



Università
degli Studi
di Ferrara

Dipartimento di Studi
Umanistici



Ecologia Preistorica

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Lezione 7 – Altri archivi: depositi di cavità atriale,
ritmiti lacustri, anelli di accrescimento.

Properties of natural archives:

- *should allow for chronostratigraphic precision, obtained by comparing independent geochronometric and biostratigraphic methods*
- *time duration*
- *time resolution*
 - *potential time resolution*
(which is the highest time resolution offered by the archive?)
 - *effective resolution obtained by the investigations carried out*
(mean chronological distance between analyzed samples)
- *availability of proxies for the reconstruction of past climate and environmental variables*

Privileged archives for Quaternary palaeoecological studies are:

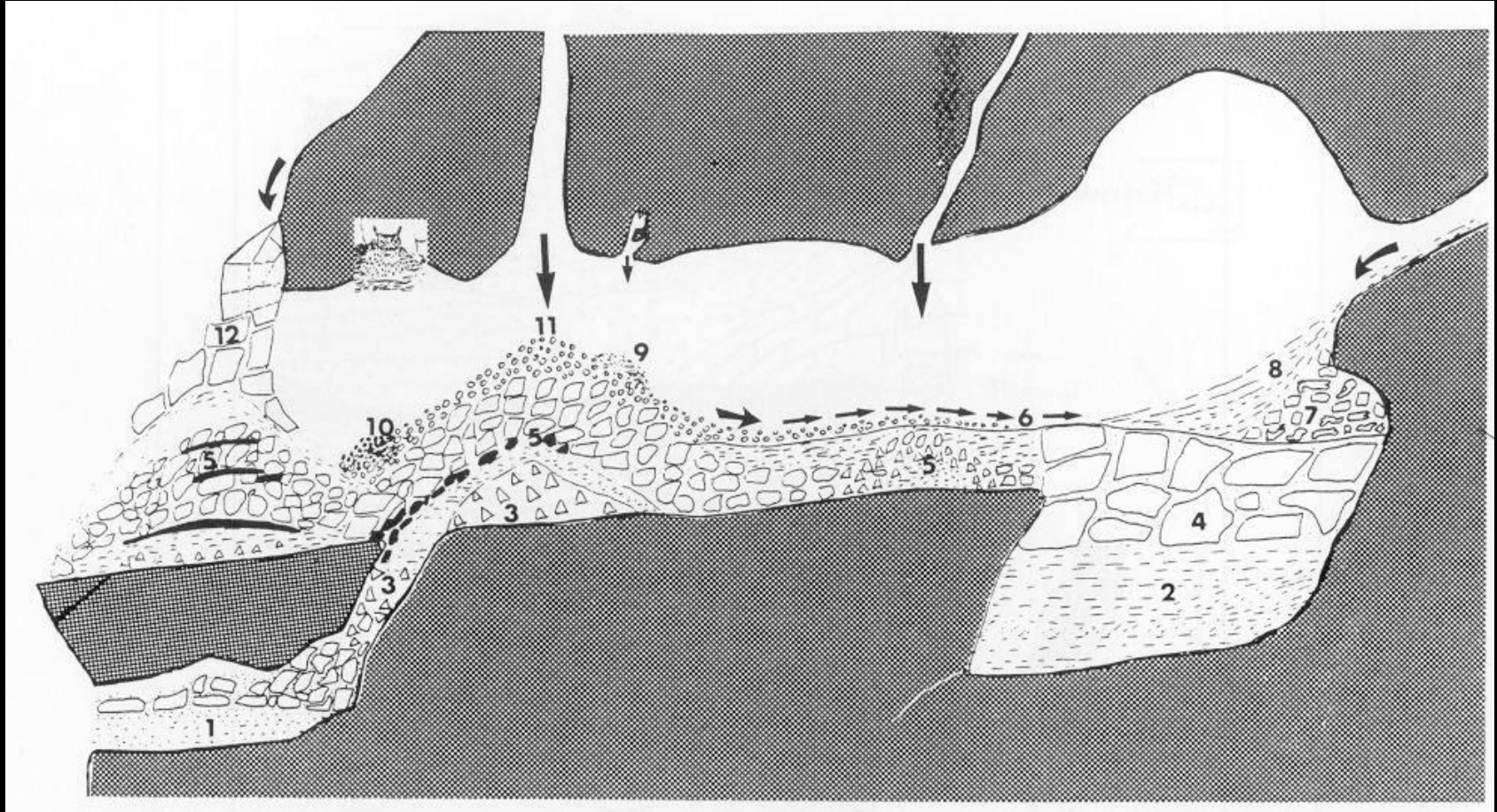
- lacustrine, palustrine, fine-grained fluvial and marine sediments;
- archaeological deposits;
- soils (not always)



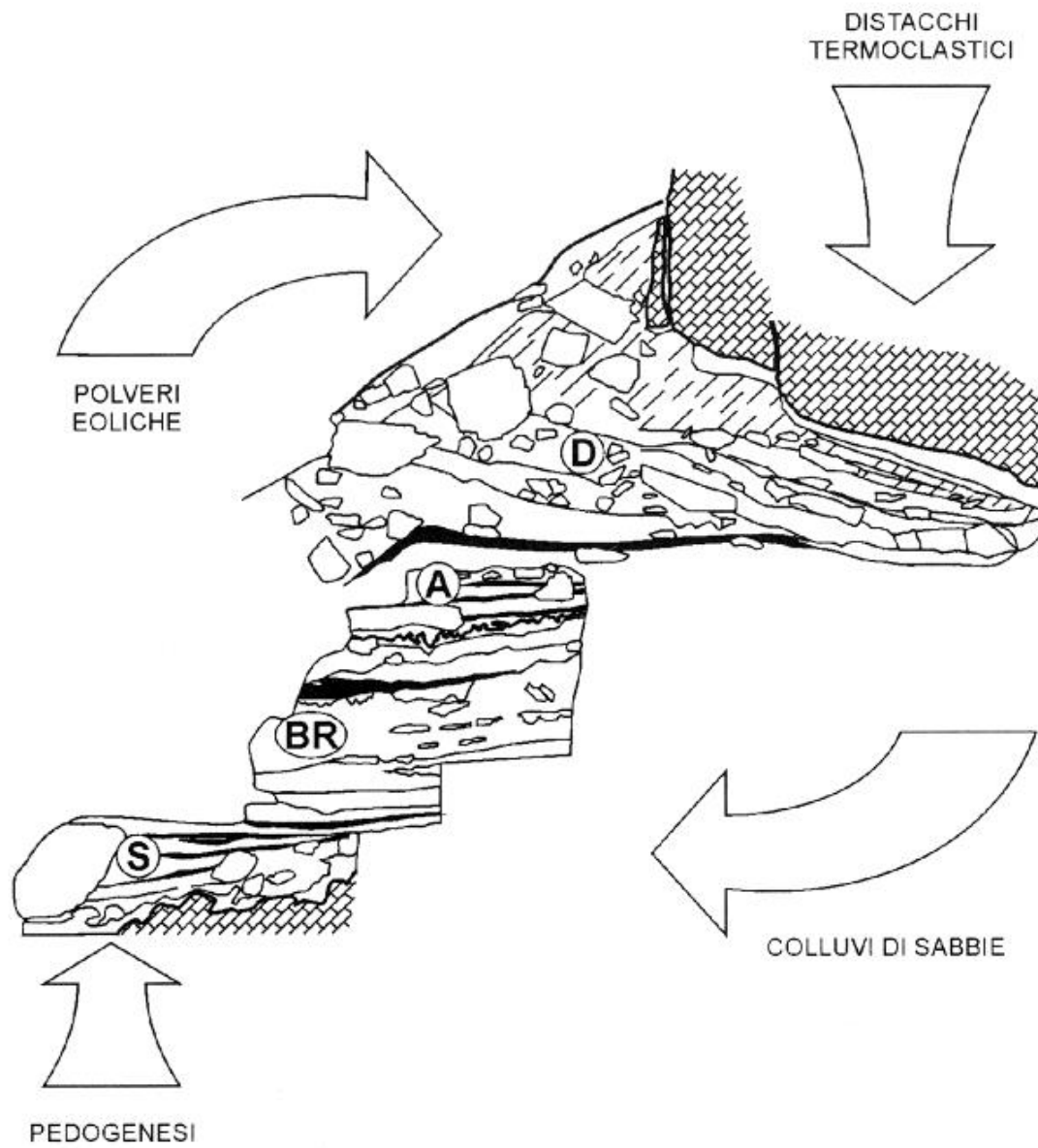
Depositi di cavità atriale



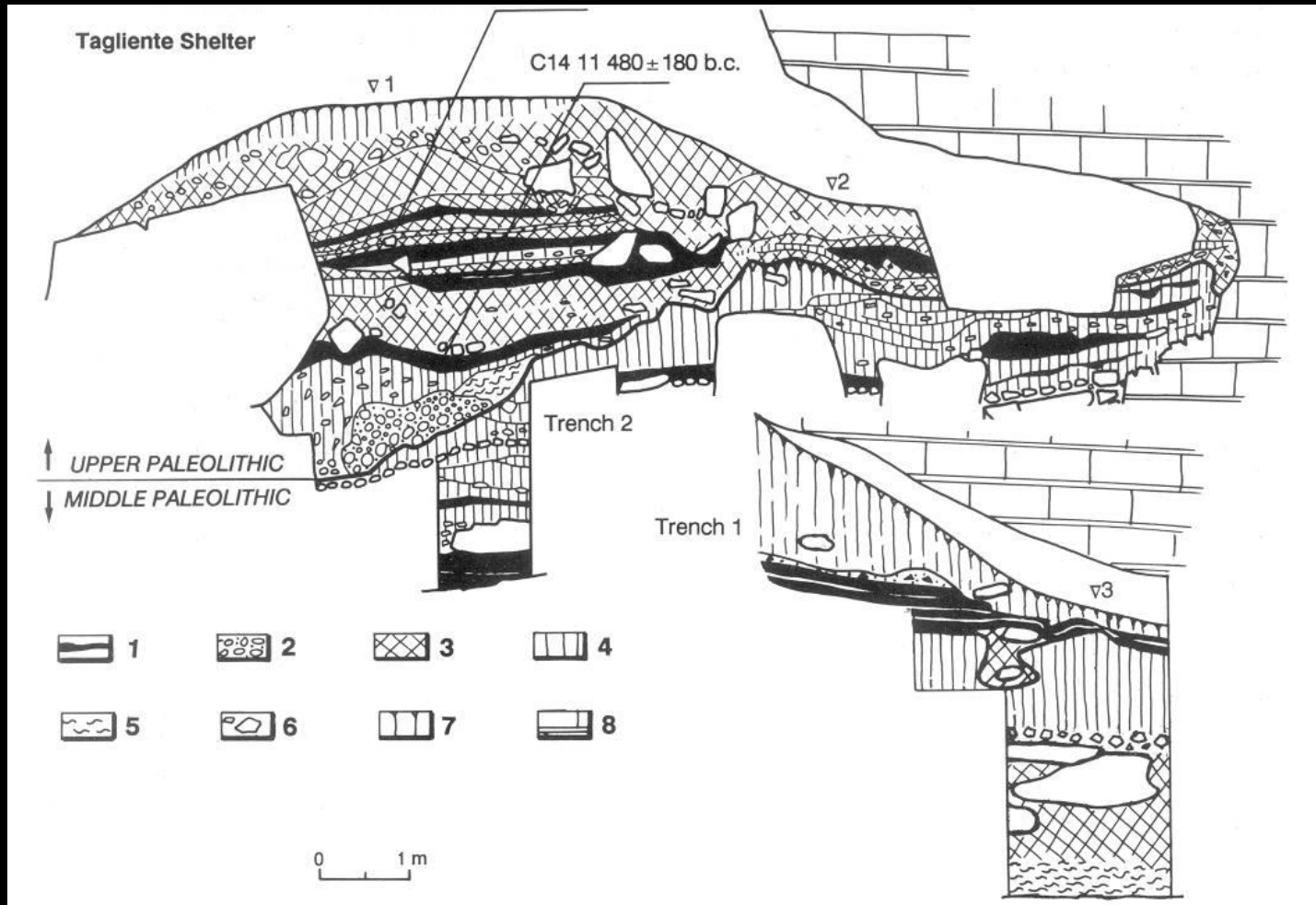
Depositi di cavità carsica



1-deposito in massa in condotto carsico; 2-depositi stratificati in bacino idrico; 3, 4, 7, 9 accumuli da crolli interni; 5-accumuli di cavità atriale e livelli archeologici; 6-detriti mobilizzati per calpestio; 8-colluvi interni; 10-accumuli biogenici; 11-apporti da fessure verticali; 12-crolli zona atriale.

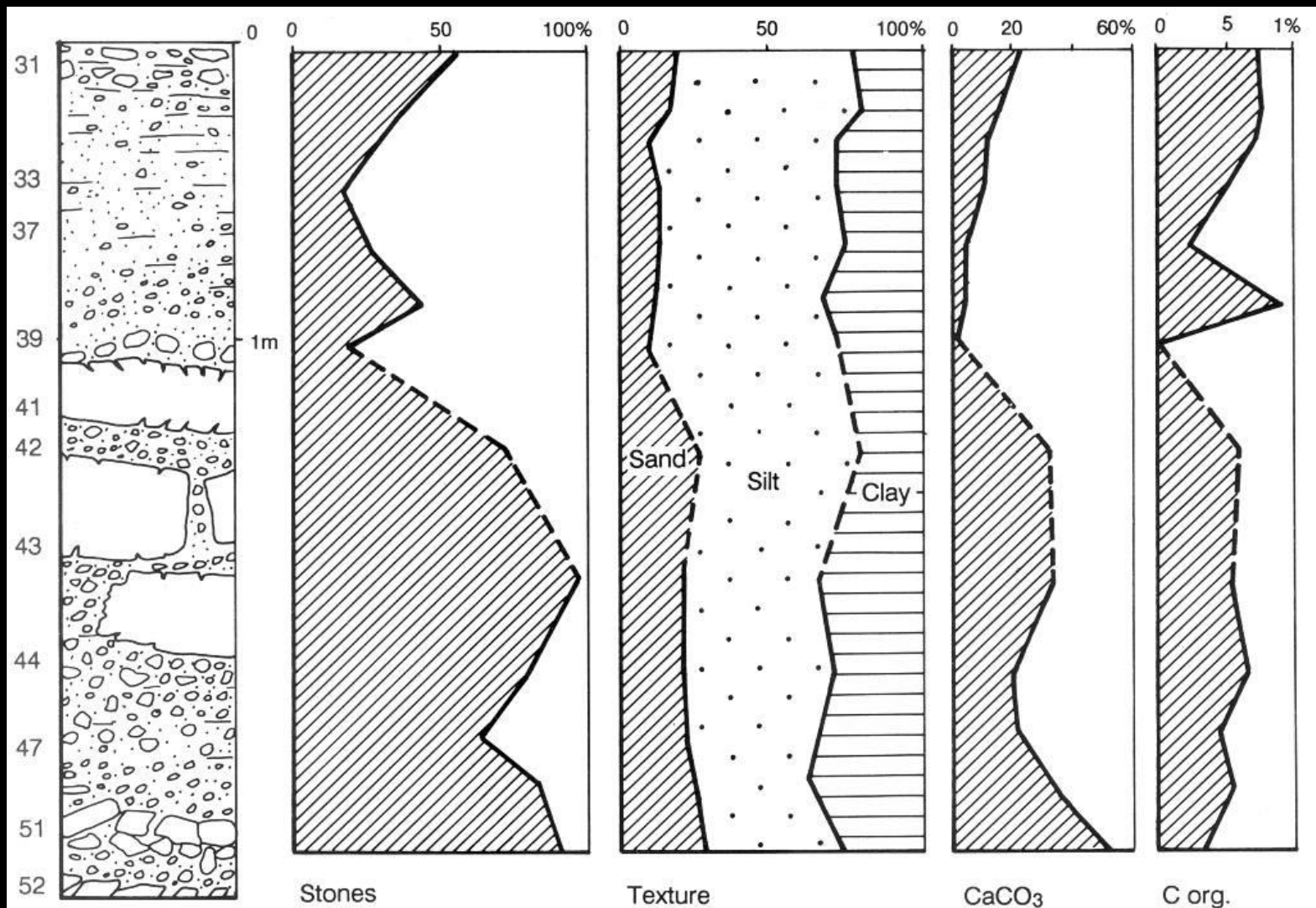


Riparo Tagliente, sezione longitudinale

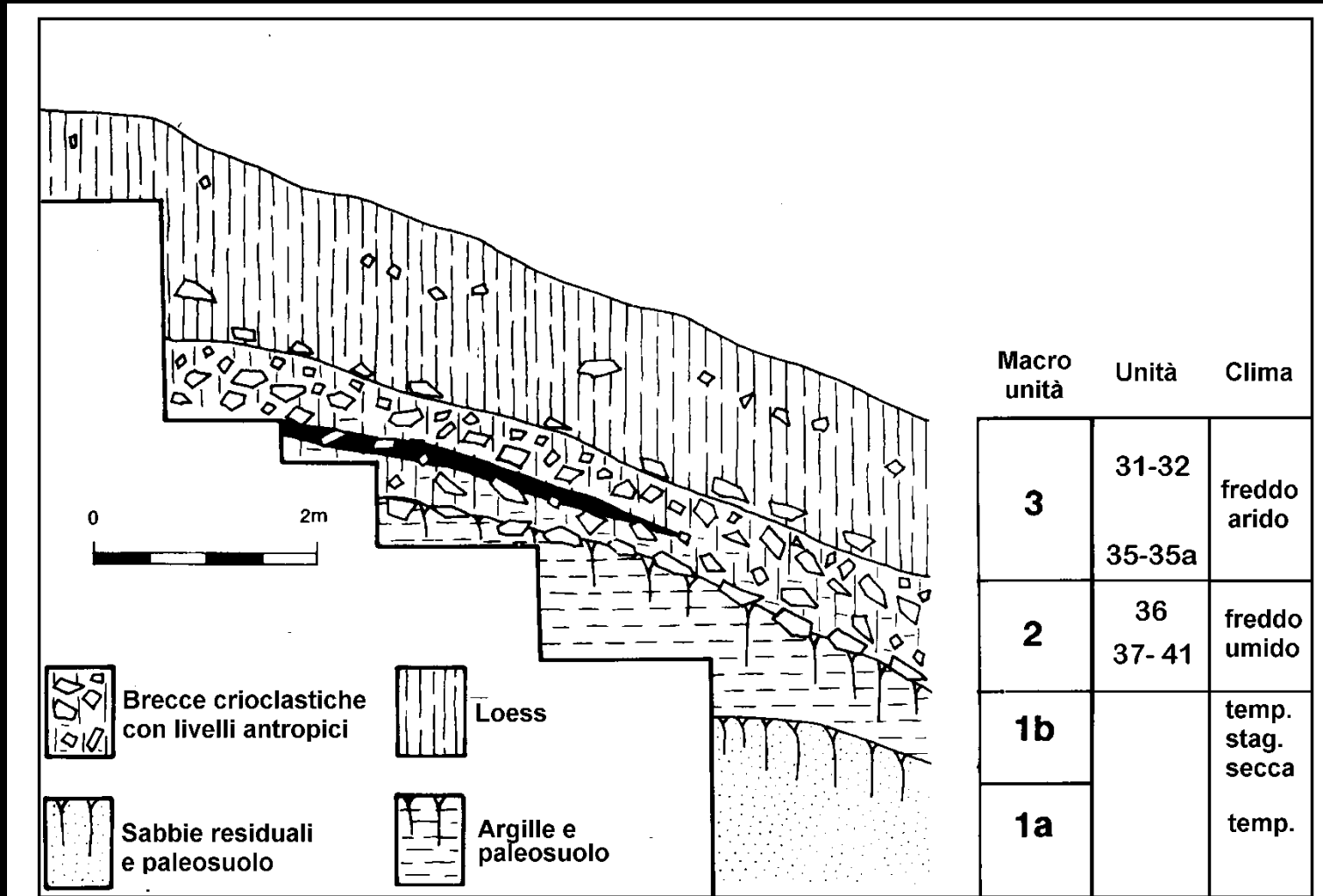


1-livello archeologico; 2-ghiaie fluviali; 3-breccia; 4-loess; 5-suoli colluviati; 6-blocchi; 7-suoli; 8-substrato carbonatico.

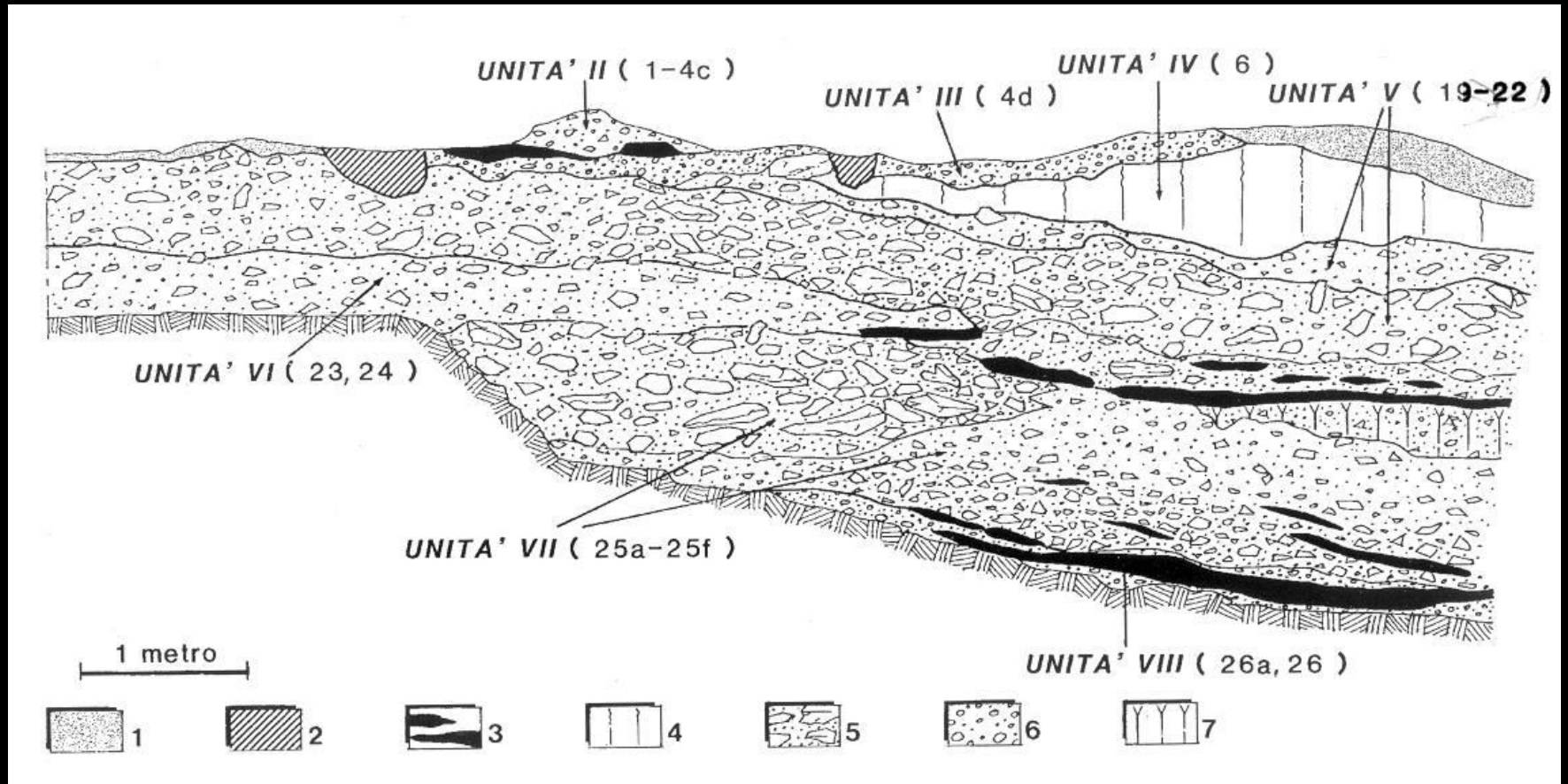
Riparo Tagliente, variazione composizione sedimenti



Grotta della Ghiacciaia

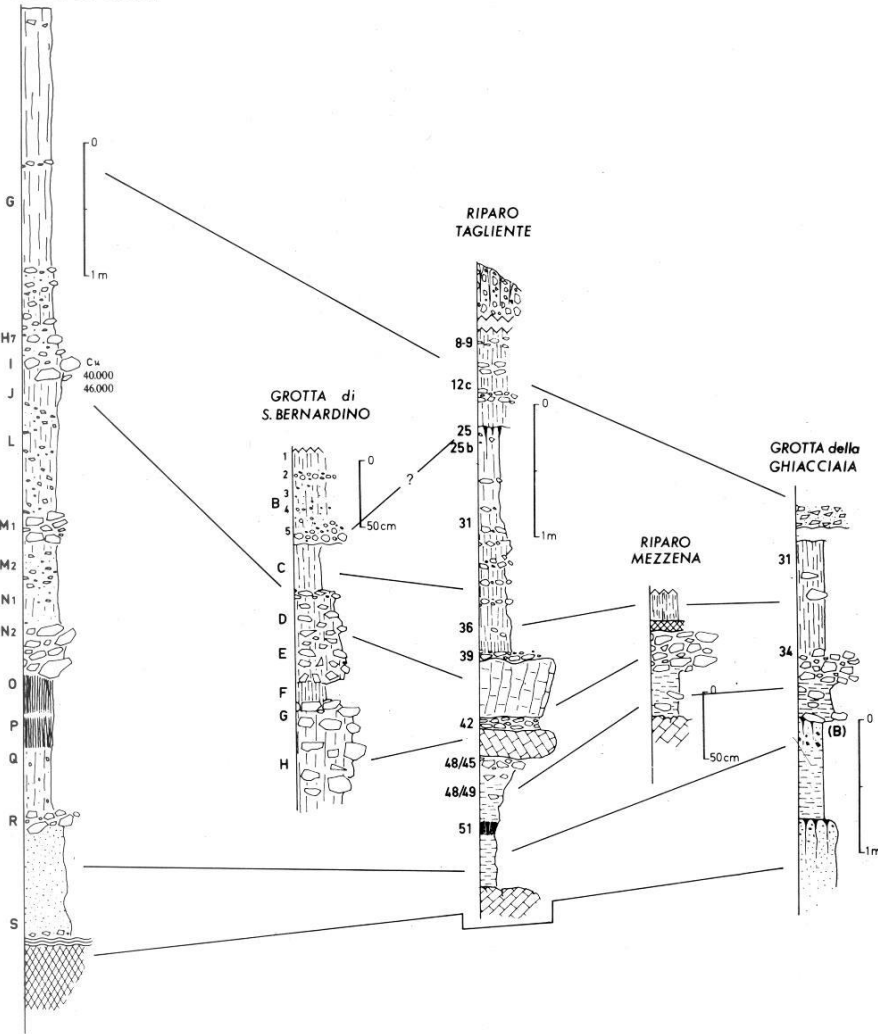


Grotta di San Bernardino, sezione longitudinale



1-livello rimaneggiato; 2-bioturbazione; 3-livello antropizzato; 4-loess; 5-breccia; 6-ghiaia; 7-suolo.

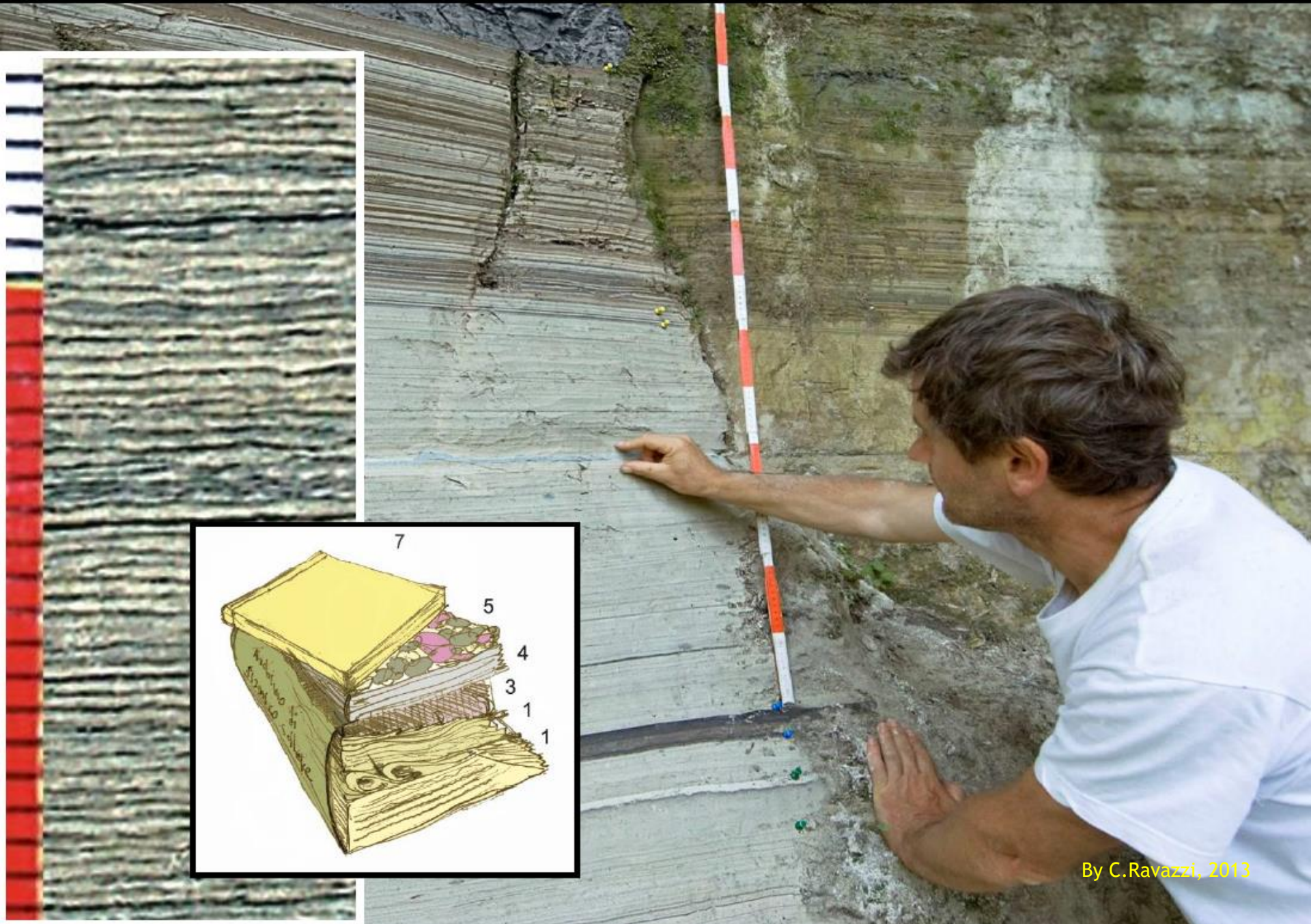
GROTTA del BROION



Correlazioni stratigrafiche tra depositi di cavità atriale.

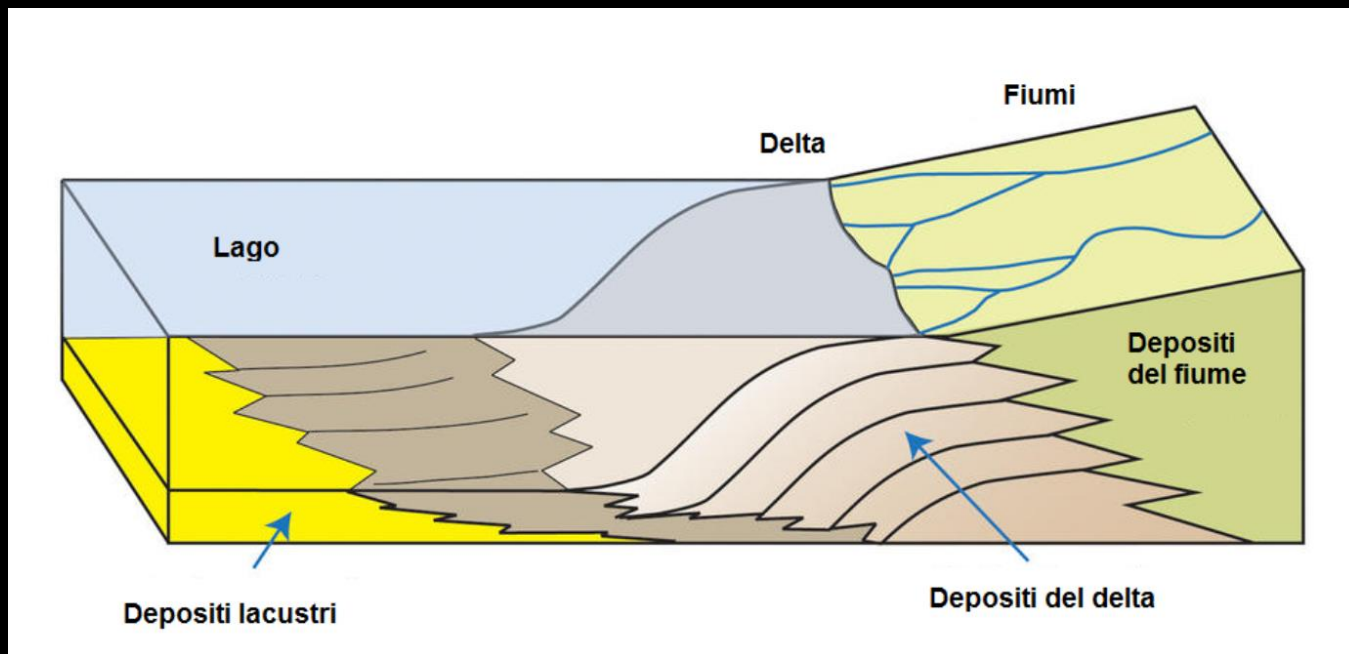
ARCHIVI LAMINATI LACUSTRI

Lakes as natural archives of the history of past environments and climate



1. Depositi varvati lacustri

Deposito lacustre: termine generico riferito a qualsiasi sedimento deposto in ambiente lacustre



I laghi morenici si formano all'interno di un deposito morenico e sono delimitati da cordoni o elementi di anfiteatri



Campionamento depositi varvati di lago glaciale



I depositi a varva sono sedimenti sottilmente stratificati formati per accumulo annuale sul fondo di un lago, composti da strati a grana grossa e a grana fine, alternantisi. L'unità di base di simili depositi è la varva, una coppia composta da uno strato a grana grossa (sabbia o limo) e da uno strato sovrastante a grana fine (limo o argilla).

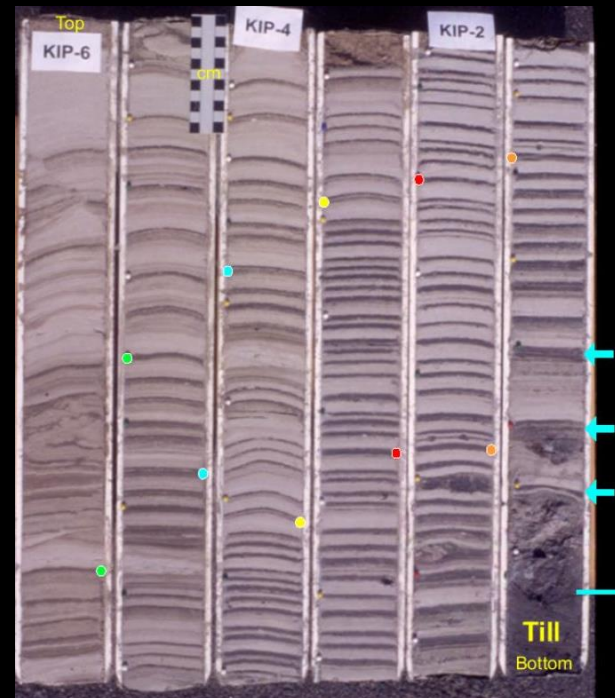


Nei laghi con immissari si osservano le
Varve lacustri:

- lo strato estivo è chiaro (disgelo, fiumi in piena),
- lo strato invernale scuro (gelo fiumi in magra)

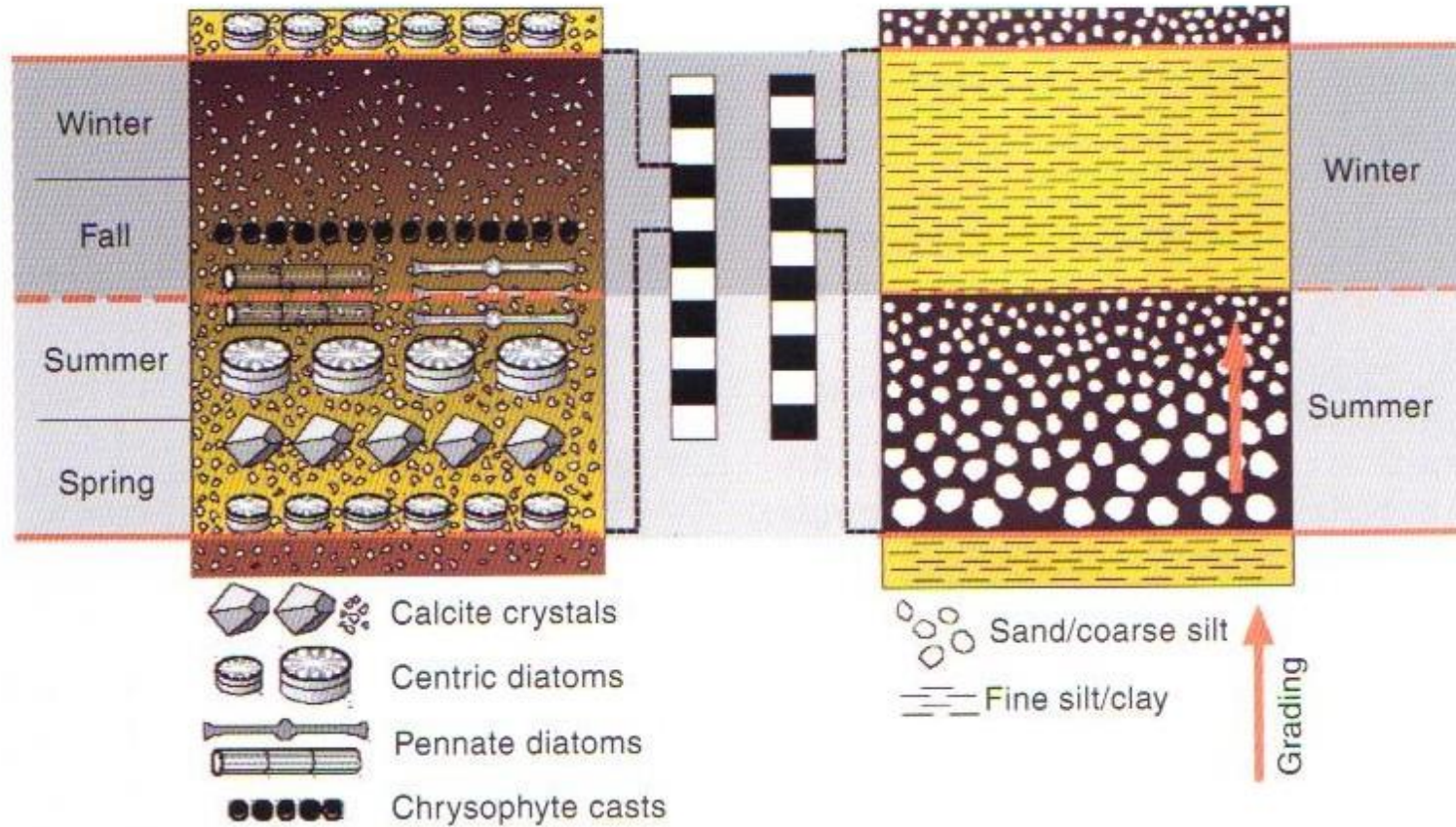


Figure 1 Pleistocene glacial varves cropping out at Eberswalde-Macherslust, Brandenburg, Germany. Note the decreasing varve thickness towards the top as a result of increasing distance from the active ice margin. The scale bar is 30 cm. Photograph by B. Zolitschka.



Organic varve

Clastic varve



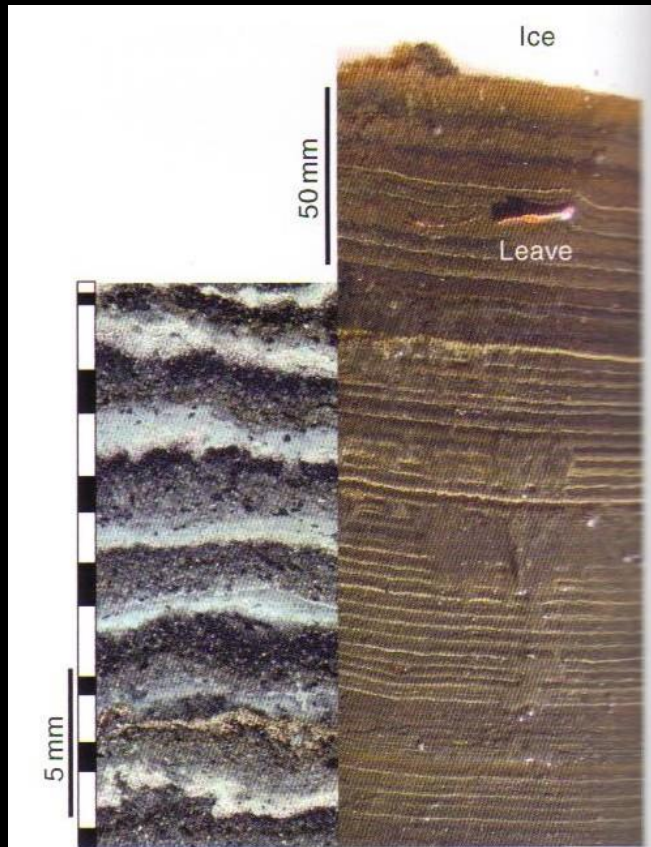


Figure 7 Varved lake sediments from Sacrower See near Potsdam, Brandenburg, Germany. Macroscopic photograph (right): Freeze core of carbonaceous organic varves with well-preserved sediment-water (ice) interface on top and a well-preserved leave at 4 cm depth. Pale laminas are composed of calcite. Microscopic photograph with polarized light (left): Internal structure of carbonaceous organic varves. The annual succession consists of three laminas: spring planktonic diatom blooms (almost black), calcite laminas from summer (white) and detritic wintertime laminas (grayish). Photographs by D. Enters (left), P. Bluszcz (right).

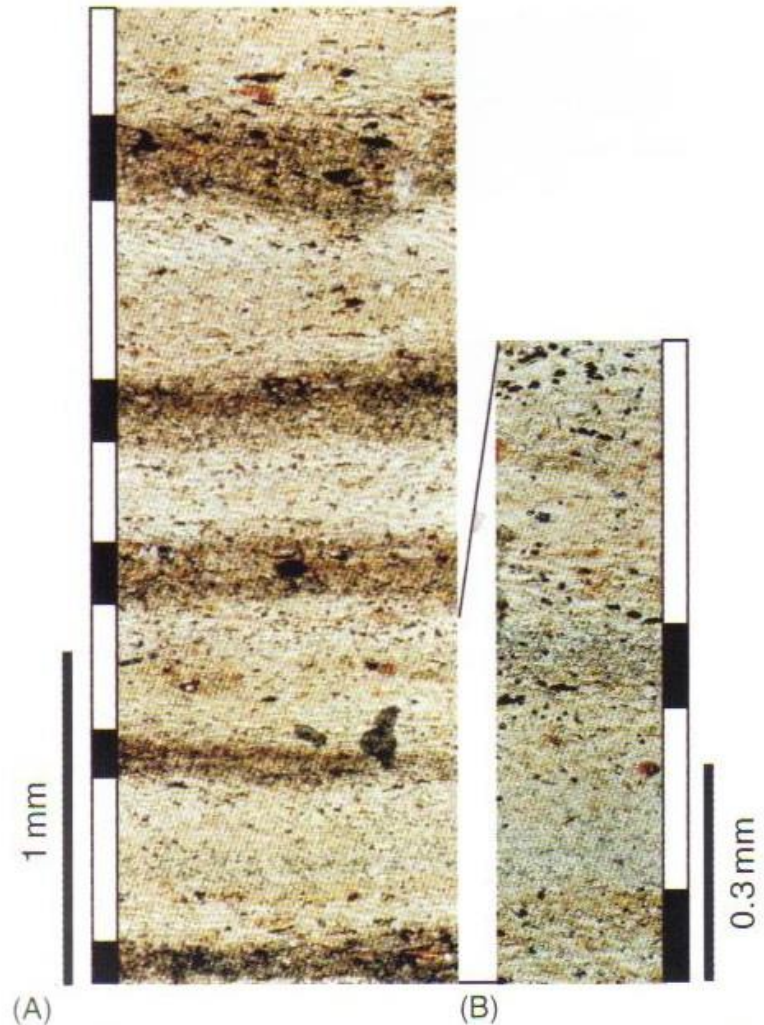
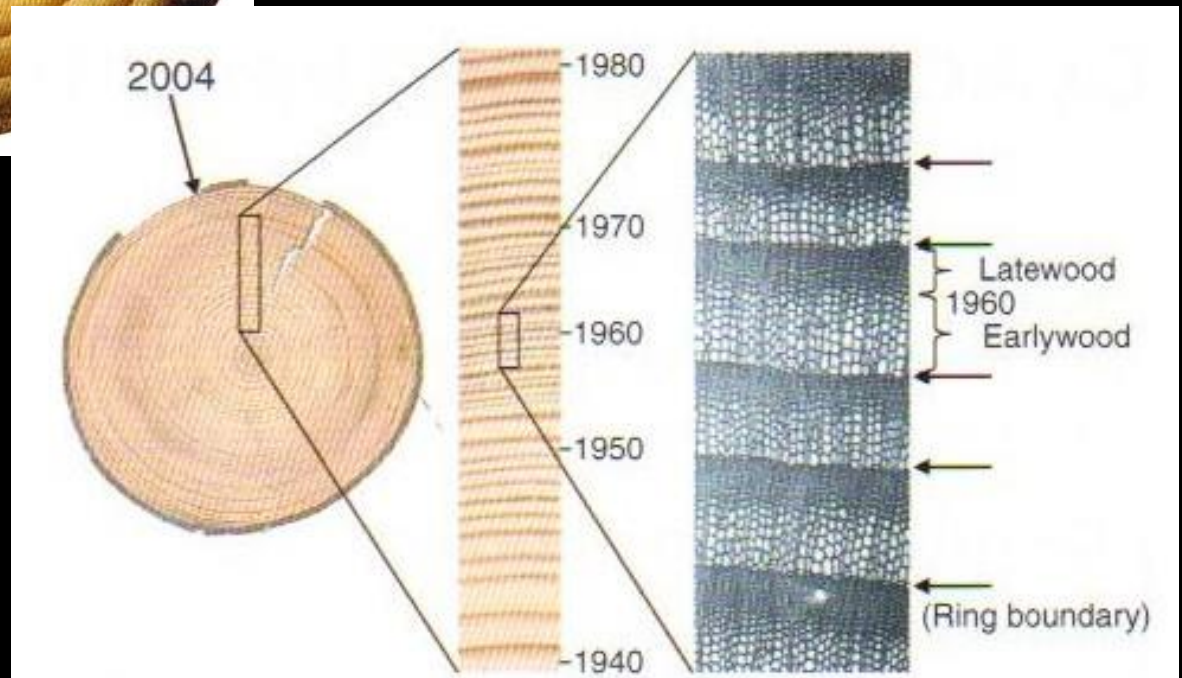
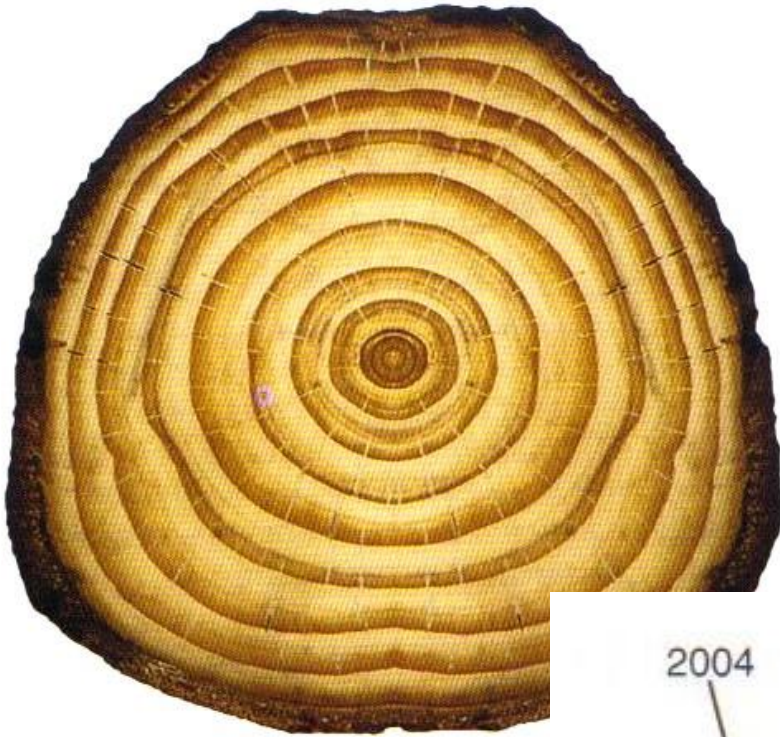


Figure 6 Organic varved lake sediments from Holzmaar, Eifel, Germany. A, The macroscopic photograph shows organic varves composed of diatoms (pale laminas) and organic detritus (dark laminas); B, The microscopic photograph with normal light (right) shows the internal structure of these organic varves with massive planktonic diatom blooms in pale laminas and larger benthic and epiphytic diatoms in dark laminas. Photographs by B. Zolitschka.

Anelli di accrescimento piante arboree.
Dendrocronologia

Anelli di accrescimento piante arboree. Dendrocronologia



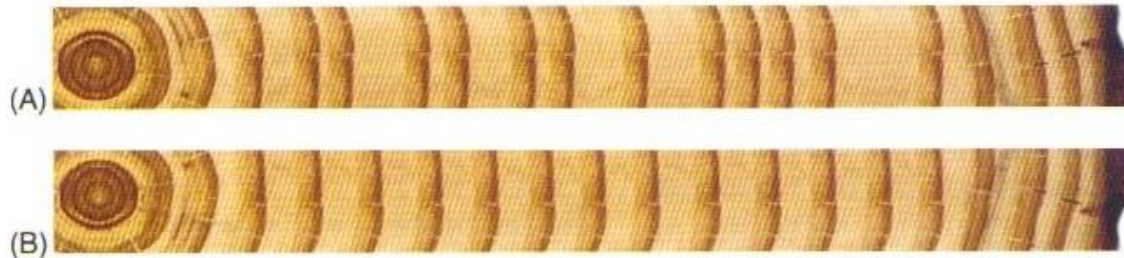
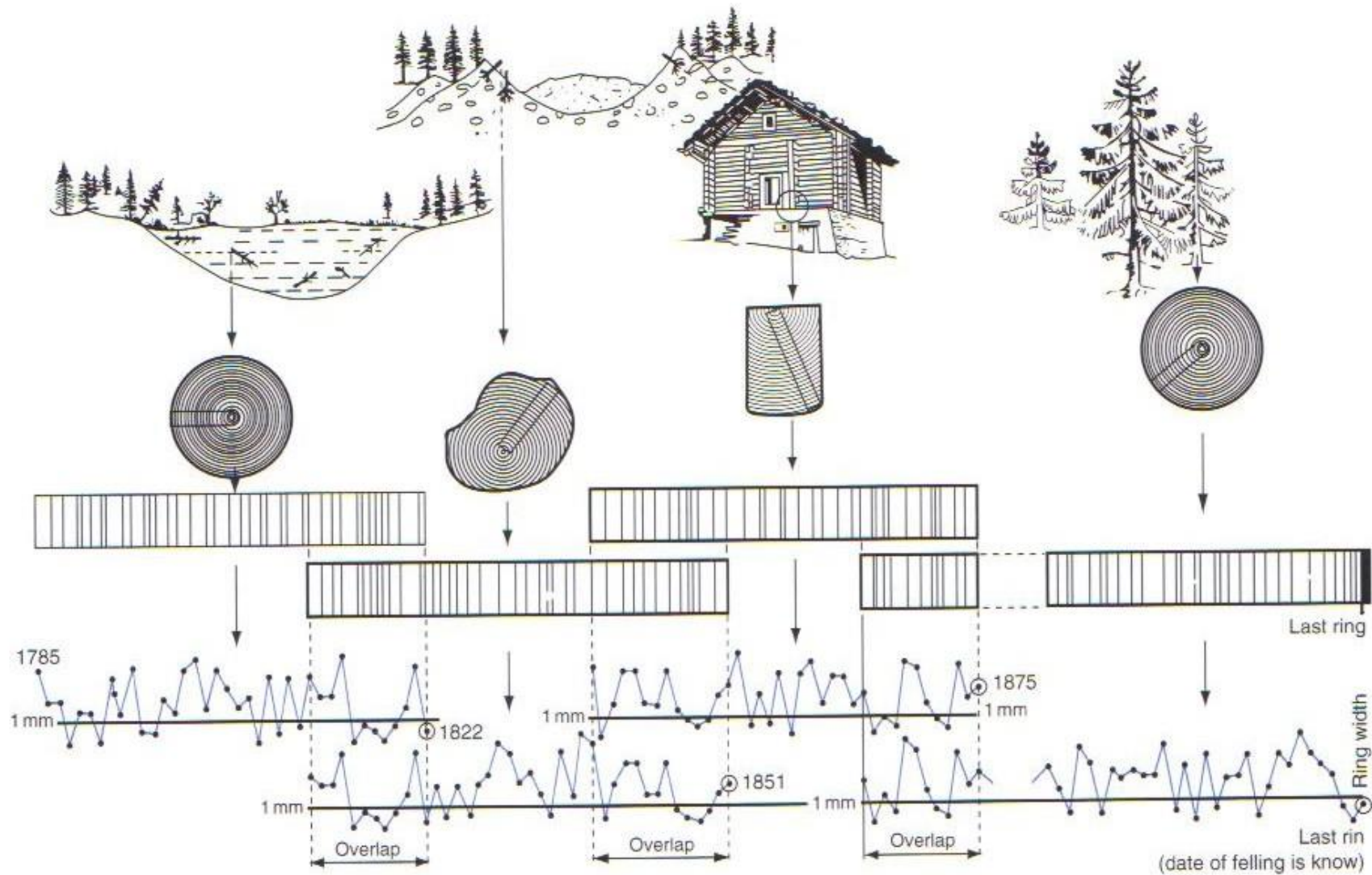
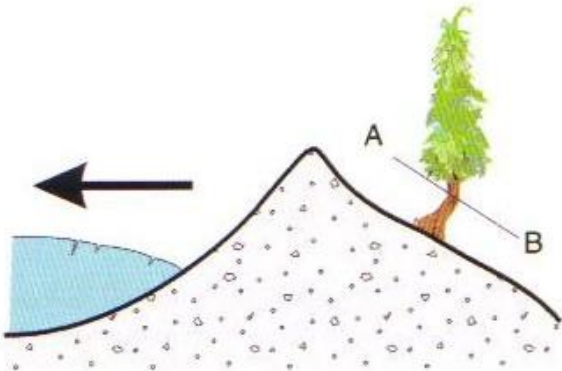
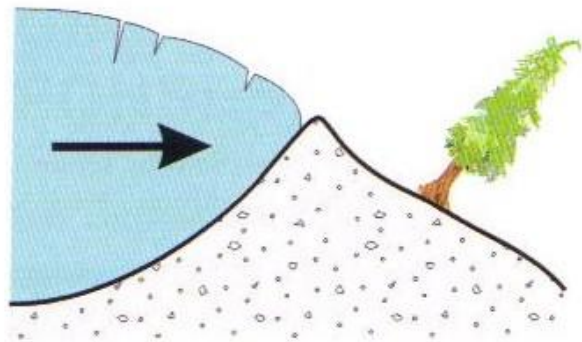
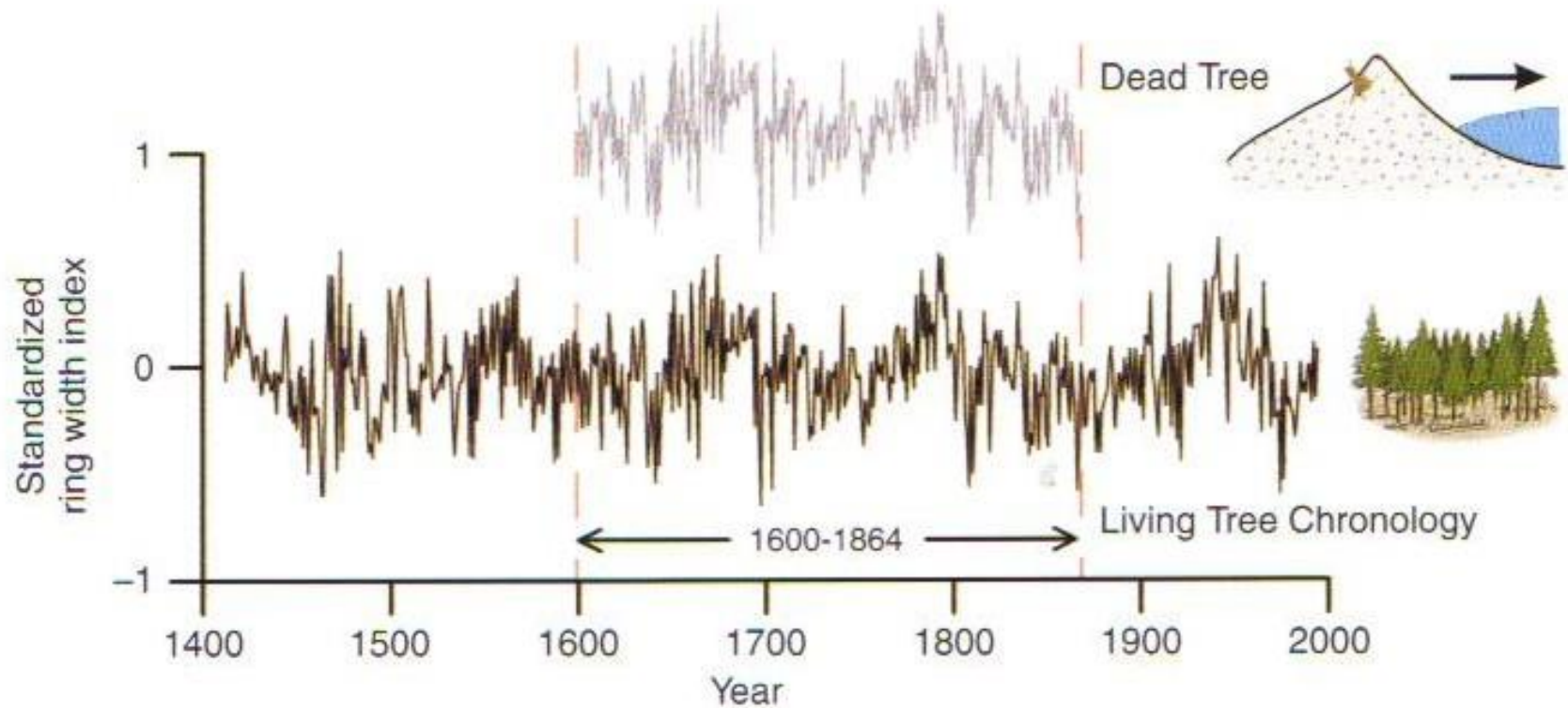


Figure 4 Illustration of effects of the Principles of Ecological Amplitude and Site Selection. Shown is the radial growth response of trees to limiting environmental factors under different site conditions. The top ring-width pattern (A) is from a tree found growing near its ecological limit and as a result of being is temperature and moisture stressed, it produces variable ring-widths sensitive. The sample below (B), is from a tree near the center of ecological range and not limited by environmental factors. As a result, the tree is not stressed and is producing complacent tree rings with little variability. © Arctic, Antarctic & Alpine Research 2004, V36, p. 602.







Recupero di alberi tardoglaciali

Torbiera di Palughetto, Altopiano del Cansiglio, Prealpi Venete)





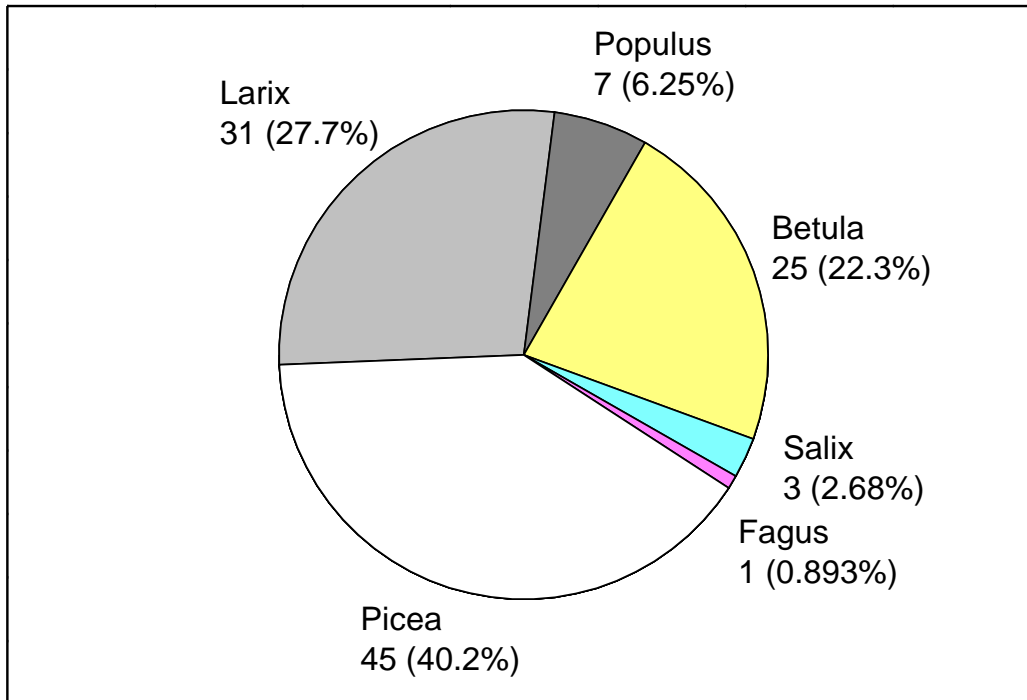
Picea – Stem



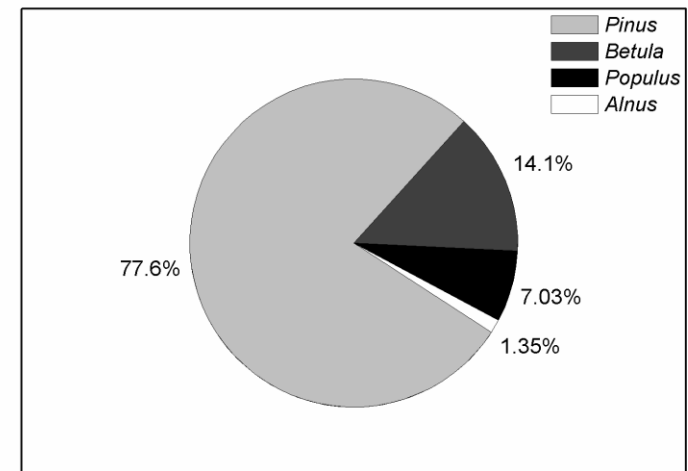
Larix – Stem



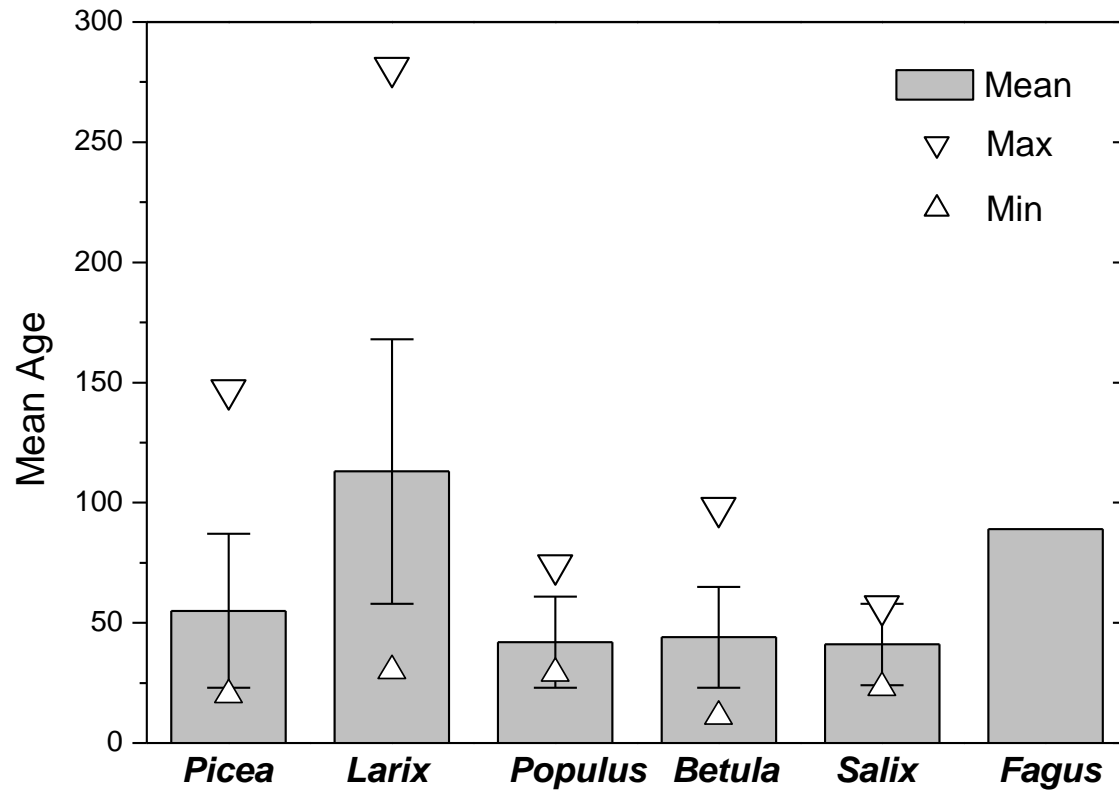
Palughetto: Wood Samples – Tree species



*Reichwalde Allerod forest
(Germany)*



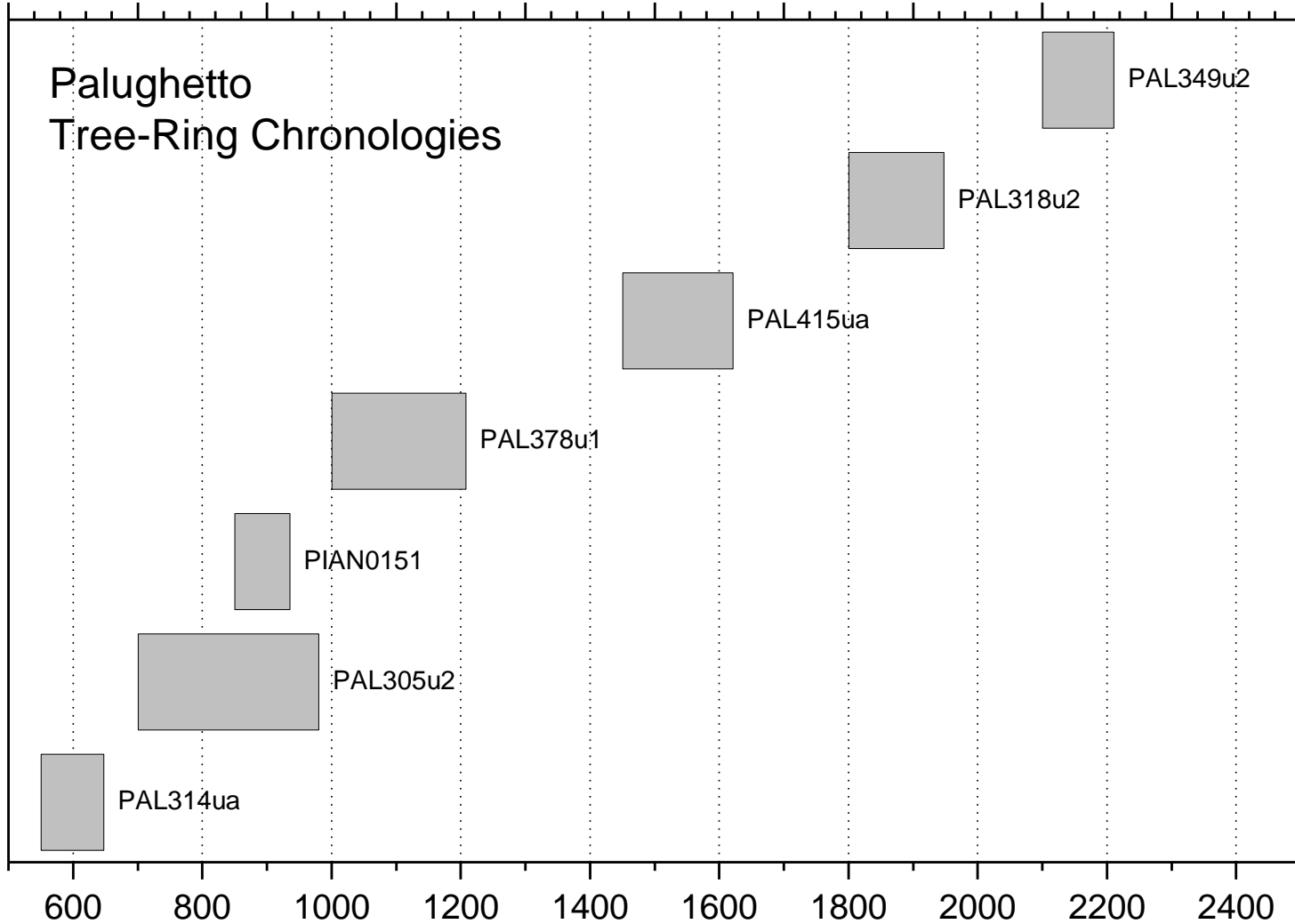
Mean individual age of the trees



cal BP

14600 14400 14200 14000 13800 13600 13400 13200 13000 12800 12600

Palughetto Tree-Ring Chronologies



Pos. LG1

Anchored and floating tree-ring chronologies in Europe

