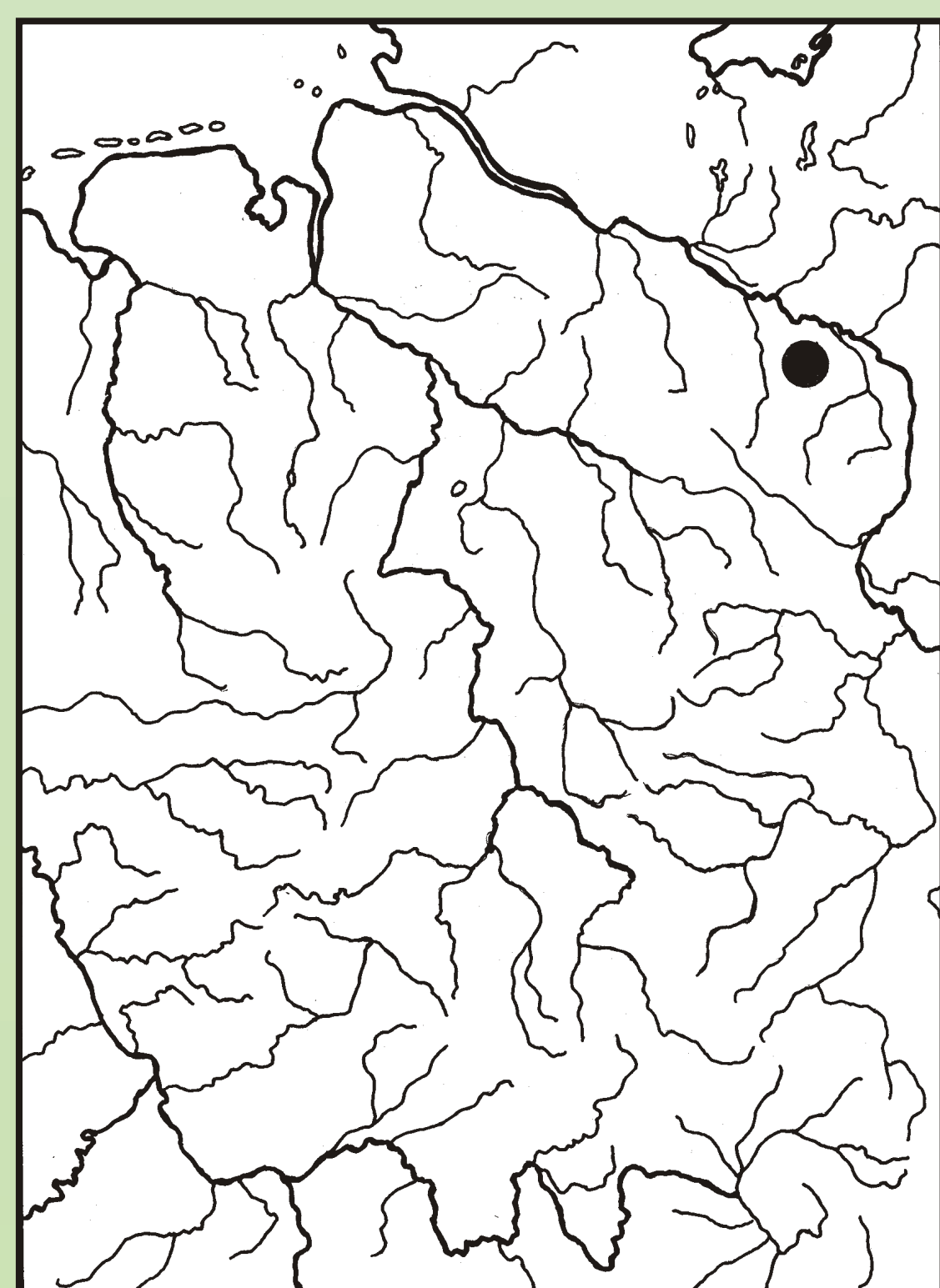


Aim of the study: History of vegetation and human impact during the time slice III shown by a high-resolution record.



Study area. The Altmark is situated S of the Hannoversches Wendland and W of the river Elbe and NE of the Drömling. The area was formed by the glacial activities during the Warthe stadial of the Saale glaciation. Climatically, the study area is situated on the transition between atlantic and continental conditions. Pine and oak forests occur near Lake Arend.

Lake Arend. The lake occupies an area of 554 ha and has a water depth of 54 m. It is a sinkhole formed by salt tectonic processes. The development of the lake is not yet fully understood. There are Late Glacial sediments and a forerunner of the Lake (Wendisch Lake) was considerably deepened in 822 and in 1685 AD. The sediment cores used for the palynological study were obtained by the working group of Dr. habil. Scharf and Dipl.-Biol. Röhrig, Magdeburg, from the sediments of the Wendisch Lake.

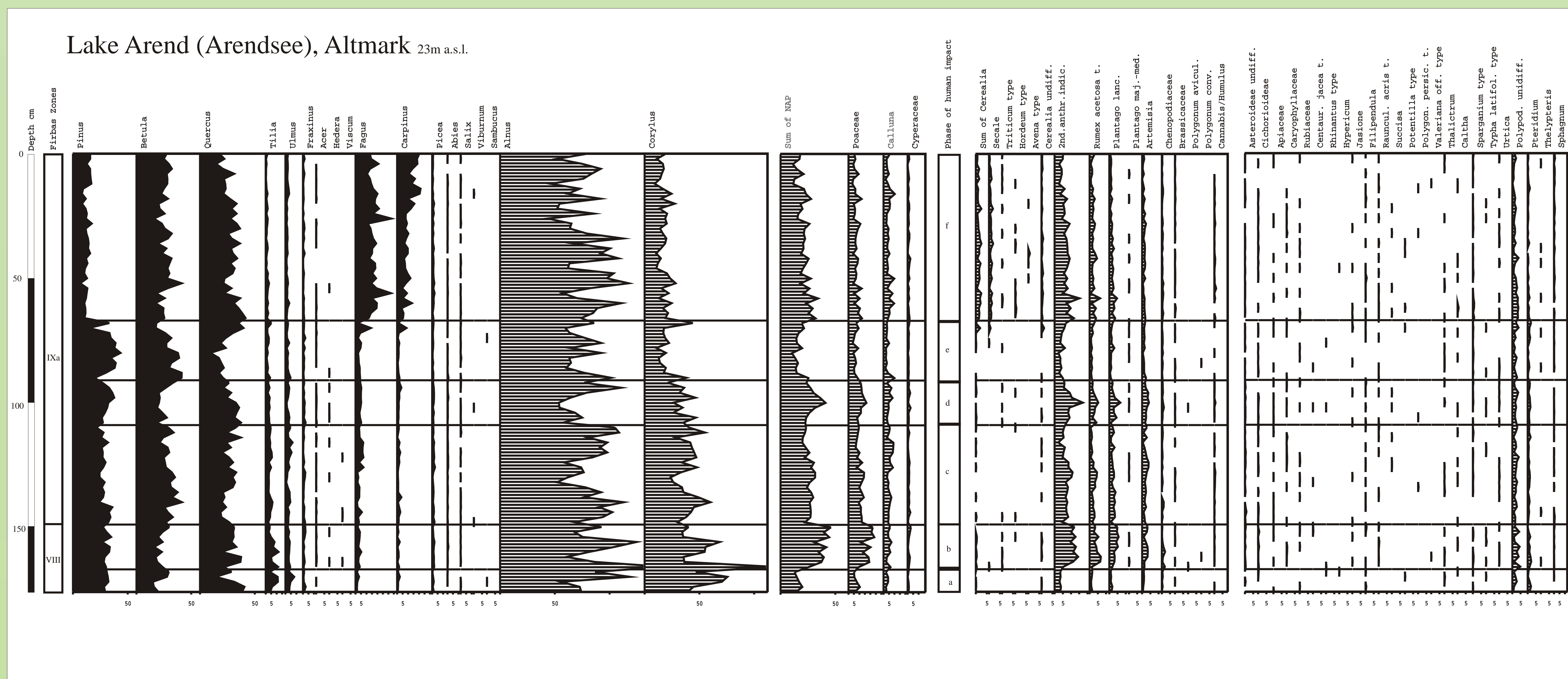


History of forests. For the Altmark, details about the history of vegetation have never been studied before. The pollen diagram presented here includes vegetation changes of the time from the late Subboreal period (pollen zone VIIIb) to the end of the early Subatlantic period (pollen zone IXa) which means from about 3000 to about 1200 cal BP. Time resolution is about 25 years.

During the **Subboreal period**, dry sandy soils were occupied by *Pinus sylvestris*. *Quercus* and *Betula* settled on normal mineral soils. *Alnus* occupied areas with moist soils.

During the **Subatlantic period**, *Fagus* spread considerably at about 1800 cal. BP. This is connected with an increase of *Carpinus* and a decrease of *Pinus*. In addition, there is a certain decrease of *Tilia* most probably connected with human impact.

Problems of dating. Dating the time series studied here has been done by correlating relevant radiocarbon dates obtained from the profile „Heuweg“ situated nearby in the east of the Hannoversches Wendland. The pollen diagram „Heuweg“ is likewise part of the project presented here.



History of human impact. The whole time series displays changes in vegetation due to human impact. There are 3 phases of more severe human influence and 3 with less human influence.

Phase a (176-167 cm) is a phase with weak human influence. There are 4% (referred to AP without *Alnus* as 100%) settlement indicators and 15% NAP. Phase a is considered to reflect settlement activities of Middle Bronze Age before ca. 3000 cal. BP. Deforestation took place within forests rich in oak.

Phase b (167-149 cm). This phase is dated to the younger Bronze Age. The amount of anthropogenic indicators is more than 10% and that of NAP more than 40%. Wheat (*Triticum* type) farming.

Phase c (149-110 cm). This is a second period with weak human influence (25% NAP). Increased *Betula* values followed by higher values of *Quercus* indicate that a reforestation took place on areas, which were used before for agriculture and settlements.

Phase d (109-93 cm), 2nd period with increased human activity preliminarily dated to the early pre-Roman Iron Age.

Phase e (93-67 cm). Interval characterised by less human activity dated to the end of the pre-Roman Iron Age. Again a succession of increased values of *Betula*, *Pinus* and *Quercus* can be seen in the pollen diagram. For the pre-Roman Iron Age, a migration is reported for the population of the western Prignitz, north of the Altmark, released by dry climate conditions. Possibly, this can be likewise taken in consideration for the decrease in the population of the area around Lake Arend.

Phase f (67-0 cm). First period of rye (*Secale*) cultivation. Beginning in the Roman period. *Fagus* started its mass spreading. The end of the time series can be dated latest to 1200 cal. BP e.g. before the medieval increase of population.

Transect of vegetation history. It is intended to study a transect from the N German lowland southward into the northern part of the upland areas. Sites of the transect are the Rambower Moor, W Brandenburg, Heuweg, E Hannoversches Wendland, Lake Arend, Altmark (all sites under study by J. Christiansen), Bullenteich, Braunschweig, near the northern Loess boundary (studied by M. Lagies), Silberhohl near Seesen, northern margin of the Harz Mts. (published by Chen and being reinvestigated by Beug), Lake Lutter E of Göttingen (published by Beug), Finnenbruch E of Göttingen (studied by Beug), Kaufunger Wald near Witzzenhausen (studied by Beug) and Mt. Meißner (published by Stalling). The study will mainly focus on time slice III and on time slice II as far as possible. The sites mentioned will be compared in respect to different environmental conditions (soil, vegetation, delay of beech immigration, altitude, land use).

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