

BIOSTRATIGRAPHY OF THE TALLAHATTA FORMATION (EOCENE) IN THE EASTERN GULF COASTAL PLAIN AND A REVISED AGE FOR THE CLAIBORNE STAGE

Laurel M. Bybell¹ and Thomas G. Gibson²

ABSTRACT

Five continuous coreholes drilled downdip of the outcrop belt of the Tallahatta Formation from western Georgia to western Alabama yielded calcareous inner neritic sand and clay containing calcareous nannofossils and foraminifers. The occurrence of these biostratigraphically useful groups in the subsurface Tallahatta allows the reliable dating of the entire formation; this has been difficult in the past because of the dominance in the outcrop belt of heavily leached, noncalcareous coarse clastics and sparsely fossiliferous siliceous clay and silt.

Fossiliferous sand at the base of the Tallahatta generally overlies carbonaceous clay of the Hatchetigbee Formation. These lowest Tallahatta strata contain calcareous nannofossils diagnostic of Zone NP12 of Martini; overlying these strata are beds placed in Zone NP13. The uppermost Tallahatta beds in the coreholes and also in the Little Stave Creek outcrop section in western Alabama are assigned to Zone NP14; no positive evidence for strata belonging to Zone NP15 was found. Erosion surfaces separate the

sediments belonging to each of the three calcareous nannofossil zones. On the basis of foraminiferal assemblages, the strata belonging to Zone NP12 and the lower part of Zone NP13 are interpreted as probably representing shallow-marine deposits; sediments in the upper part of Zone NP13 and Zone NP14 were probably deposited in somewhat deeper inner-shelf environments.

Zones NP12 and 13 are normally placed in the lower Eocene of the intercontinental correlation charts, whereas Zone NP14 has been considered entirely early Eocene, entirely middle Eocene, or straddling the boundary. Most of the Tallahatta Formation, including those strata considered to represent the basal Meridian Sand Member, is therefore of early Eocene age. As the Tallahatta is the lowest formation of the Claiborne Group, the base of the Claibornian Stage is thus placed within the early Eocene, and the Sabinian-Claibornian Stage boundary in Alabama and Georgia does not correspond to the early-middle Eocene boundary.

¹U.S. Geological Survey, Reston, VA 22092

²U.S. Geological Survey, Washington, DC 20560