal BC 7298

cal BP 9247

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7425 - 7243 (9375 - 9193)

7221 - 7202 (9171 - 9152)

7179 - 7142 (9129 - 9092)

7118 - 7098 (9068 - 9048)

two Sigma** cal BC 7485 - 7450 (9435 - 9400)

7450 - 7042 (9400 - 8992)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7425 (7298) 7098

cal BP 9375 (9247) 9048

2å cal BC 7485 (7298) 7042

cal BP 9435 (9247) 8992

LABV 363cm CAMS-46743 Radiocarbon Age BP 7260 ñ 50

Calibrated age(s) cal BC 6108, 6097, 6048

cal BP 8057, 8046, 7997

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6159 - 6140 (8109 - 8090)

6126 - 6082 (8076 - 8032)

6076 - 6005 (8026 - 7955)

two Sigma** cal BC 6179 - 5979 (8129 - 7929)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6159 (6108, 6097, 6048) 6005

cal BP 8108 (8057, 8046, 7997) 7954

2å cal BC 6179 (6108, 6097, 6048) 5979

cal BP 8128 (8057, 8046, 7997) 7928

LABVI 436.5cm AA-25537 Radiocarbon Age BP 9255 ñ 75

Calibrated age(s) cal BC 8334, 8307, 8260

cal BP 10283, 10256, 10209

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8394 - 8366 (10344 - 10316)

8358 - 8125 (10308 - 10075)

8114 - 8097 (10064 - 10047)

two Sigma** cal BC 8432 - 8083 (10382 - 10033)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8394 (8334, 8307, 8260) 8097

cal BP 10344 (10283, 10256, 10209) 10047

2å cal BC 8432 (8334, 8307, 8260) 8083

cal BP 10382 (10283, 10256, 10209) 10033

LABVI 426.5cm AA-25538 Radiocarbon Age BP 9000 ñ 75

Calibrated age(s) cal BC 8030

cal BP 9979

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8081 - 7972 (10031 - 9922)

two Sigma** cal BC 8121 - 8118 (10071 - 10068)

8096 - 7927 (10046 - 9877)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8081 (8030) 7972

cal BP 10031 (9979) 9922

2å cal BC 8121 (8030) 7927

cal BP 10071 (9979) 9877

LABVI 415.5cm AA-25539 Radiocarbon Age BP 8155 ñ 80

Calibrated age(s) cal BC 7190, 7132, 7128, 7048

cal BP 9139, 9081, 9077, 8997

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7266 - 7033 (9216 - 8983)

two Sigma** cal BC 7419 - 6997 (9369 - 8947)

6920 - 6896 (8870 - 8846)

6839 - 6785 (8789 - 8735)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7266 (7190, 7132, 7128, 7048) 7033

cal BP 9216 (9139, 9081, 9077, 8997) 8983

2å cal BC 7419 (7190, 7132, 7128, 7048) 6785

cal BP 9369 (9139, 9081, 9077, 8997) 8735

LABVI 408.5cm AA-25540 Radiocarbon Age BP 7690 ñ 120

Calibrated age(s) cal BC 6465

cal BP 8414

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6599 - 6401 (8549 - 8351)

two Sigma** cal BC 6760 - 6739 (8710 - 8689)

6718 - 6225 (8668 - 8175)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6599 (6465) 6401

cal BP 8549 (8414) 8351

2å cal BC 6760 (6465) 6225

cal BP 8710 (8414) 8175

LABVII 1200 cm AA-25518 Radiocarbon Age BP 9615 ñ 65

Calibrated age(s) cal BC 8930, 8786, 8719

cal BP 10879, 10735, 10668

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8991 - 8843 (10941 - 10793)

8814 - 8601 (10764 - 10551)

two Sigma** cal BC 9019 - 8515 (10969 - 10465)

8492 - 8475 (10442 - 10425)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8991 (8930, 8786, 8719) 8601

cal BP 10941 (10879, 10735, 10668) 10551

2å cal BC 9019 (8930, 8786, 8719) 8475

cal BP 10969 (10879, 10735, 10668) 10425

LABVII 1188cm AA-25519 Radiocarbon Age BP 9410 ñ 90

Calibrated age(s) cal BC 8428

cal BP 10377

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8826 - 8818 (10776 - 10768)

8591 - 8544 (10541 - 10494)

8539 - 8348 (10489 - 10298)

8280 - 8280 (10230 - 10230)

two Sigma** cal BC 8924 - 8870 (10874 - 10820)

8857 - 8792 (10807 - 10742)

8705 - 8691 (10655 - 10641)

8673 - 8324 (10623 - 10274)

8316 - 8194 (10266 - 10144)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8826 (8428) 8280

cal BP 10776 (10377) 10230

2å cal BC 8924 (8428) 8194

cal BP 10874 (10377) 10144

LABVII 1171 cm AA-25520 Radiocarbon Age BP 9030 ñ 65

Calibrated age(s) cal BC 8037

cal BP 9986

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8085 - 8013 (10035 - 9963)

two Sigma** cal BC 8127 - 8108 (10077 - 10058)

8098 - 7953 (10048 - 9903)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8085 (8037) 8013

cal BP 10035 (9986) 9963

2å cal BC 8127 (8037) 7953

cal BP 10077 (9986) 9903

LABVII 1074 cm AA-25521 Radiocarbon Age BP 7955 ñ 65

Calibrated age(s) cal BC 6992, 6967, 6858, 6847, 6768

cal BP 8941, 8916, 8807, 8796, 8717

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7006 - 6633 (8956 - 8583)

two Sigma** cal BC 7038 - 6597 (8988 - 8547)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7006 (6992, 6967, 6858, 6847, 6768) 6633

cal BP 8956 (8941, 8916, 8807, 8796, 8717) 8583

2å cal BC 7038 (6992, 6967, 6858, 6847, 6768) 6597

cal BP 8988 (8941, 8916, 8807, 8796, 8717) 8547

LABVII 1051 cm AA-25522 Radiocarbon Age BP 7860 ñ 60

Calibrated age(s) cal BC 6617

cal BP 8566

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6755 - 6745 (8705 - 8695)

6710 - 6592 (8660 - 8542)

6583 - 6564 (8533 - 8514)

two Sigma** cal BC 7000 - 6911 (8950 - 8861)

6909 - 6837 (8859 - 8787)

6816 - 6531 (8766 - 8481)

6528 - 6483 (8478 - 8433)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6755 (6617) 6564

cal BP 8705 (8566) 8514

2å cal BC 7000 (6617) 6483

cal BP 8950 (8566) 8433

LABVII 1034 cm AA-25523 Radiocarbon Age BP 7695 ñ 60

Calibrated age(s) cal BC 6466

cal BP 8415

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6544 - 6452 (8494 - 8402)

6439 - 6428 (8389 - 8378)

two Sigma** cal BC 6605 - 6403 (8555 - 8353)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6544 (6466) 6428

cal BP 8494 (8415) 8378

2å cal BC 6605 (6466) 6403

cal BP 8555 (8415) 8353

LABVII 1012 cm AA-25524 Radiocarbon Age BP 7505 ñ 60

Calibrated age(s) cal BC 6366

cal BP 8315

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6399 - 6223 (8349 - 8173)

two Sigma** cal BC 6452 - 6438 (8402 - 8388)

6428 - 6182 (8378 - 8132)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6399 (6366) 6223

cal BP 8349 (8315) 8173

2å cal BC 6452 (6366) 6182

cal BP 8402 (8315) 8132

LABVIII 881.5 cm AA-25525 Radiocarbon Age BP 9360 ñ 75

Calibrated age(s) cal BC 8405

cal BP 10354

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 8479 - 8339 (10429 - 10289)

8302 - 8267 (10252 - 10217)

two Sigma** cal BC 8839 - 8812 (10789 - 10762)

8597 - 8183 (10547 - 10133)

8100 - 8100 (10050 - 10050)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 8479 (8405) 8267

cal BP 10429 (10354) 10217

2å cal BC 8839 (8405) 8100

cal BP 10789 (10354) 10050

2. Loch an t'Suidhe

2LS 740 cm AA-28149 Radiocarbon Age BP 9780 ñ 75

Calibrated age(s) cal BC 9033

cal BP 10982

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 9050 - 9002 (11000 - 10952)

two Sigma** cal BC 9126 - 9106 (11076 - 11056)

9088 - 8926 (11038 - 10876)

8787 - 8737 (10737 - 10687)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 9050 (9033) 9002

cal BP 11000 (10982) 10952

2å cal BC 9126 (9033) 8737

cal BP 11076 (10982) 10687

2LS 726 cm AA-28150 Radiocarbon Age BP 7875 ñ 60

Calibrated age(s) cal BC 6626

cal BP 8575

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6762 - 6736 (8712 - 8686)

6721 - 6597 (8671 - 8547)

two Sigma** cal BC 7003 - 6832 (8953 - 8782)

6825 - 6537 (8775 - 8487)

6515 - 6497 (8465 - 8447)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6762 (6626) 6597

cal BP 8712 (8575) 8547

2å cal BC 7003 (6626) 6497

cal BP 8953 (8575) 8447

2LS 708 cm AA-28151 Radiocarbon Age BP 7425 ñ 65

Calibrated age(s) cal BC 6216

cal BP 8165

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6361 - 6310 (8311 - 8260)

6310 - 6274 (8260 - 8224)

6263 - 6176 (8213 - 8126)

two Sigma** cal BC 6388 - 6118 (8338 - 8068)

6090 - 6055 (8040 - 8005)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6361 (6216) 6176

cal BP 8311 (8165) 8126

2å cal BC 6388 (6216) 6055

cal BP 8338 (8165) 8005

2LS 688 cm AA-28152 Radiocarbon Age BP 6845 ñ 55

Calibrated age(s) cal BC 5682

cal BP 7631

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 5718 - 5626 (7668 - 7576)

two Sigma** cal BC 5770 - 5593 (7720 - 7543)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 5718 (5682) 5626

cal BP 7668 (7631) 7576

2å cal BC 5770 (5682) 5593

cal BP 7720 (7631) 7543

2LS 648 cm AA-28153 Radiocarbon Age BP 6110 ñ 65

Calibrated age(s) cal BC 5040, 5017, 5005

cal BP 6989, 6966, 6954

cal AD/BC (cal BP) age ranges obtained from intercepts (Method A):

one Sigma** cal BC 5196 - 5183 (7146 - 7133)

5132 - 5126 (7082 - 7076)

5075 - 4935 (7025 - 6885)

two Sigma** cal BC 5221 - 4897 (7171 - 6847)

4882 - 4846 (6832 - 6796)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 5196 (5040, 5017, 5005) 4935

cal BP 7146 (6989, 6966, 6954) 6885

2å cal BC 5221 (5040, 5017, 5005) 4846

cal BP 7171 (6989, 6966, 6954) 6796

2LS 586 cm AA-28154 Radiocarbon Age BP 5235 ñ 55

Calibrated age(s) cal BC 4034, 4022, 4000

cal BP 5983, 5971, 5949

cal AD/BC (cal BP) age ranges obtained from intercepts (Method A):

one Sigma** cal BC 4214 - 4204 (6164 - 6154)

4137 - 4124 (6087 - 6074)

4083 - 4052 (6033 - 6002)

4049 - 3977 (5999 - 5927)

two Sigma** cal BC 4226 - 4179 (6176 - 6129)

4166 - 3955 (6116 - 5905)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 4214 (4034, 4022, 4000) 3977

cal BP 6164 (5983, 5971, 5949) 5927

2å cal BC 4226 (4034, 4022, 4000) 3955

cal BP 6176 (5983, 5971, 5949) 5905

3. A'Chrannag, Ulva

AC1 304 cm AA-28155 Radiocarbon Age BP 8625 ñ 75

Calibrated age(s) cal BC 7579

cal BP 9528

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7830 - 7830 (9780 - 9780)

7698 - 7539 (9648 - 9489)

two Sigma** cal BC 7901 - 7755 (9851 - 9705)

7745 - 7497 (9695 - 9447)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7830 (7579) 7539

cal BP 9780 (9528) 9489

2å cal BC 7901 (7579) 7497

cal BP 9851 (9528) 9447

AC1 290 cm AA-28156 Radiocarbon Age BP 8705 ñ 75

Calibrated age(s) cal BC 7698

cal BP 9647

cal AD/BC (cal BP) age ranges obtained from intercepts (Method A):

one Sigma** cal BC 7901 - 7756 (9851 - 9706)

7744 - 7578 (9694 - 9528)

two Sigma** cal BC 7946 - 7538 (9896 - 9488)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7901 (7698) 7578

cal BP 9851 (9647) 9528

2å cal BC 7946 (7698) 7538

cal BP 9896 (9647) 9488

AC1 282 cm AA-28157 Radiocarbon Age BP 8540 ñ 95

Calibrated age(s) cal BC 7539

cal BP 9488

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7583 - 7490 (9533 - 9440)

two Sigma** cal BC 7870 - 7816 (9820 - 9766)

7708 - 7424 (9658 - 9374)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7583 (7539) 7490

cal BP 9533 (9488) 9440

2å cal BC 7870 (7539) 7424

cal BP 9820 (9488) 9374

AC1 266 cm AA-28158 Radiocarbon Age BP 8025 ñ 95

Calibrated age(s) cal BC 7005

cal BP 8954

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 7042 - 6753 (8992 - 8703)

6746 - 6710 (8696 - 8660)

two Sigma** cal BC 7259 - 7111 (9209 - 9061)

7108 - 6602 (9058 - 8552)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 7042 (7005) 6710

cal BP 8992 (8954) 8660

2å cal BC 7259 (7005) 6602

cal BP 9209 (8954) 8552

AC1 224 cm AA-28159 Radiocarbon Age BP 5685 ñ 60

Calibrated age(s) cal BC 4512

cal BP 6461

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 4576 - 4460 (6526 - 6410)

two Sigma** cal BC 4691 - 4434 (6641 - 6384)

4429 - 4364 (6379 - 6314)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 4576 (4512) 4460

cal BP 6526 (6461) 6410

2å cal BC 4691 (4512) 4364

cal BP 6641 (6461) 6314

AC1 185 cm AA-28160 Radiocarbon Age BP 5335 ñ 60

Calibrated age(s) cal BC 4223, 4191, 4158

cal BP 6172, 6140, 6107

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 4247 - 4210 (6197 - 6160)

4210 - 4076 (6160 - 6026)

4062 - 4044 (6012 - 5994)

two Sigma** cal BC 4333 - 3991 (6283 - 5941)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 4247 (4223, 4191, 4158) 4044

cal BP 6197 (6172, 6140, 6107) 5994

2å cal BC 4333 (4223, 4191, 4158) 3991

cal BP 6283 (6172, 6140, 6107) 5941

AC2 239 cm AA-28161 Radiocarbon Age BP 5695 ñ 55

Calibrated age(s) cal BC 4524

cal BP 6473

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 4583 - 4464 (6533 - 6414)

two Sigma** cal BC 4692 - 4451 (6642 - 6401)

4420 - 4397 (6370 - 6347)

4370 - 4370 (6320 - 6320)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 4583 (4524) 4464

cal BP 6533 (6473) 6414

2å cal BC 4692 (4524) 4370

cal BP 6642 (6473) 6320

AC2 187 cm AA-28162 Radiocarbon Age BP 4235 ñ 70

Calibrated age(s) cal BC 2880

cal BP 4829

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 2910 - 2864 (4860 - 4814)

2810 - 2746 (4760 - 4696)

2725 - 2698 (4675 - 4648)

two Sigma** cal BC 3013 - 3002 (4963 - 4952)

2925 - 2612 (4875 - 4562)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 2910 (2880) 2698

cal BP 4860 (4829) 4648

2å cal BC 3013 (2880) 2612

cal BP 4963 (4829) 4562

4. Livingstone's Cave bog, Ulva

LC1 366 cm AA-28163 Radiocarbon Age BP 10760 ñ 85

Calibrated age(s) cal BC 10740

cal BP 12689

cal AD/BC (cal BP) age ranges obtained from intercepts (Method A):

one Sigma** cal BC 10838 - 10638 (12788 - 12588)

two Sigma** cal BC 10932 - 10526 (12882 - 12476)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 10838 (10740) 10638

cal BP 12788 (12689) 12588

2å cal BC 10932 (10740) 10526

cal BP 12882 (12689) 12476

LC1 342 cm AA-28165 Radiocarbon Age BP 11120 ñ 100

Calibrated age(s) cal BC 11081

cal BP 13030

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 11191 - 10974 (13141 - 12924)

two Sigma** cal BC 11312 - 10865 (13262 - 12815)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 11191 (11081) 10974

cal BP 13141 (13030) 12924

2å cal BC 11312 (11081) 10865

cal BP 13262 (13030) 12815

LC1 318 cm AA-28165 Radiocarbon Age BP 7765 ñ 60

Calibrated age(s) cal BC 6546

cal BP 8495

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 6605 - 6468 (8555 - 8418)

two Sigma** cal BC 6692 - 6686 (8642 - 8636)

6656 - 6453 (8606 - 8403)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 6605 (6546) 6468

cal BP 8555 (8495) 8418

2å cal BC 6692 (6546) 6453

cal BP 8642 (8495) 8403

LC1 230 cm AA-28166 Radiocarbon Age BP 4185 ñ 75

Calibrated age(s) cal BC 2870, 2803, 2773, 2717, 2705

cal BP 4819, 4752, 4722, 4666, 4654

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 2886 - 2835 (4836 - 4785)

2829 - 2618 (4779 - 4568)

two Sigma** cal BC 2917 - 2564 (4867 - 4514)

2522 - 2502 (4472 - 4452)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 2886 (2870, 2803, 2773, 2717, 2705) 2618

cal BP 4836 (4819, 4752, 4722, 4666, 4654) 4568

2å cal BC 2917 (2870, 2803, 2773, 2717, 2705) 2502

cal BP 4867 (4819, 4752, 4722, 4666, 4654) 4452

LC1 175 cm AA-28167 Radiocarbon Age BP 3790 ñ 55

Calibrated age(s) cal BC 2197

cal BP 4146

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 2287 - 2135 (4237 - 4085)

two Sigma** cal BC 2451 - 2439 (4401 - 4389)

2402 - 2371 (4352 - 4321)

2369 - 2034 (4319 - 3984)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 2287 (2197) 2135

cal BP 4237 (4146) 4085

2å cal BC 2451 (2197) 2034

cal BP 4401 (4146) 3984

LC2 292 cm AA-28168 Radiocarbon Age BP 5515 ñ 55

Calibrated age(s) cal BC 4350

cal BP 6299

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 4446 - 4424 (6396 - 6374)

4391 - 4387 (6341 - 6337)

4367 - 4333 (6317 - 6283)

two Sigma** cal BC 4462 - 4311 (6412 - 6261)

4307 - 4250 (6257 - 6200)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 4446 (4350) 4333

cal BP 6396 (6299) 6283

2å cal BC 4462 (4350) 4250

cal BP 6412 (6299) 6200

LC2 154 cm AA-28169 Radiocarbon Age BP 3010 ñ 60

Calibrated age(s) cal BC 1259, 1232, 1227

cal BP 3208, 3181, 3176

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 1376 - 1347 (3326 - 3297)

1317 - 1151 (3267 - 3101)

1149 - 1129 (3099 - 3079).

two Sigma** cal BC 1406 - 1032 (3356 - 2982)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 1376 (1259, 1232, 1227) 1129

cal BP 3326 (3208, 3181, 3176) 3079

2å cal BC 1406 (1259, 1232, 1227) 1032

cal BP 3356 (3208, 3181, 3176) 2982

5. Kinloch, Rum

KL1 104 cm AA-28170 Radiocarbon Age BP 3950 ñ 60

Calibrated age(s) cal BC 2461

cal BP 4410

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 2553 - 2541 (4503 - 4491)

2493 - 2396 (4443 - 4346)

2380 - 2347 (4330 - 4297)

two Sigma** cal BC 2582 - 2279 (4532 - 4229)

2212 - 2210 (4162 - 4160)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 2553 (2461) 2347

cal BP 4503 (4410) 4297

2å cal BC 2582 (2461) 2210

cal BP 4532 (4410) 4160

KL4 87 cm AA-28171 Radiocarbon Age BP 3840 ñ 45

Calibrated age(s) cal BC 2285

cal BP 4234

cal AD/BC (cal BP) age ranges obtained from intercepts:

one Sigma** cal BC 2395 - 2381 (4344 - 4330)

2345 - 2198 (4294 - 4147)

two Sigma** cal BC 2458 - 2139 (4407 - 4088)

Summary of above:

minimum of cal age ranges (cal ages) maximum of cal age ranges:

1å cal BC 2395 (2285) 2198

cal BP 4344 (4234) 4147

2å cal BC 2458 (2285) 2139

cal BP 4407 (4234) 4088

APPENDIX B SUMMARY OF SAMPLES SCANNED FOR CEREAL-TYPE POLLEN

ULVA

AC1

Depth (cm)	TLP scanned	Cereal present	All sample used
100	1220		Y
101	2000		Y
102	2750		Y
103	3200		Y
104	2350		Y
105	2100		Y
106	4000		Y
107	2730		Y
108	2520		Y
109	1670		Y
110	3740		Y
111	3500		N
112	3500		N

AC2

Depth (cm)	TLP scanned	Cereal present	All sample used
141	28000		N
142	24000		N
143	18500		N
144	10450		N
145	13200		N
146	10840		N
147	9400		N
148	8160		N
149	7000		N
150	8550		N
151	9450		N
152	7830		N
153	7740		N
154	8560		N
155	7915		N
156	7390		N
157	6800		N
158	9540		N
159	15250		N
160	13800		N
161	15000		N
162	14170		N
163	12900		N
164	13120		Y
165	15180		N
166	7720		N
167	6130		Y
168	5580		Y
169	4400		Y

APPENDIX B CONTINUED

LC1

Depth (cm)	TLP scanned	Cereal present	All sample used
240	5325		N
241	4480		Y
242	5670		N
243	6110		N
244	5185		N
245	3945		Y
246	4850		Y
247	5915		N
248	5445		N
249	6750		N
250	6720		N
251	7105		N
252	6815		N
253	5550		N
254	5160		Y
255	4980		Y
256	6535		N
257	6850		N
258	7790		N
259	5540		N
260	3870		Y
261	4215		Y
262	4940		Y
263	6775		N
264	6180		N
265	5650		N
266	4000		Y
268	4165		Y
269	6170		N
270	5435		N

APPENDIX B CONTINUED

LC2 Depth (cm)	TLP scanned	Cereal present	All sample used
196	6712		Y
197	6540		Y
198	8424		Y
199	7690		Y
200	7800		Y
201	6455		N
202	5250		N
203	4020		Y
204	2000		Y
205	3950		Y
206	4700		Y
207	5360		Y
208	4915		Y
209	6430		N
210	7210		N
211	7860		N
212	7545		N
213	6135		N
214	4000	1	Y
215	2915		Y
216	4000		Y
217	1500		Y
218	3720		Y
219	6150		Y
220	3690		Y
221	5400		N
222	2500		Y
223	5280		Y
224	4150		Y
225	5310		Y
226	3000		Y
227	3825		Y
228	4000		Y

KINLOCH, RUM

KL1

Depth (cm)	TLP scanned	Cereal present	All sample used
78	5000		N
79	4140		N
80	3504		N
81	5850		N
82	7800	1	N
83	5650		N
84	3600		Y
85	3020		Y
86	1820		Y
87	5410		N
88	7280		N
89	6040		N
90	3120		N
91	4660		N
92	7800		N
93	7360		N
94	7280		N
95	6950		N
96	6160		N
97	7530		N
98	8740	1	N
99	9500		N
100	9800		N
101	8430		N
102	6270		N
103	7150		N
104	8670	1	N
105	8570		N
106	12710		N
107	6130		N
108	5880		N
109	5400		N

APPENDIX B CONTINUED

KL3

Depth (cm)	TLP scanned	Cereal present	All sample used
70	5170		N
71	6700		N
72	7440		N
73	1600		Y
74	340		Y
75	320		Y
76	4200		N
77	5310		N
78	5620		N
79	7800		N
80	700		Y
81	2960		Y
82	3900		N
83	3000		N
84	150		Y
85	240		Y
86	1080		Y
87	1050		Y
88	4000		Y
89	2760		Y
90	1000		Y
91	1860		Y
92	7600		N
93	4680		N
94	12000		N
95	4680		N
96	11600		N
97	8960		N
98	17000		N
99	15820		N
100	1500		Y
101	6000		N
102	1000		Y
103	1480		Y
104	1000		Y
105	4600		Y
106	570		Y
107	1040		Y

APPENDIX B CONTINUED

KL4

Depth (cm)	TLP scanned	Cereal present	All sample used
62	1200		Y
65	384		Y
66	1200		Y
67	12974		N
68	1000		Y
69	1924		Y
70	154		Y
71	8580		N
72	1000		Y
73	2450		Y
74	12136		N
75	6912		N
76	5000		N
77	2250		Y
78	1750		Y
79	4676		N
80	3000		Y
81	10920		N
82	2810		Y
83	1000	1	Y
84	2000		Y
85	2000		Y
86	420		Y
87	1500	1	Y