

# A Neotype for *Neogloboquadrina atlantica* (Berggren 1972)

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## INTRODUCTION

*Neogloboquadrina atlantica* (Berggren 1972) is one of the most common planktonic foraminiferal species in the Upper Miocene and Pliocene at DSDP/IODP sites in the northern Atlantic. It was originally described from the upper Pliocene at DSDP Site 116 in the Rockall Trough, northeastern Atlantic.

In the original description of the species, the depository of the illustrated type specimens was not specified. One of us (WAB) was under the impression that the illustrated type specimens of *Neogloboquadrina atlantica* had been sent to the Cushman Collection at the Smithsonian Institution. Unfortunately there is no record of the specimen slides having ever arrived at the museum (B. Huber, personal communication, 2020).

Fortunately, the second author is still in possession of the ship-board sample residues from DSDP Leg 12, and was able to select a neotype specimen to replace the missing illustrated holotype. The purpose of this note is to designate a neotype specimen for *Neogloboquadrina atlantica* and to specify a repository for the permanent archive of the neotype and paraneotypes.

## SYSTEMATICS

*Neogloboquadrina atlantica* (Berggren 1972)  
Plate 1, figures 1–3

*Globigerina atlantica* BERGGREN 1972, pl. 1, figs. 7–9.  
*Neogloboquadrina atlantica* (Berggren). – POORE and BERGGREN 1975, p. 76–82, pl. 1, figs. 1–13, pl. 2, figs. 1–12. – LAM and LECKIE 2020, p. 218, pl. 30, figs. 13–14; pl. 32, figs. 1–15.  
*Globoquadrina asanoi* MAIYA, SAITO and SATO 1976, pl. 3, figs. 1–3, pl. 5, figs. 1–2.

*Material*: Neotype and seven paraneotypes (two figured herein).

*Remarks*: Berggren (1972) designated a 5-chambered specimen as the holotype of *Neogloboquadrina atlantica* and indicated his species commonly has 4–5 chambers with a variable aperture shape and size. We therefore selected a 5-chambered specimen to serve as the neotype. Lam and Leckie (2020) found that this is also true of *N. atlantica* in the northwest Pacific. They additionally reported that the tests are variable, from moderately high-spired to very low-spired, and regarded the species *Globoquadrina asanoi* to be a junior synonym. The type specimens of *atlantica* exhibit a distinctly cancellate, non-spinose test supporting assignment to the genus *Neogloboquadrina*.

*Type specimens*: The neotype (pl. 1, fig. 1a–c) was selected from the same DSDP sample as the missing holotype (12-116A, 8CC), dated as late Pliocene. The neotype and paraneotypes are deposited in the collections of the European Micropaleontological Reference Centre, Krakow, Poland, and housed in Cabinet 7, drawer 23.

## REFERENCES

- BERGGREN, W. A. 1972. Cenozoic biostratigraphy and paleobiogeography of the North Atlantic. *Initial Reports of the Deep-Sea Drilling Project*, 12: 965–1001.
- LAM, A. R. and LECKIE, R. M. 2020. Late Neogene and Quaternary diversity and taxonomy of subtropical to temperate planktic foraminifera across the Kuroshio Current Extension, northwest Pacific Ocean. *Micropaleontology*, 66 (3): 177–268.
- MAIYA, S., SAITO, T. and SATO, T., 1976. Late Cenozoic planktonic foraminiferal biostratigraphy of northwest Pacific sedimentary sequences. In: Takayanagi, Y. and Asano, K., Eds., *Progress in Micropaleontology: Selected Papers in Honor of Prof. Kiyoshi Asano*, 395–422, New York: Micropaleontology Press.
- POORE, R. Z. and BERGGREN, W. A., 1975. The morphology and classification of *Neogloboquadrina atlantica* (Berggren). *Journal of Foraminiferal Research*, 5 (2): 77–84.

## PLATE 1

All specimens from Sample 12-116A, 8CC. a= umbilical view, b= edge view, c= spiral view. Scale bars = 100 µm.

1a–c *Neogloboquadrina atlantica* (Berggren), Neotype.

2a–3c *Neogloboquadrina atlantica* (Berggren), Paraneotypes

