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The Gastropod *Spiricella* (Opisthobranchia: Umbraculidae) in the Recent Caribbean: A truly unexpected finding!

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Abstract. The first record of the genus *Spiricella* Rang & Des Moulins, 1828 is given for the Recent western Atlantic. Until now considered a monospecific genus, the *Spiricella* specimens from Abaco Island, Bahamas, Caribbean, are consistently different from the Recent and fossil shells from the Northeastern Atlantic and West Africa. Despite the paucity of morphological shell features typical for the genus, we consider these Caribbean shells a distinct specific taxon; *Spiricella redferni* n. sp. The genus continues as elusive as ever, and despite this exciting new record and the great extension in geographical range for the genus, we still know nothing of the animal to which these shells belong, nor its ecology.

Key Words: Gastropoda, Opisthobranchia, Umbraculidae, *Spiricella*, new taxon, Recent, Caribbean, Bahamas.

INTRODUCTION

For the second time in two years we are writing about a shell of which little is known. Silva & Landau (2007) discussed the occurrence of *Spiricella unguiculus* Rang & Des Moulins, 1828 in the Pliocene of Portugal, and went on to discuss the Cenozoic palaeobiogeographic distribution of this monotypic genus.

Until now it had been assumed that the genus was restricted to the Northeastern Atlantic and Mediterranean coasts. Much to our surprise two specimens have turned up from the Bahamas (Caribbean) found in shell grit collected at Sandy Point on Great Abaco Island (Figure 1) over thirty years ago by Mr. Colin Redfern. The delay in recognizing these unusual specimens was undoubtedly due to all the literature previous to Silva & Landau (2007) being published in European journals, and highlights the importance of disseminating scientific information.

Systematics

Subclass Opisthobranchia Milne-Edwards, 1848
Order Notaspidea P. Fischer, 1883
Superfamily Umbraculoidea Dall, 1889
Family Umbraculidae Dall, 1889
Genus *Spiricella* Rang & Des Moulins, 1828

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Spiricella redferni n. sp.

Figures 2–9

Dimensions and material: Holotype; Figures 2–6, UF422928 (Florida Museum of Natural History, University of Florida), length, 4.25 mm (*ex.* Colin Redfern coll., # 4760).

Other material: Paratype 1; Figures 7–9, UF422929, length, 4.25 mm (*ex.* Colin Redfern coll., # 1704).

Etymology: Named for Mr. Colin Redfern, who found and recognized the shell as new.

Type locality: Collected from beach drift from a beach near the airstrip at Sandy Point on Great Abaco Island, Bahamas (N26 00.00, W77 24.28) (Figure 1).

Type age: Recent.

Description: Shell small, 4.25 mm long, 2.0 mm width, thin, fragile, unguiform, subrectangular, antero-posteriorly elongate, with parallel sides and rounded extremities, convex profile on the dorsal side. Apex strongly eccentric, placed close to the posterior edge and far to the left. Protoconch small, paucispiral, naticiform, sinistrally coiled, consisting of 1.75 smooth whorls, diameter approximately 250 μm, with a medium-sized nucleus, diameter approximately 90 μm. The protoconch is partially embedded within the surface of the shell. Transition to teleoconch sharply delimited. Sculpture of the teleoconch absent, except for concentric growth lines, more strongly developed on the

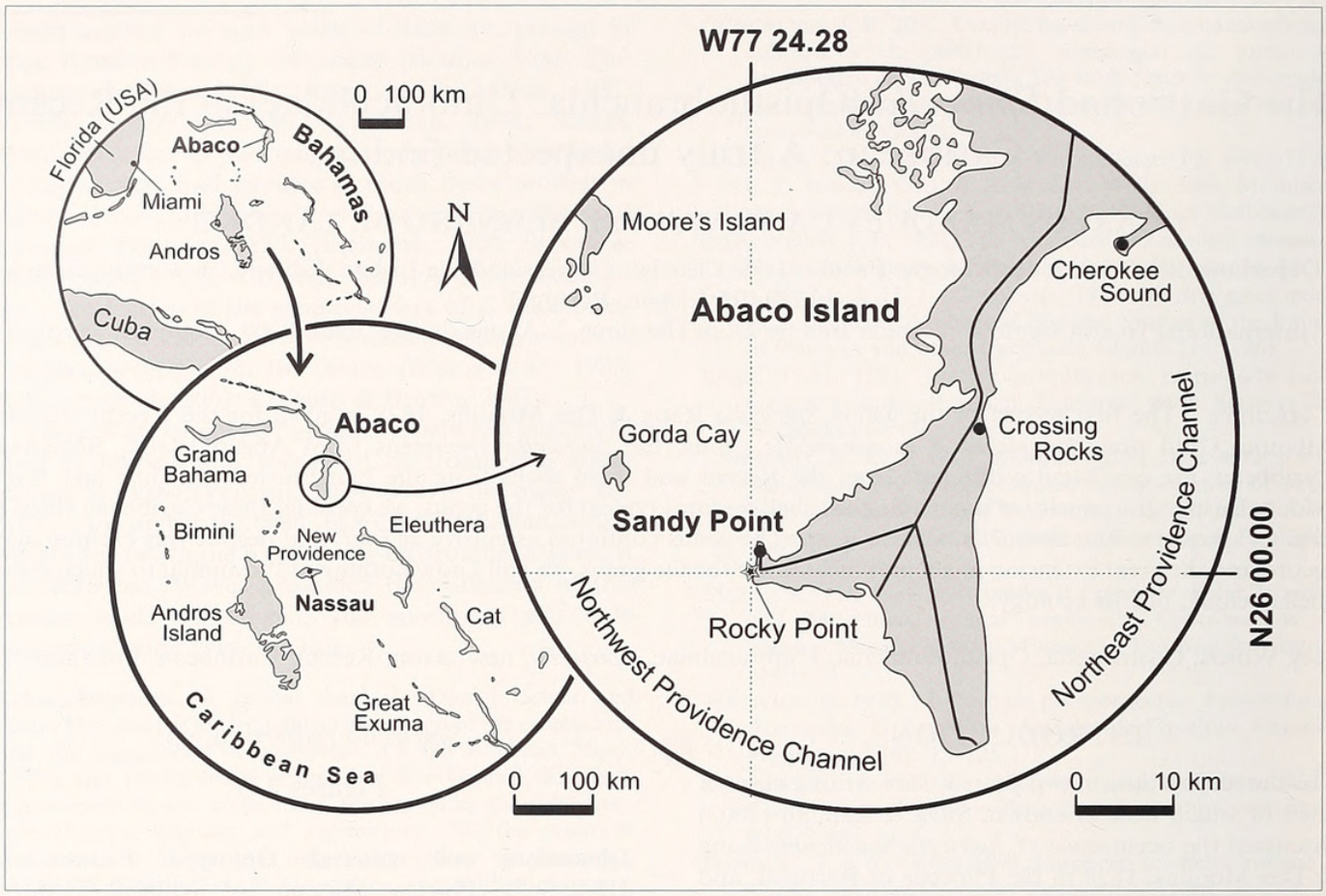
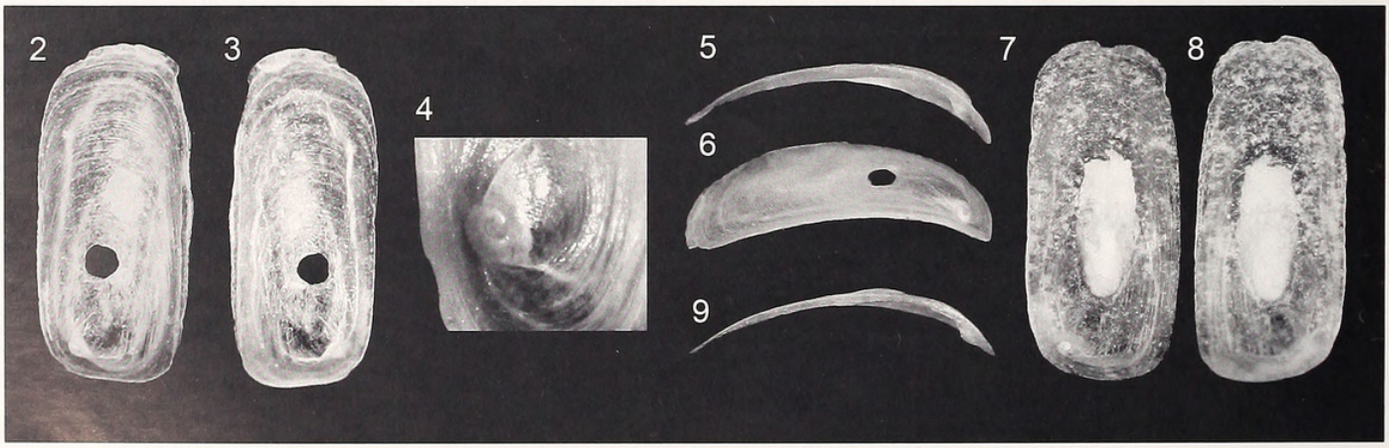


Figure 1. Map showing type locality of *Spiricella redferni* n. sp.

anterior part of the dorsum, giving it a finely rugose appearance. Edge sharp. Ventrum smooth and shiny, with a rounded, thickened rim of variable width (about 0.2–0.25 of the shell width), which is almost absent along the anterior extremity. The apex is represented on the inner aspect by a rounded ridge.

Remarks: Traditionally the genus *Spiricella* has been regarded as monospecific and placed in the Umbraculidae (Janssen, 1984; Hoeksema & Janssen, 1984; Carrozza & Rochini, 1987; Valdés & Lozouet, 2000; Silva & Landau, 2007). Until now all the *Spiricella* specimens, fossil and Recent, had been found in



Figures 2–6. *Spiricella redferni* n. sp. Holotype; UF422928. Collected from beach drift from a beach near the airstrip at Sandy Point on Great Abaco Island, Bahamas. Length, 4.25 mm.
Figures 7–9. *Spiricella redferni* n. sp. Paratype; UF422929. Collected from beach drift from a beach near the airstrip at Sandy Point on Great Abaco Island, Bahamas. Length, 4.25 mm.

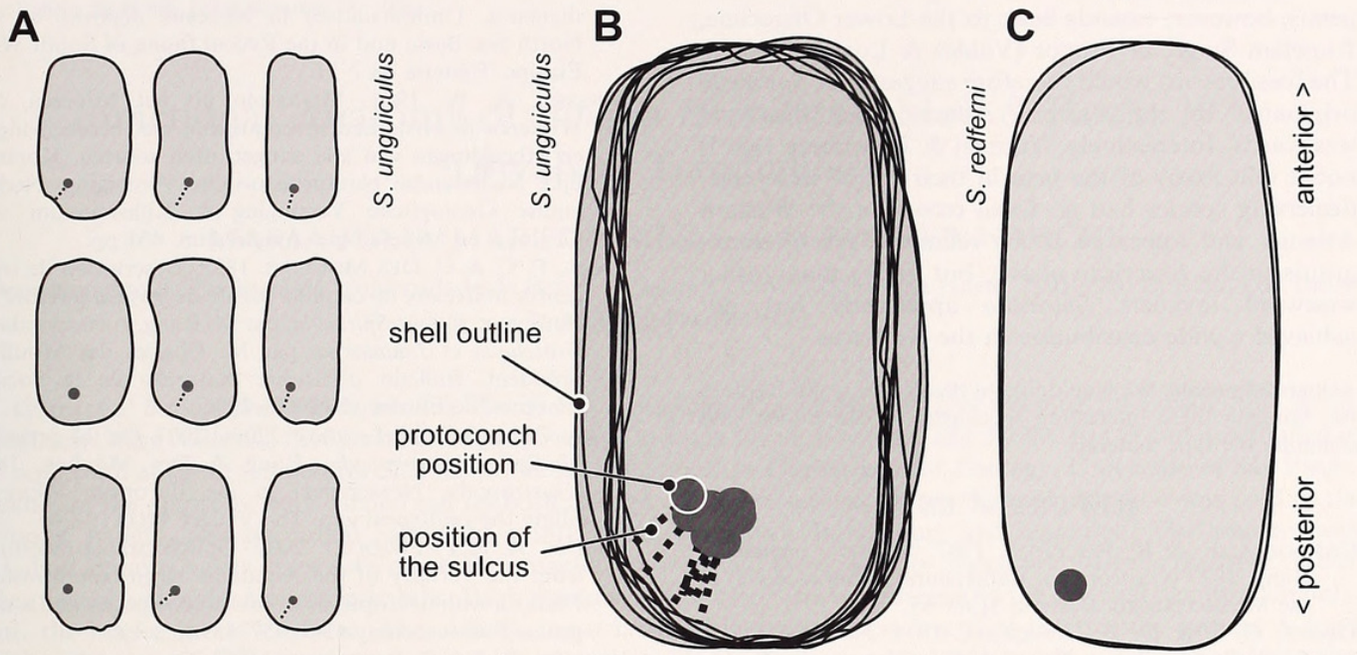


Figure 10. Position of apex in *Spiricella unguiculus* Rang & Des Moulins, 1828 vs. *Spiricella redferni* n. sp.

European Cenozoic basins and in the Northeastern Atlantic and Mediterranean (Silva & Landau, 2007, with references). Still nothing is known of the ecology of this genus, and no living animal or soft parts have ever been found. Unfortunately, these new finds add no new information concerning the ecology of *Spiricella*, as the shells were found in samples of beach drift from the extreme southwest tip of Abaco, between the locality of Sandy Point and the promontory of Rocky Point. Rocks border the beach, with *Thalassia* meadows beyond the rocks. This shell grit contains an assemblage of shells from all the neighboring environments: rocky and sandy substrates, *Thalassia* meadows, as well as deeper water environments, which lie close by.

As pointed out by Silva & Landau (2007), and almost every other researcher struggling to make sense of this genus, problems are posed by the paucity of specimens; fossil and Recent, lack of knowledge of the soft parts, and lack of distinctive shell characters. The eastern shells are fairly uniform in shape, all more or less rectangular, with length/width ratio of 2–2.22. Only the presumably immature Recent shell from Serini, Mauritania is less elongated, with a ratio of 1.79 (Geuze & Hoeksema, 1994). All the shells have a smooth paucispiral protoconch of 1.25–1.75 whorls. The position of the apex is eccentric in all, placed about 1/5 distance from the posterior edge and to the left (Figure 10).

The Bahamian shells are almost identical to the Northeastern Atlantic and Mediterranean ones in overall shape, arched in profile and with similar concentric growth lines. The protoconch is also paucispiral, consisting of 1.75 smooth whorls, but somewhat smaller in total diameter than the eastern shells (250 µm vs. approximately 330 µm, Valdéz & Lozouet, 2000; Silva & Landau, 2007). The most striking difference between the Bahamian and the eastern specimens lies in the position of the apex. In the Bahamian specimens the apex lies considerably more marginally; more posterior and further to the left than in the eastern shells. An important morphological feature of the eastern shells is a narrow rectilinear sulcus running obliquely from the apex to the edge, absent in the Bahamian shells.

Discussion: The presence of these *Spiricella* shells in the Bahamas posed the question of whether one or two Recent species exist.

From a morphological point of view, despite the lack of characters, there are two consistent differences between the eastern and western shells: the position of the apex and the presence or absence of the sulcus. Although the eastern specimens show some variability in the position of the apex, none comes close to that seen in the Bahamian shells (Figure 10). All the Northeastern Atlantic and Mediterranean shells show a more or less well developed sulcus associated with the apex, which is absent in the two Bahamian specimens. Apart from the differences outlined above, the overall diameter of the protoconch of the Bahamian shells is smaller than that of the eastern specimens. We therefore consider the Caribbean shells to represent a second species of *Spiricella*, *S. redferni* n. sp.

We are not aware of any other fossil or Recent record for the genus in the Americas, or anywhere else outside Western Europe, the Mediterranean and Northwestern Africa. The European literature for the

genus, however, extends back to the Lower Oligocene, Rupelian Stage, of France (Valdéz & Lozouet, 2000). The fossil record would therefore suggest that *Spiricella* originated in the Eastern Atlantic and dispersed westwards. Interestingly, Vermeij & Rosenberg (1993) noted that many of the taxa in their list of westward-dispersing species had no fossil record in the Western Atlantic and appeared to be relatively recent immigrants to the American coasts, but unlike many other westward invaders *Spiricella* apparently has not achieved a wide distribution in the Americas.

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