

Hans-Jürgen Beug
Georg Miehe

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**Vegetation history and
human impact in the
Eastern Central Himalaya
(Langtang and Helambu, Nepal)**

with 31 figures and 5 tables in the text and on 5 folders

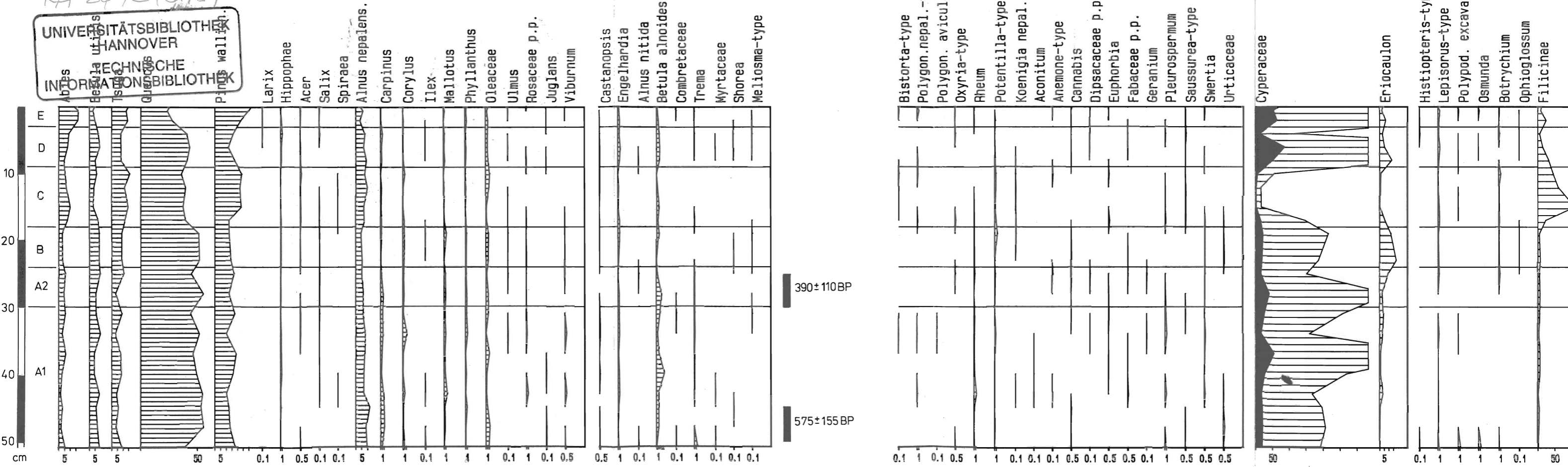


J. CRAMER in der Gebrüder Borntraeger Verlagsbuchhandlung
BERLIN · STUTTGART 1999

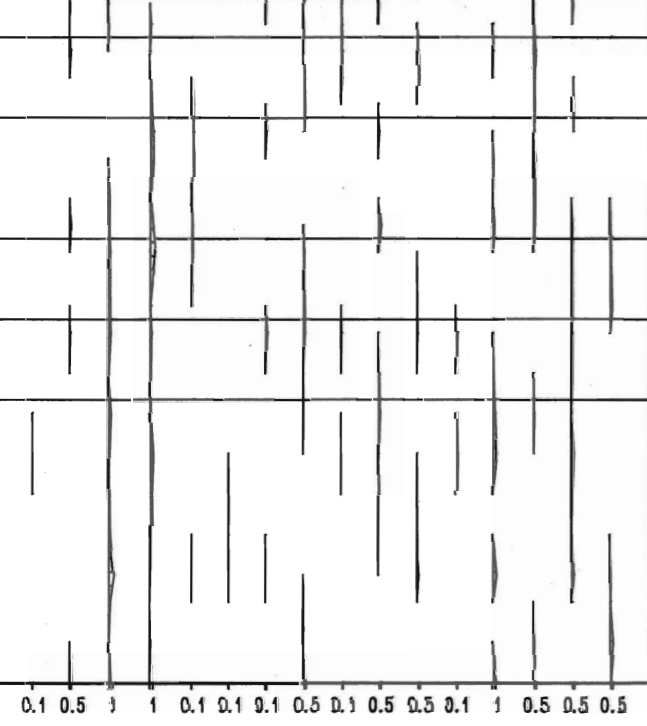
Fig. 24: Pollen diagram of the Langtang I profile, Langtang village site (3460 m a.s.l.).
Analyzed by H.-J. BEUG.

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RA 2492 (318)

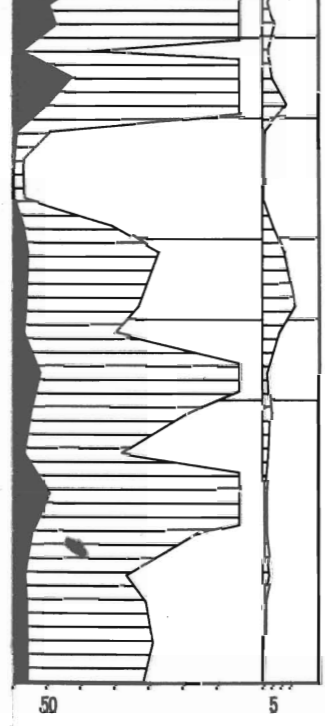
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INFORMATIONS- UND BIBLIOTHEK



Polygon. nepal. -type
 Polygon. aviculare
 Oxymia-type
 Rheum
 Potentilla-type
 Koenigia nepal.
 Aconitum
 Anemone-type
 Cannabis
 Dipsacaceae p.p.
 Euphorbia
 Fabaceae p.p.
 Geranium
 Pleurospermum
 Saussurea-type
 Swertia
 Urticaceae



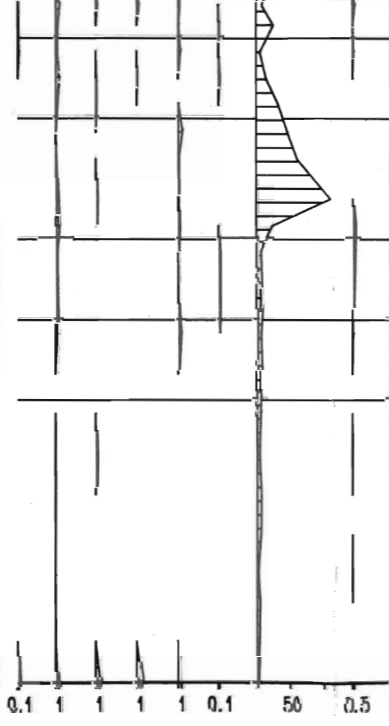
Cyperaceae



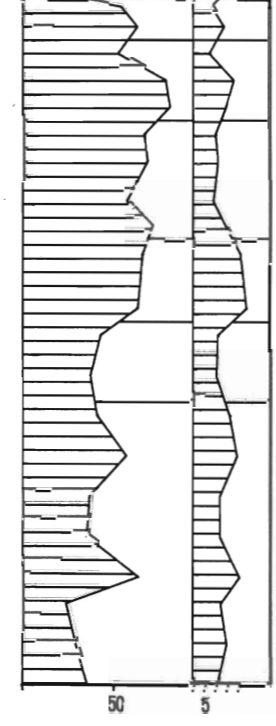
Eriocaulon



Histiopteris-type
 Lepisorus-type
 Polypod. excavat.-t.
 Osmunda
 Botrychium
 Ophioglossum
 Filicinae
 Anthraceros



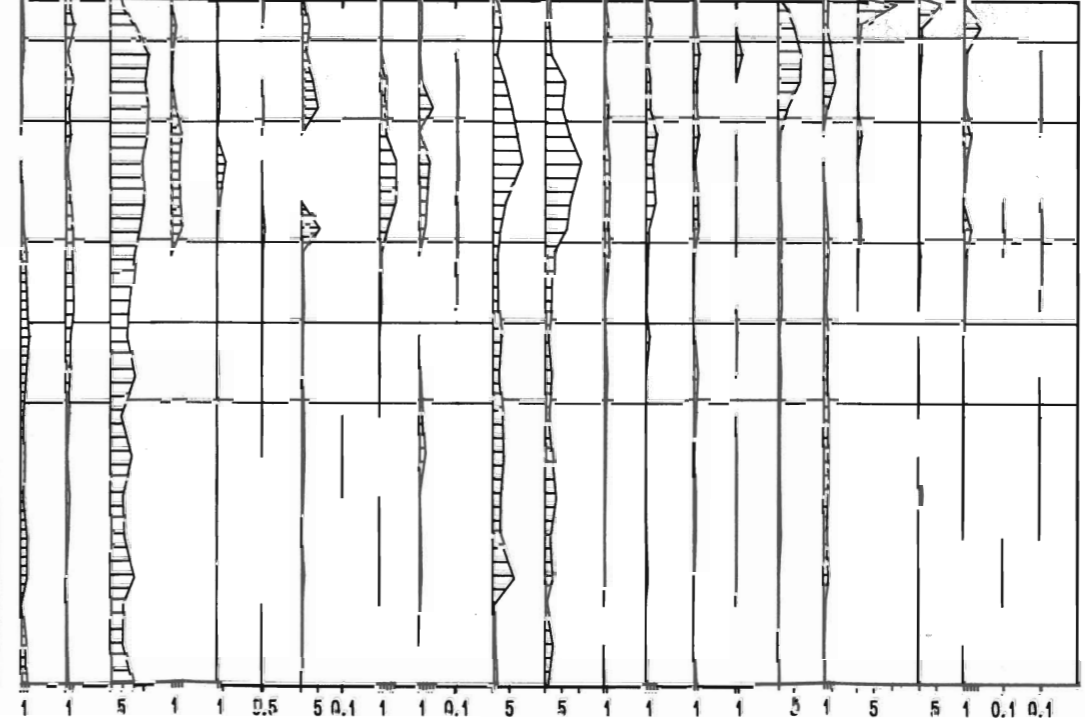
Sum of MAP



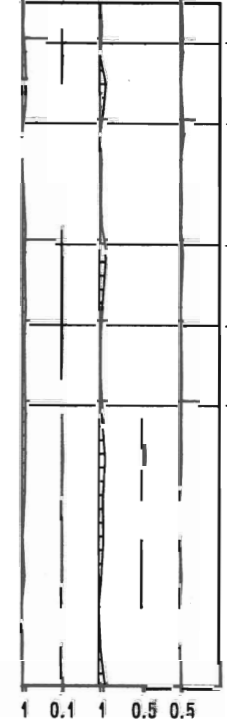
Poaceae



Juniperus
 Pteridium
 Artemisia
 Rhodod. lepicotum
 Rhodod. arbor.-t.
 Pieris-type
 Elsholtzia
 Caragana
 Thalictrum
 Impatiens
 Bupleurum
 Apiaceae p.p.
 Asteraceae
 Cichoriaceae
 Caryophyllaceae
 Pteris-type
 Strabilarhies
 Chenopodiaceae
 Rumex nepalensis
 Spirarhies
 Gentiana. p.p.
 Liliaceae
 Coluransis
 Cyananthus

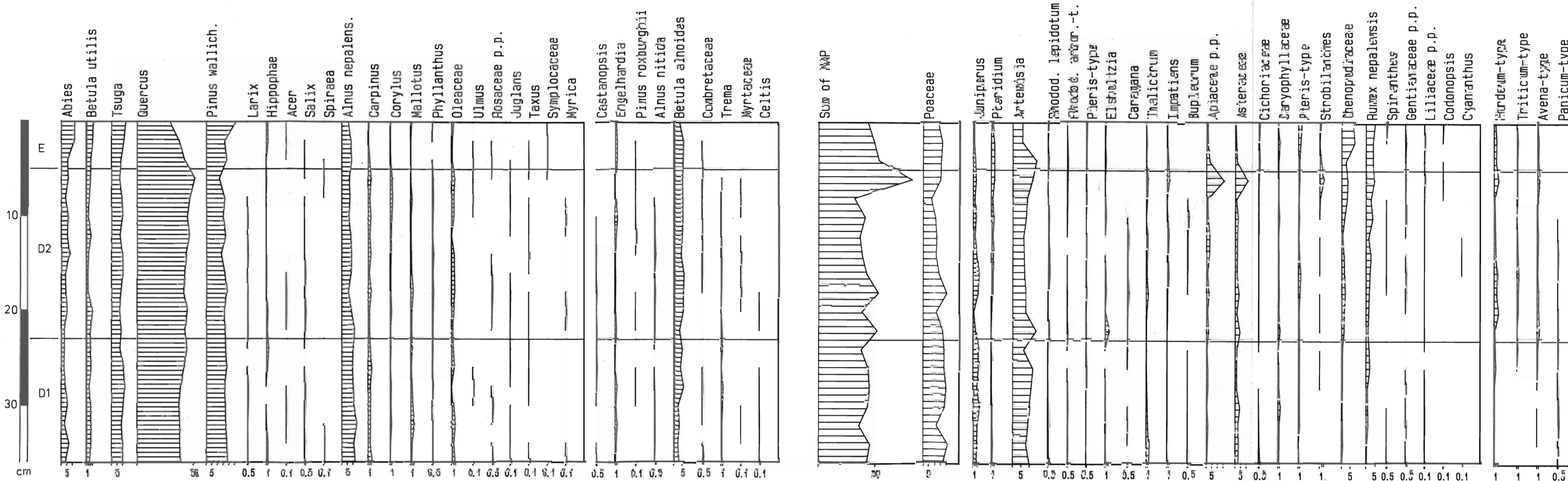


Hordeum-type
 Triticum-type
 Avena-type
 Panicum-type
 Fagopyrum



A1 B C D E

Fig. 25: Pollen diagram of the Langtang 2 profile, Langtang village site (3460 m a.s.l.).
Analyzed by H.-J. BEUG.



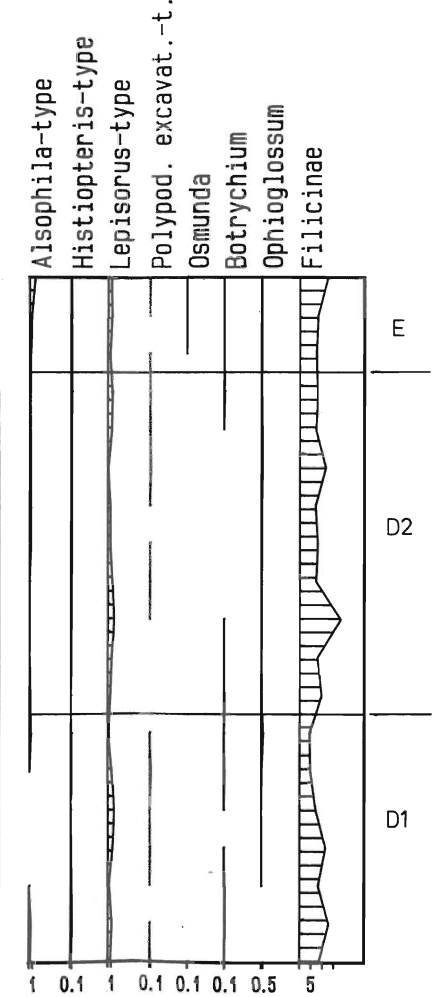
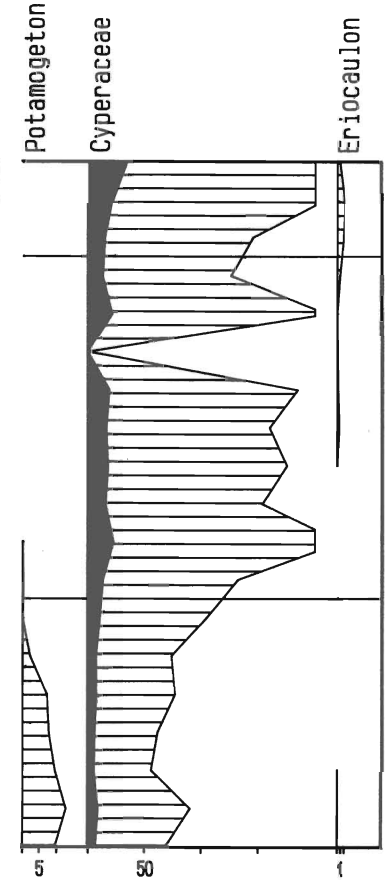
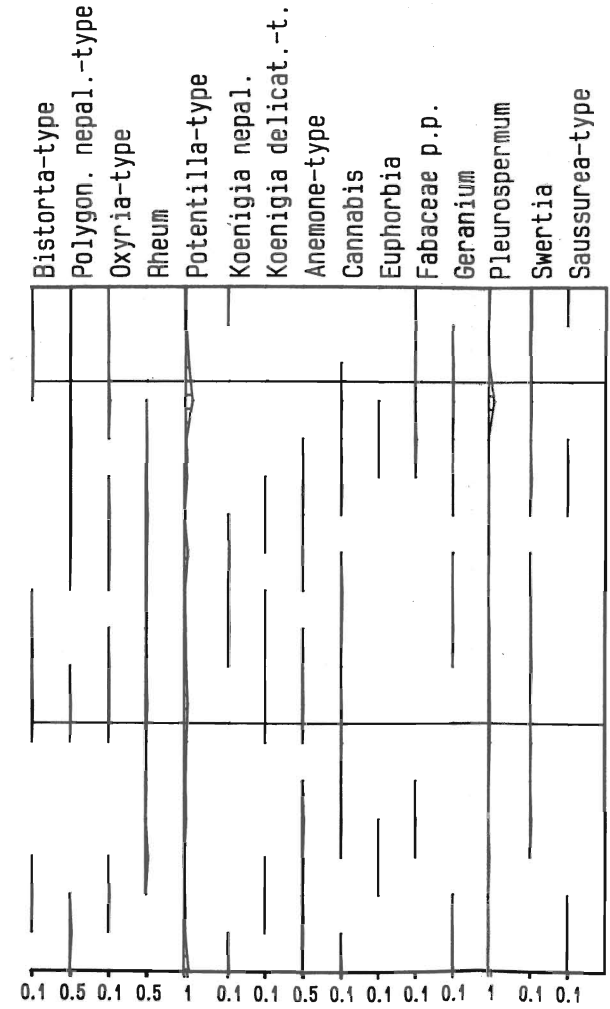
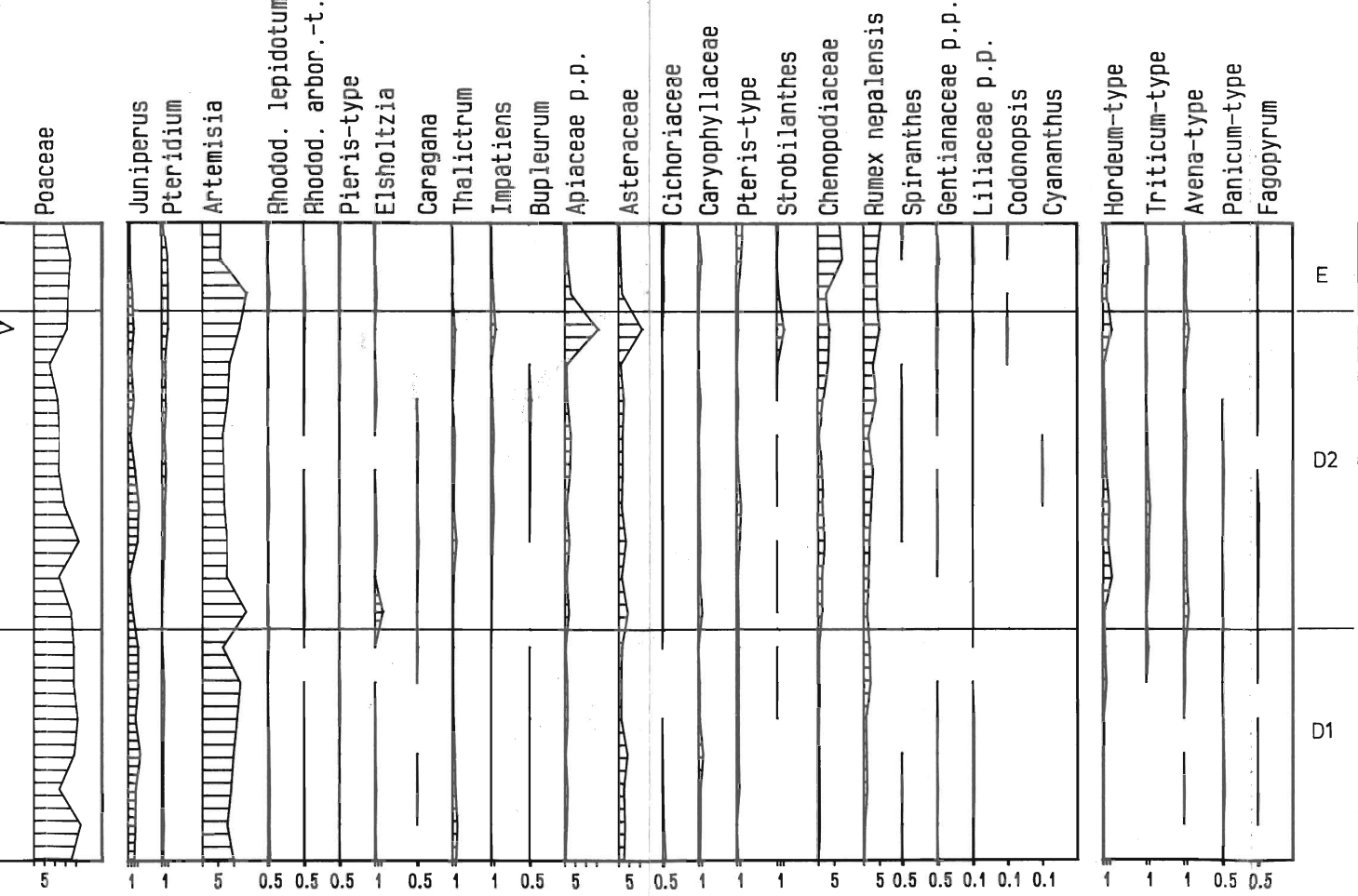
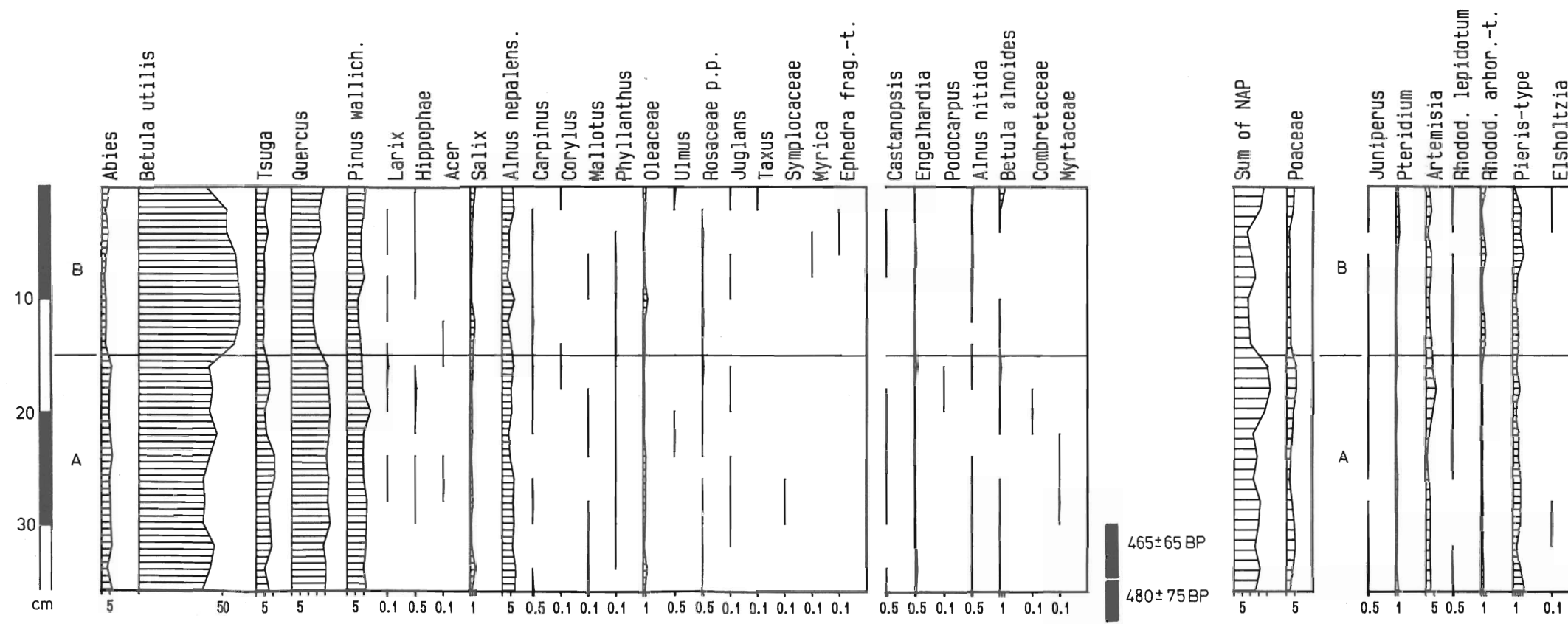
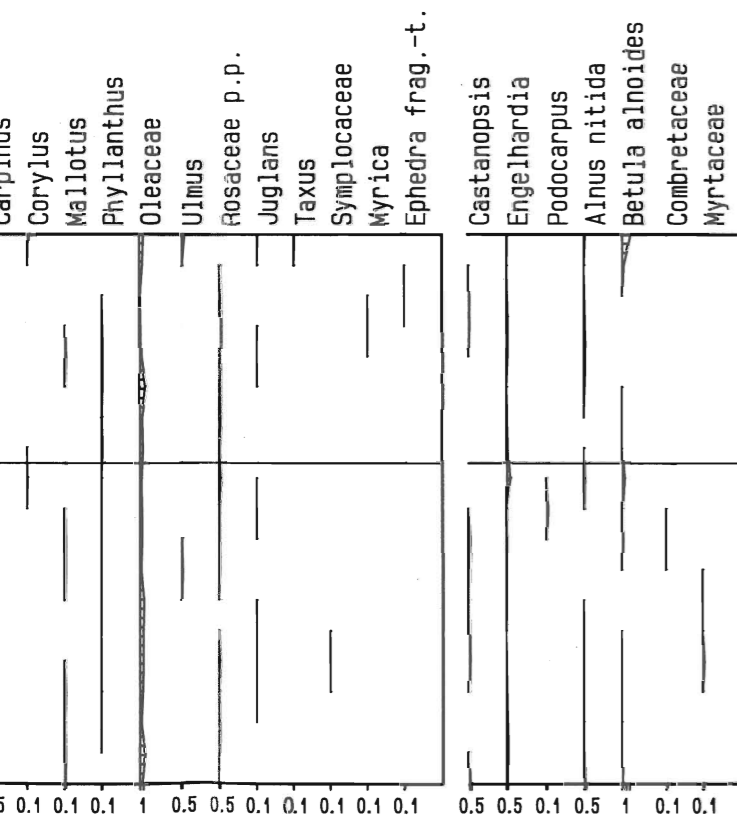
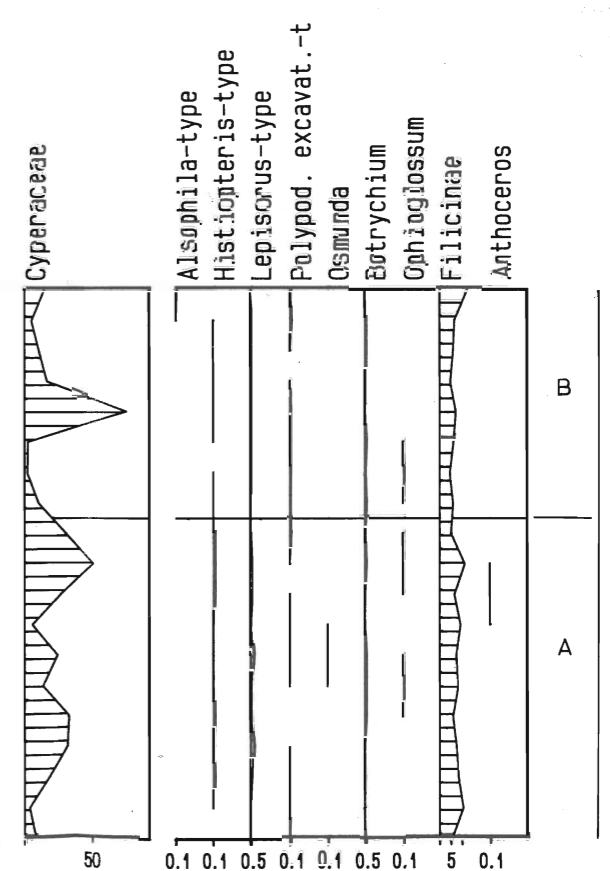
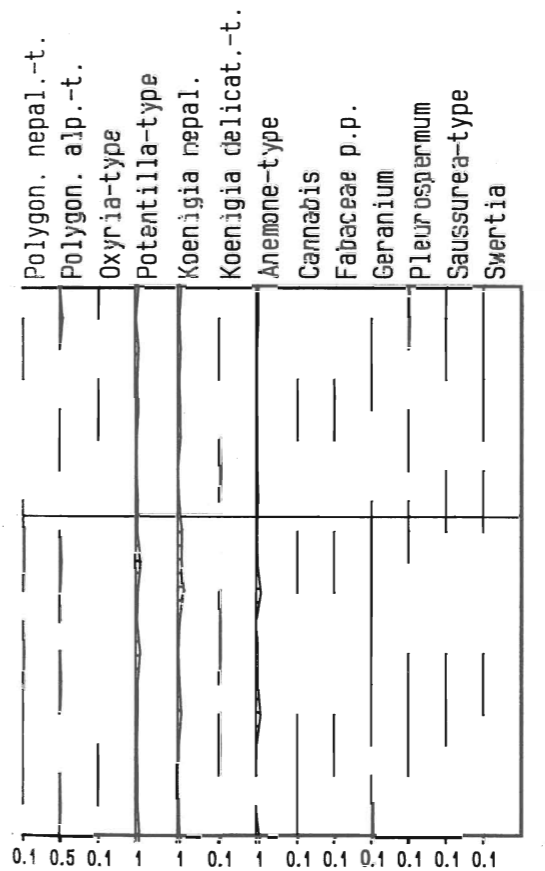
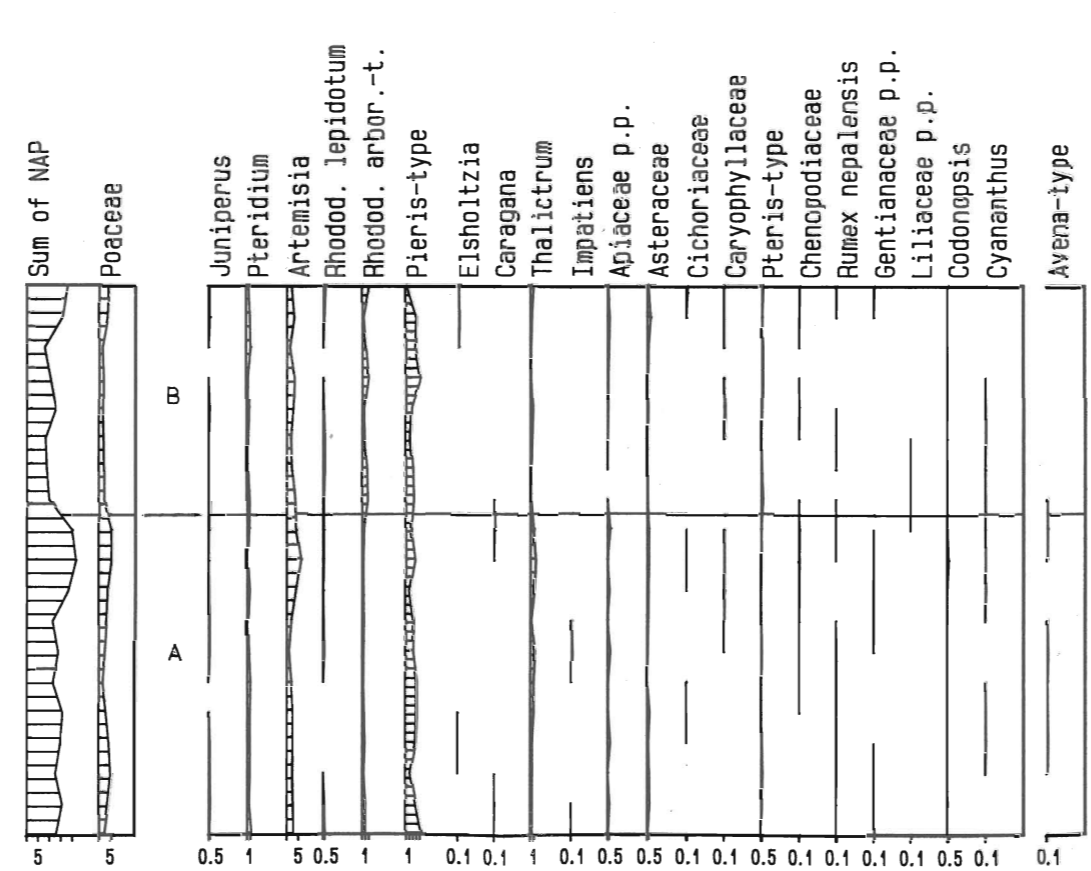


Fig. 26: Pollen diagram of the Langtang 18 profile, *Betula utilis* forest of the uppermost Langtang Valley (3820 m a.s.l.). Analyzed by H.-J. BEUG.





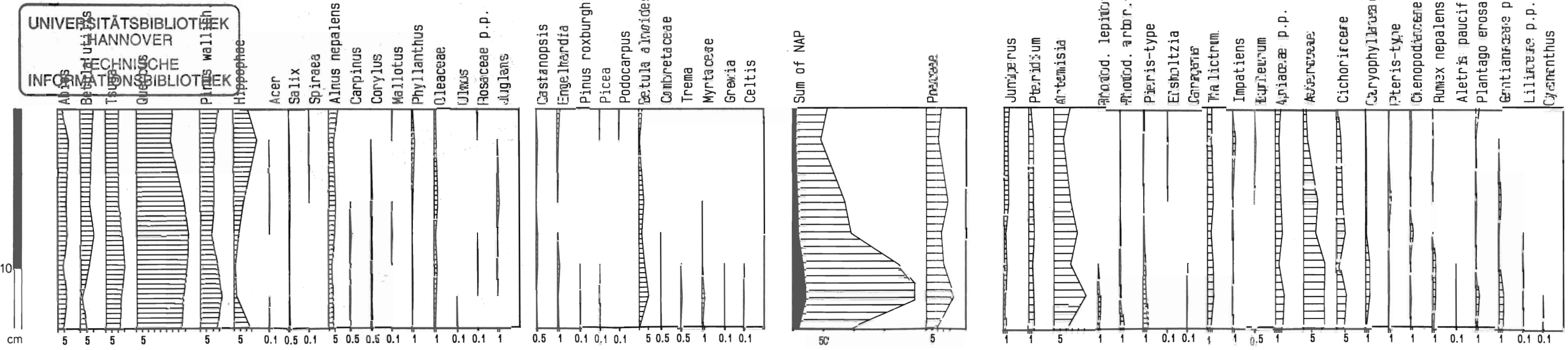
465±65 BP
 480±75 BP

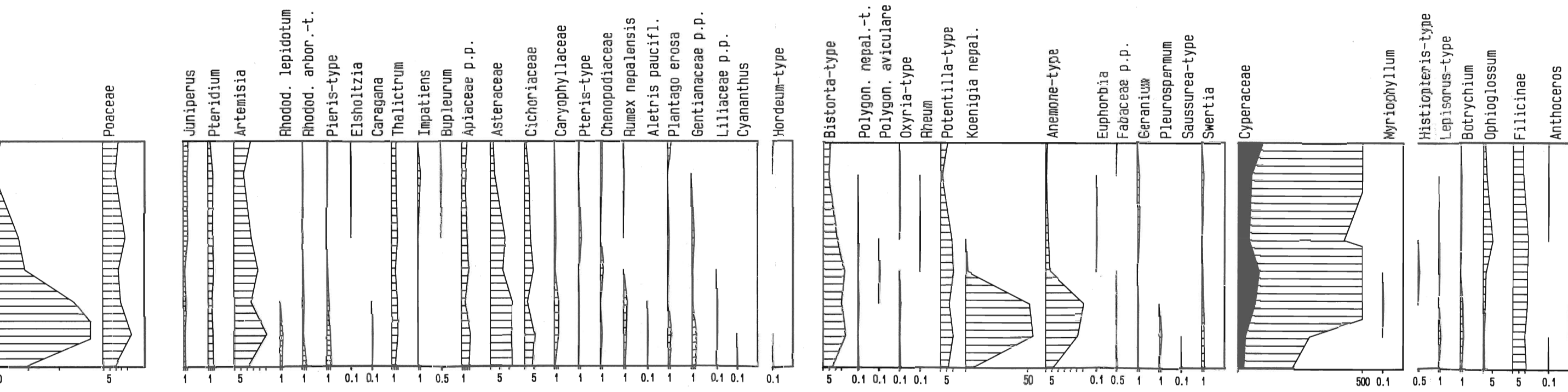


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Fig. 27: Pollen diagram of the Langtang 8 profile, subalpine belt of the uppermost Langtang Valley (4010 m a.s.l.).
Analyzed by H.-J. BEUG.

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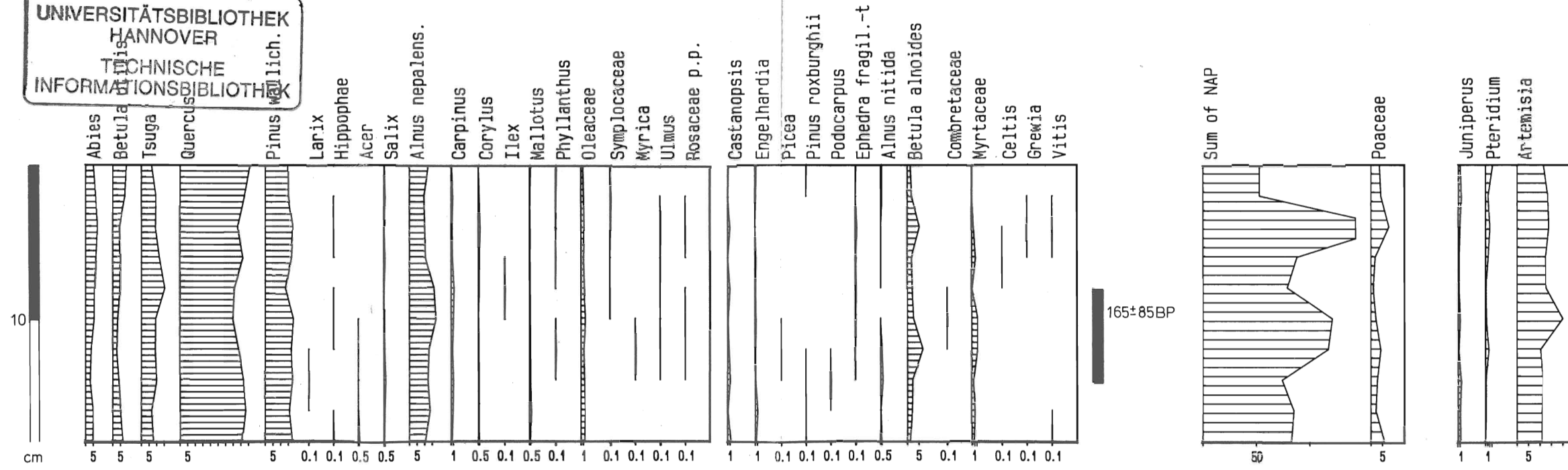




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KA 2492/318

Fig. 28. Pollen diagram of the Langtang 3 profile, alpine belt at 4830 m a.s.l.
Analyzed by H.-J. BEUG.

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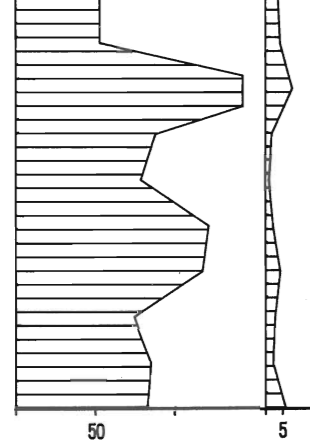


Grewia
Vitis

165±85BP

0.1

Sum of NAP



Poaceae

Juniperus

Pteridium

Artemisia

Rhodod. lepidotum

Rhodod. arbor.-t.

Pieris-type

Eisholtzia

Caragana

Thalictrum

Bupleurum

Apiaceae p.p.

Asteraceae

Cichoriaceae

Caryophyllaceae

Pteris-type

Aletris paucifl.

Chenopodiaceae

Rumex nepalensis

Gentianaceae p.p.

Liliaceae p.p.

Cyananthus

Hordeum-type

Avena-type

Fagopyrum

Bistorta-type

Polygon. aviculare

Polygon. alp.-t.

Oxyria-type

Rheum

Potentilla-type

Koenigia nepal.

Koenigia delicat.-t.

Anemone-type

Cannabis

Fabaceae p.p.

Geranium

Pleurospermum

Saussurea-type

Swertia

Cyperaceae

Sparganium-type

Histiopteris-type

Lepisorus-type

Polypod. excavat.-t.

Botrychium

Ophioglossum

Filicinae

Sphagnum

50

0.1

0.5

0.5

0.5

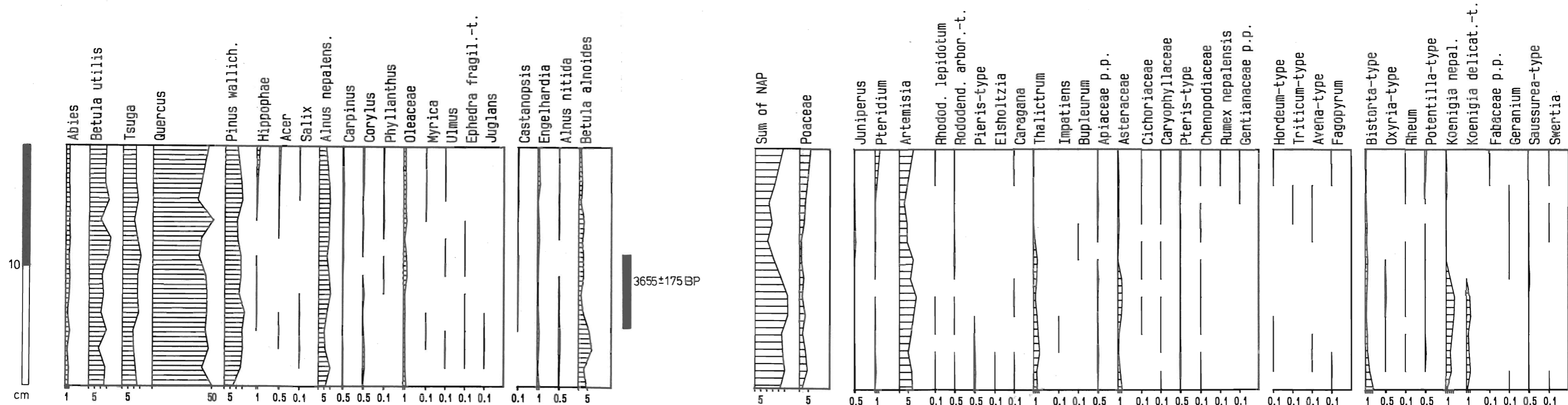
0.5

0.1

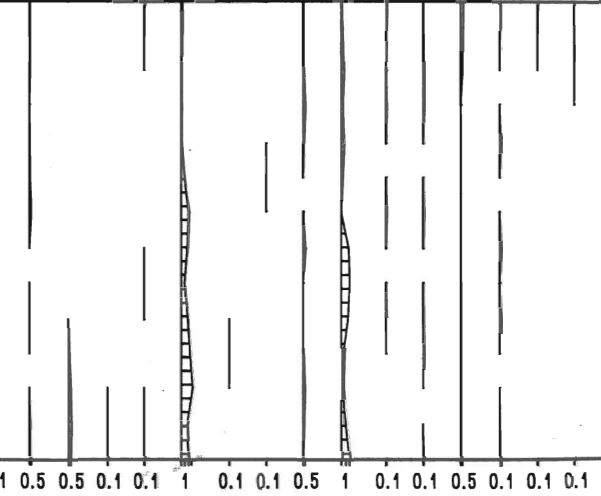
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0.1

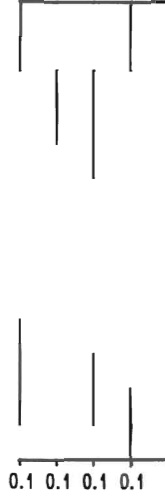
Fig. 29: Pollen diagram of the Langtang 6 profile, alpine belt at 5120 m a.s.l.
 Analyzed by H.-J. BEUG.



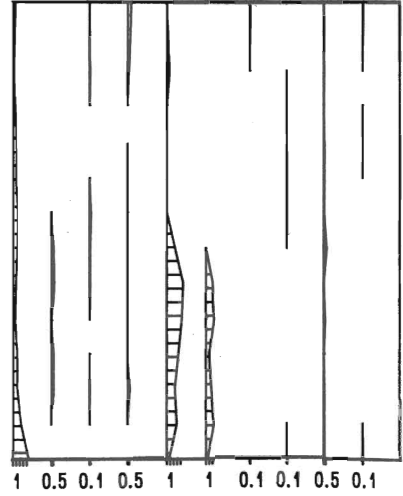
Rhodod. repiactum
 Rododend. arbor.-t.
 Pieris-type
 Elisholtzia
 Caragana
 Thalictrum
 Impatiens
 Bupleurum
 Apiaceae p.p.
 Asteraceae
 Cichoriaceae
 Caryophyllaceae
 Pteris-type
 Chenopodiaceae
 Rumex nepalensis
 Gentianaceae p.p.



Hordeum-type
 Triticum-type
 Avena-type
 Fagopyrum



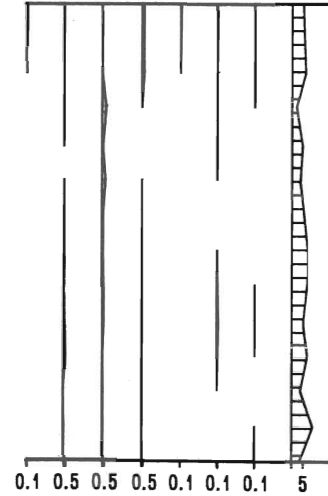
Bistoria-type
 Oxymia-type
 Rheum
 Potentilla-type
 Koenigia nepal.
 Koenigia delicat.-t.
 Fabaceae p.p.
 Geranium
 Saussurea-type
 Swertia



Cyperaceae



Alsophila-type
 Histiopteris-type
 Lepisorus-type
 Polypodium excavat.-t.
 Osmunda
 Botrychium
 Ophioglossum
 Filicinae



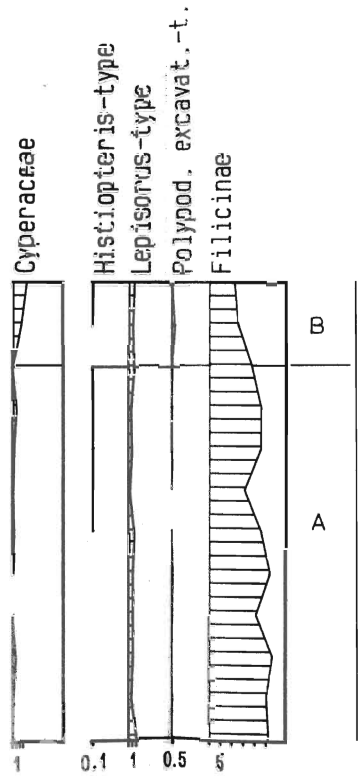
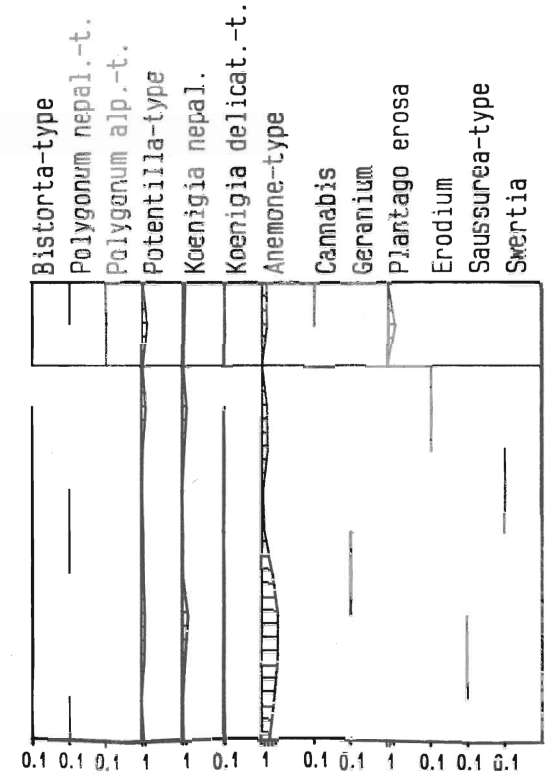
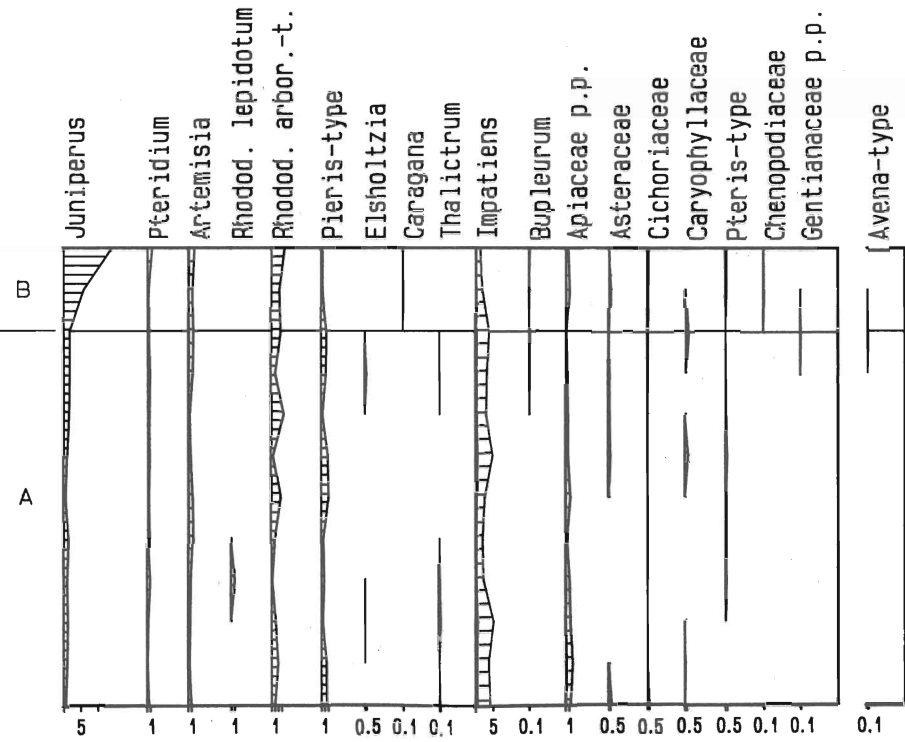
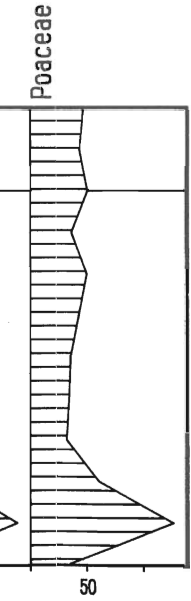
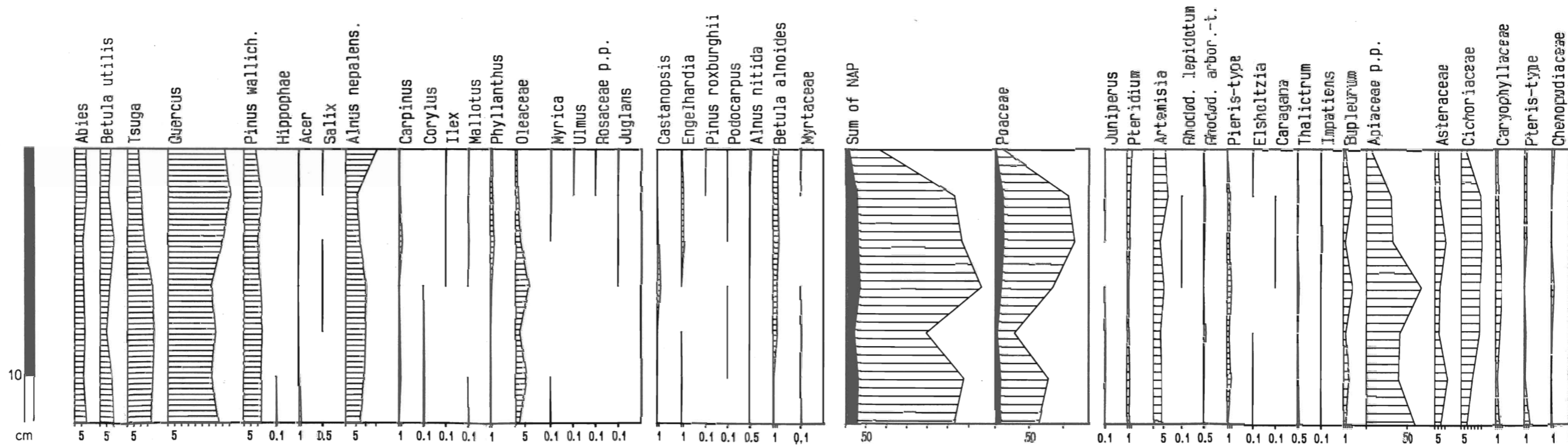


Fig. 31: Pollen diagram of the Helambu 2 profile, lower alpine belt of the southern declivity of the Himalaya at 4320 m a.s.l.
 Analyzed by H.-J. BEUG.

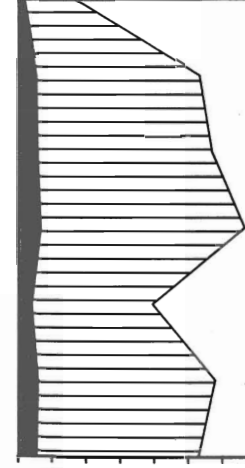


Myrtaceae



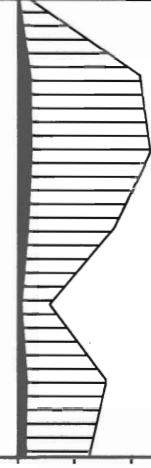
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Sum of NAP



50

Poaceae



50

Juniperus



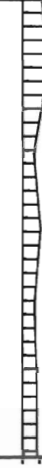
0.1

Pteridium



1

Artemisia



5

Rhodod. lepidotum



0.1

Rhodod. arbor.-t.



0.5

Pieris-type



1

Eisholtzia



0.1

Caragana



0.1

Thalictrum



0.5

Impatiens



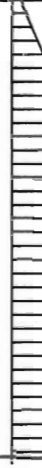
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Bupleurum



1

Apiaceae p.p.



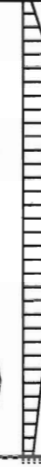
50

Asteraceae



5

Cichoriaceae



5

Caryophyllaceae



1

Pteris-type



1

Chenopodiaceae



0.1

Rumex nepalensis



0.1

Gentianaceae p.p.



5

Liliaceae p.p.



1

Cyananthus



5

Meconopsis



50

Morina nepalens.



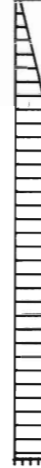
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Aletris paucifl.



1

Bistorta-type



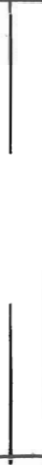
5

Polygon. nepal.-t.



0.1

Polygon. aviculare



0.1

Polygon. alp.-t.



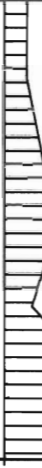
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Oxyria-type



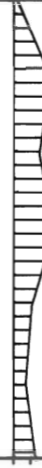
0.1

Potentilla-type



50

Koenigia nepal.



5

Koenigia delicat.-t.



0.1

Anemone-type



5

Cannabis



0.1

Geranium



0.5

Erodium



0.5

Pleurospermum



0.1

Saussurea-type



0.5

Cyperaceae



50

Alsophila-type



0.1

Histiopteris-type



0.5

Lepisorus-type



1

Polypod. excavat.-t.



0.1

Botrychium



0.1

Ophioglossum



0.1

Filicinae



5