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A New *Athleta* Volute from Namibia, Southwestern Africa

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ABSTRACT A new subspecies of the widespread South African volute, *Athleta abyssicola* (Adams and Reeve, 1848), is described from deep water off the Namib Desert coast of Namibia. The new subspecies, *Athleta abyssicola massieri*, differs from the nominate subspecies in being a stockier, squatter shell with a lower spire, in having a much coarser shell sculpture, and in having proportionally larger columellar plications.

KEY WORDS Volutidae, Athletinae, *Athleta*, Namibia

INTRODUCTION

The Namib Desert coast of Namibia, southwestern Africa (Figure 1), encompasses some of the least-explored marine environments in the Atlantic Ocean. Although the marine ecosystems of this desert coast have been studied in some detail, mostly by South African fisheries research vessels, very little is known about the adjacent deeper water lower neritic and bathyal ecosystems. This paucity of data is primarily an artifact of the difficulty of sailing and dredging in the perpetually heavy seas and frequent storms that characterize this area. These hazardous oceanic conditions, which have produced the "Shipwreck Coast" and "Skeleton Coast" of Namibia, are the result of the interaction of the atmosphere with the extremely cold water of the strong northward-flowing Benguela Current (Figure 1). Although these subantarctic waters are nutrient-rich, the high-energy surge and wave conditions created by the Benguela current and trade wind interactions are not conducive to the formation of diverse shallow water ecosystems. Even with these harsh, high-energy wave environments, a small but highly endemic littoral molluscan fauna has evolved along this coast. Some of these Namibian intertidal and shallow subtidal endemics include the patellids *Patella swakopmundensis* Massier, 2009 and *Patella skelettensis* Massier, 2009, the trochid *Gibbula massieri* Rolan and Zettler, 2010, the cypraeid *Cypraeovula alfredensis namibiensis* Massier, 2006 (southern Namibia), and the conid *Sciteconus mozambicus macei* (Crosse, 1865).

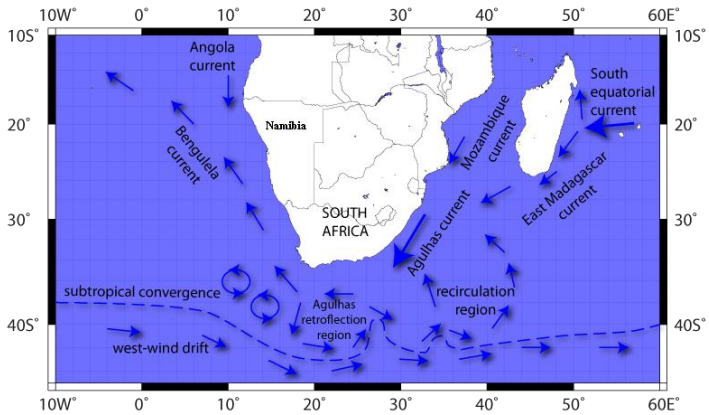

Figure 1. Map of southern Africa, showing the coastline of Namibia and the cold water, subantarctic Benguela Current. (Walker, 1989; Stuvier *et al.* 2017)

In the deeper areas of the Namibian Neritic Zone (100-200 m depths) and in the upper part of the Bathyal Zone (250-400 m depths), well

below the violent surface waves, a rich and highly-endemic molluscan assemblage has recently been discovered. Here, the high levels of nutrients and high plankton productivity of the Benguela Current water have led to the formation of a muddy, organic-rich sea floor composed of diatom and phytoplankton oozes, mixed with clays and silts from the Namibian mainland; an ideal environment for both filter-feeding bivalves and predatory gastropods. Preliminary biological surveys of these deep water sea floors, primarily conducted by Russian fishing trawlers, have brought to light many new species of mollusks. Some of the shells that were collected by these Russian trawlers were subsequently sold to dealers all over the world, making it possible to piece together a rough overview of the compositions of these deep water molluscan assemblages. Typical components of these Namibian deep water malacofaunas include endemic taxa such as the fissurellid *Cosmetalepas massieri* Poppe, Tagaro, and Sarino, 2011, the umboniid *Callumbonella namibiensis* Rolan, Gonzales-Porto, and Matos-Pita, 2009, and the marginellid *Prunum walvisianum* (Tomlin, 1920). Occurring sympatrically with these Namibian endemic species are a number of endemic subspecific offshoots of species that are widespread in the Cape Province region farther south. Some of these include the volutid *Athleta boswellae disparilis* (Rehder, 1969) (a Namibian subspecies of the South African *Athleta boswellae* (Rehder, 1969)), an unnamed subspecies of the South African volute *Athleta lutosa* (Koch, 1948), the conid *Sciteconus gradatulus patens* (Sowerby III, 1903) (a Namibian subspecies of the South African *Sciteconus gradatulus* (Weinkauff, 1875)), and an unnamed Namibian subspecies of the South African *Athleta abyssicola* (Adams and Reeve, 1848). This last-mentioned volute, which is frequently encountered by trawlers and is a major faunal component of the Namibian deep water ecosystems, is described here.

SYSTEMATICS

Class Gastropoda
Subclass Sorbeoconcha
Order Prosobranchia
Infraorder Neogastropoda
Superfamily Volutoidea
Subfamily Athletinae
Genus *Athleta* Conrad, 1853

Athleta abyssicola massieri Petuch and Berschauer, new subspecies
(Figure 2 C, D)

Description: Shell of average size for genus, moderately heavy and thickened, inflated and distinctly fusiform, with rounded sides; spire proportionally low, subpyramidal, with slightly rounded whorls; shoulder rounded, grading directly into subsutural area; shell sculptured with 28-30 strong, evenly-spaced spiral cords and 32-35 strong longitudinal ribs per whorl; spiral cords and longitudinal ribs intersect to produce strong reticulated sculpture pattern; intersection of cords produce large rectangular bead, giving shell rough, file-like appearance; shoulder sculptured with two larger spiral cords, with proportionally-wide gap being present between them; siphonal canal short, broad, grading directly into body whorl; shell color uniformly pale tan or yellowish-tan, often stained with dark red rust stains produced by contact with reducing environment, iron-rich mud; aperture elongated and flaring; columella bordered by large parietal shield and edged with 5 small white tooth-like plicae and 3 large white plicae, with large plicae being anteriormost; lip thickened, with inner edge ornamented with 22-25 small rounded teeth; parietal shield and interior of aperture pale orange-tan.

Type Material: HOLOTYPE - length 52.2 mm, width 27.6 mm, trawled by commercial fishermen from 350-400 m depth off Walvis Bay, Namibia, LACM 3467 (in the Type Collection of the Department of Malacology, Los Angeles County Museum of Natural History, Los Angeles, California; Figure 2 C, D). **Other Study Material -** Two specimens, lengths 54 mm and 45.3 mm, same locality and depth as the holotype, in the research collection of the senior author; two specimens, lengths 54.4 mm and 59.9 mm, same locality and depth as the holotype, in the research collection of the junior author.

Distribution: The new subspecies is confined to deep water areas off the Namib Desert coastline of Namibia, ranging from Terrace Bay south to Luderitz. The new subspecies is most frequently collected off St. Francis Bay, half way between Walvis Bay and Luderitz.

Ecology: *Athleta abyssicola massieri* prefers muddy, organic-rich sea floors in depths of 300-400 m. Here it occurs together with a rich fauna of deep water mollusks, including the related volutids *Athleta* cf. *lutosa* and *Athleta boswellae disparilis*, the conid *Sciteconus gradatulus patens*, the umboniid *Callumbonella namibiensis*, the aporrhaid *Aporrhais pesgallina*, and the pseudomelatomid *Comitas saldanhae*.

Etymology: Named for Werner Massier of Swakopmund, Namibia, renowned naturalist, shell dealer, and malacologist, in recognition of his many contributions to the systematics of South African mollusks.

Discussion: The new taxon is here proposed as a northern subspecies of the widespread South African (Cape Province and Transkei) *Athleta abyssicola* (Adams and Reeve, 1848) (Figure 2 A, B). Although similar in overall appearance, the new Namibian subspecies differs in being a broader, more inflated, and stockier shell, in having a proportionally lower spire with broader spire whorls, and in having a coarser reticulated shell sculpture, with fewer and thicker spiral cords and longitudinal ribs. The nominate subspecies also has a longer and more pronounced siphonal canal, with a distinct indentation at the siphonal canal-body whorl juncture. *Athleta abyssicola massieri* characteristically has a shorter and broader siphonal canal that lacks the distinct indentation. Another prominent difference between the two subspecies is seen in the shape and size of the apertural tooth-like plications; with those of *A. abyssicola massieri* being proportionally much larger and more prominent than those seen on the nominate subspecies *A. abyssicola abyssicola*. Weaver and duPont (1970: plate 3 C, D therein) illustrate a large, 83 mm specimen of the nominate subspecies, showing the proportionally higher spire and more slender and elongated shell that contrasts with the low spire and stocky body form of the Namibian subspecies. Based on the differences outlined here, future studies may demonstrate that the Namibian subspecies deserves full specific rank.

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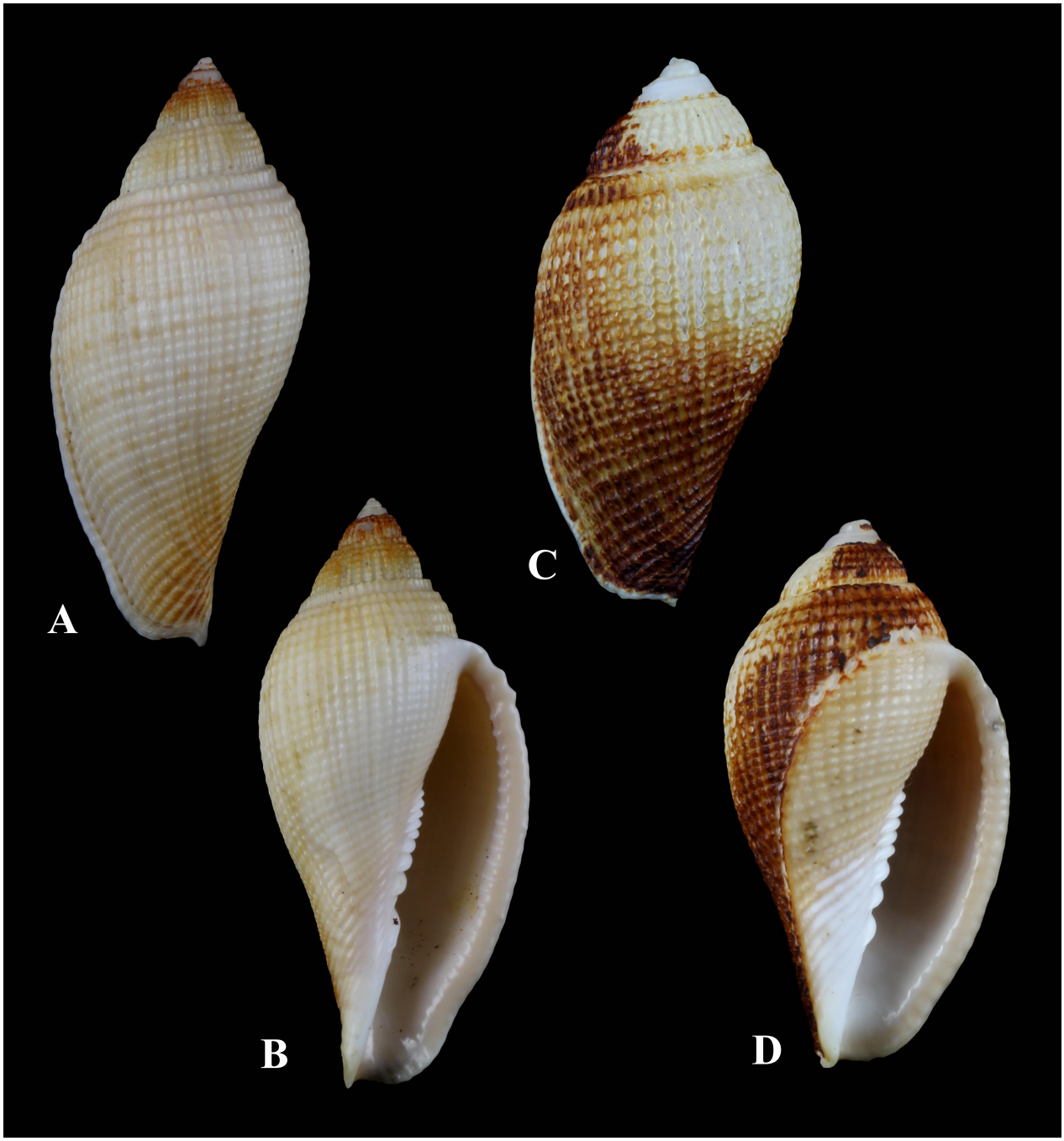

Figure 2. *Athleta* volutes from deep water areas off South Africa and Namibia.
A, B= *Athleta abyssicola* (Adams and Reeve, 1848), length 58 mm, dredged from 150 m depth off Cape Town, South Africa. Specimen in the research collection of E.J. Petuch. **C, D=** *Athleta abyssicola massieri* Petuch and Berschauer, new subspecies. Holotype, length 52.2 mm, collected by commercial fishermen from 350-400 m depth off Walvis Bay, Namibia, LACM 3467.