

tion and biology of these animals.

## FOSSIL HISTORY

*Stenamamma* is poorly represented in the fossil record. Two males are known from Baltic amber. One was described as *Aphaenogaster berendti* (Mayr, 1868: 82) from the Berendt collection. Wheeler (1914: 53) discovered an additional male in the Geological Institute of Königsberg collection. He placed this species within genus *Stenamamma* based upon wing venation. I have been unable to locate either specimen and suspect they may have been lost (I understand many amber specimens were lost during WW II). The following comparative notes are based upon both Mayr's and Wheeler's descriptions and upon Mayr's illustrations.

I agree with Wheeler's placement within *Stenamamma*. Wing venation is quite similar to extant species with a single discoidal cell and a single submarginal cell. Wheeler believed that this species was more similar to North American species (such as *S. brevicorne*) since veins  $R_2$  and M separate well before cross vein 2r. He noted that in many European species, this separation occurs just beneath cross vein 2r or beyond. However, some specimens show anomalies with this vein branching similar to that found in *S. berendti*. Additionally, *S. nipponense* (from Japan) consistently shows the same vein placement as *S. berendti*. Given the antiquity of the latter species, this tends to confirm Bolton's (1972) hypothesis regarding evolution of the "standard Pheidoline reduction" within veins of the forewing, including loss of r-m cross vein.

I believe this fossil species represents a separate group within *Stenamamma* based upon their antiquity, small size, and differences in wing venation. There do not appear to be any close modern relatives. However, two lost isolated males do not provide much information regarding variation within a species. Although ants have been found in a number of Tertiary deposits (ranging from amber to shale), no additional fossils have been identified as *Stenamamma*.

Recently, subfossils of *Stenamamma* were discovered in Great Britain (Collingwood and Hughes: 1987: 100 - 101). These are represented as head capsules of ants which perished during the Bronze Age. Collingwood and Hughes (1987) indicate these specimens were found at Thorne Moor which is about 100 miles north of the nearest collection of *Stenamamma* in recent history. These specimens are clearly *S. debile* given their head sculpture and width of the glassy smooth frontal area between antennal insertions (DuBois, 1993).

It seems probable that *Stenamamma* (*sensu lato*) has existed since the Oligocene. During the Miocene, forests began their retreat and grasses filled the void forming prairies and savannahs (Lewin, 1982: 191).