

## Identity of *Triton anomalus* Hinds, 1844, and the description of a new eastern Pacific *Bailya* (Gastropoda: Buccinidae)

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**KEYWORDS.** Eastern Pacific Ocean, Central America, Gastropoda, Buccinidae, *Bailya cidaris* n. sp.

**ABSTRACT.** A lectotype is designated for *Triton anomalus* Hinds, 1844, now *Bailya anomala*. That species is redescribed and *Bailya cidaris* n. sp. is described from western Panamá.

### INTRODUCTION

Examination of specimens of the buccinid genus *Bailya* from western Panamá has revealed the presence of two species currently placed under *Bailya anomala* (Hinds, 1844). Two names have been applied to the eastern Pacific *Bailya*: *Triton anomalus* Hinds, 1844, and *Fusus bellus* Adams, 1852, the latter placed in synonymy of *B. anomala* by Keen (1971) and Abbott (1974). [(*Fusus bellus* Adams, 1852, itself is a junior primary homonym of *Fusus bellus* Conrad, 1833, an Eocene fossil from Alabama, USA, now referred to *Penion* (Palmer & Brann, 1966; Synder, 2003)]. But Keen's (1958, 1971) treatments of the species are confusing. In 1958 she recognized *Bailya anomala*, with no mention of *Fusus bellus*, and gave its range as Nicaragua to Panamá. She chose to illustrate Hinds' poor, minute figure (1844a: pl. 4, fig. 14) in both editions. By 1971 she had included *F. bellus* as a synonym, perhaps after seeing Turner's (1956) illustration of the type of that species, which was based on a juvenile specimen. Keen then changed the range to "Guaymas, Mexico, to Nicaragua" despite the fact that both *T. anomalus* and *F. bellus* have Panamá as their type locality. Although *F. bellus* is unavailable, the question is which, if either, of the two taxa recognized here is Hinds' *T. anomalus*.

The two species presented here are best described as the banded species (Figs 3–8) and the non-banded species (Figs 9–15). Hinds' figure of *Triton anomalus* in the *Sulphur* expedition account (1844a) is clearly the banded species (Fig 1). *Fusus bellus* Adams, 1852 (Fig 2), although based on an immature specimen, is also the banded species and thus a junior synonym of Hinds' taxon as Keen suspected.

A problem arises considering the date and place of publication of *Triton anomalus*. The description appears in two places, both in July, 1844: in the *Sulphur* expedition account and in the *Proceedings of the Zoological Society of London* (PZSL). In Hinds' description of the species in the *Sulphur* expedition he lists it as "*Triton anomalus* Hinds, l.c." with the *loc. cit.* referring to "Proceed. Zool. Soc. Feb. 27, 1844."

But this refers only to the date his paper was read before the Zoological Society. The actual date of publication was July, 1844, as shown by Duncan (1937), who outlined the tortuous history of the PZSL publication dates. The first part of the *Sulphur* expedition account was also published in July, 1844. The exact day in July of either publication is unknown. Reeve figured the banded taxon the next month (August, 1844) citing only the *Sulphur* account. Which came first – the PZSL description or the *Sulphur* description? Keen (1966) gave the PZSL paper priority, recognizing that the PZSL description dated from July and not February, but without any explanation or proof, perhaps relying on Hinds' *loc. cit.* However, because she did not recognize that two species may have been involved and makes no point of choosing one date over the other, I do not consider this a nomenclatorial act; in fact, she did not include either reference in her literature cited for that paper.

The identity of the *Sulphur* account species is obvious because of the figure – it is the banded taxon. But the PZSL account was unfigured. Furthermore, the brief Latin description, although identical in both accounts, seems to apply more to the unbanded species than to the banded one. There is no mention of the prominent bands in the description, which only refers to the shell as "*fusca*" (brown). But the banded taxon is not brown, although the unbanded one is. Hinds compares his species with *Triton fictilis* Hinds, 1844 ("its appearance is very similar"), a cancellariid that typically does not have bands. Thus it is possible that the description does not refer to the banded taxon that Hinds had nonetheless illustrated.

The type of *Triton anomalus* Hinds, 1844, supposedly at the Natural History Museum in London, has not been located. Keen (1966) spent six months at the Museum in 1964–65 looking for Hinds' material. She was not able to find a significant number of types and remarked that "many of the types and figured specimens were among the lots sold to favored collectors." But she also noted "I may well have overlooked some lots." After inquiring it was confirmed that the type has not been located (A.



Salvador, NHMUK, pers. comm., February 2012). The whereabouts of the type specimen(s) remains unknown.

Two species of *Bailya* occur in the eastern Pacific, but which one is *Triton anomalus*? The identity of the PZSL species is in doubt, whereas the identity of the *Sulphur* species is not. The dates of the two descriptions cannot be precisely determined. To my knowledge, no previous author has definitively and purposefully chosen one publication, in terms of precedence, over the other as a nomenclatorial act. In the interest of fixing the identity of *Triton anomalus* to a specific species, I, as First Reviser, declare the *Sulphur* description (1844a: 12) to be the earlier of the two descriptions and designate Hinds' plate 4, figures 13 and 14 (1844a) as the lectotype of *Triton anomalus* Hinds, 1844 (ICZN 24.2.2, 73.1.4). Keen (1966) stated that all of Hinds' material should be regarded as syntypes; for this reason I have designated the figure as a lectotype rather than a holotype. This act also fixes the type species of *Bailya*, which is *Triton anomalus* by original designation of Smith (1944). This act also preserves the identity of *Bailya anomala* as the taxon to which it has always been associated in the literature and in collections. *Triton anomalus* is redescribed and the second (unbanded) species is described as new.

Unanswered is the question of the type locality of *Triton anomala*. If indeed two species were included in the original description, to which species does "Island of Quibo" (= Isla Coiba) pertain? Because of the lack of type material there appears to be no way to solve this problem. Because Isla Coiba lies within the range of both species, I have assumed that the type locality of what is here recognized as *B. anomala* is correct as originally stated.

Abbreviations

GTW: Collection of G. Thomas Watters.  
LACM: Natural History Museum of Los Angeles County, California, USA.  
NHMUK: Natural History Museum, London, UK.  
UF: Florida Museum of Natural History, Gainesville, Florida, USA.

SYSTEMATICS

Family **BUCCINIDAE** Rafinesque, 1815  
Genus *Bailya* M. Smith, 1944  
Subgenus *Bailya* M. Smith, 1944  
Type species by original designation: *Triton anomalus* Hinds, 1844, Recent, eastern Pacific Ocean.

*Bailya (Bailya) anomala* (Hinds, 1844)  
Figs 1-8

*Triton anomalus* Hinds, 1844a: 12, pl. 4, figs. 13, 14 [July]; Hinds, 1844b: 22 [July]; Reeve, 1844: [83-84],

pl. 20, fig. 100; Reeve, 1847: 97; Smith, 1944: 78; Keen, 1966: 270.

*Fusus bellus* Adams, 1852a: 353, 531; Adams, 1852b: 129, 307; Adams & Adams, 1853: 78; Carpenter, 1864: 347; Carpenter, 1872: 183; Turner, 1956: 34-35, pl. 8, fig. 2; Keen, 1971: 557, fig. 1098 [in synonymy of *Triton anomalus* Hinds, 1844]; Abbott, 1974: 217 [in synonymy of *Triton anomalus* Hinds, 1844] [non *Fusus bellus* Conrad, 1833].

*Bailya anomala* (Hinds, 1844) – Keen, 1958: 398, fig. 530; Keen, 1971: 557, fig. 1098; Abbott, 1974: 217; Watters, 2007: 10, figs. 8, 9; Watters, 2009: 225.

**Type material.** *Triton anomalus*: Lectotype, designated herein, Hinds, 1844a: pl. 4, figs. 13, 14. *Fusus bellus*: Holotype, Museum of Comparative Zoology 177176, illustrated in Turner (1956).

**Type locality.** *Triton anomalus*: Island of Quibo [Coiba], Veragua [Panamá]; on the sandy shore at low water.

*Fusus bellus*: Panama [Pacific].

**Distribution and habitat.** Eastern Pacific Ocean, from at least Guaymas, México, to Ecuador. Generally in shallow water to 30 m, often under dead coral slabs.

**Redescription.** Average 15.9 mm in length (min, 13.3; max, 19.3). Fusiform; spire ca. 50% total length. Protoconch blunt, white, of 1.5 smooth, slightly shouldered whorls. Teleoconch of 5.5-6 whorls, abruptly arising from protoconch. Teleoconch sculpture of widely separated, spiral cords; 17 1° (primary) cords on final whorl; cords most prominent on siphonal canal. Between 1° cords is single (occasionally two) 2° (secondary) cords or threads. Both types of cords are more similar in size on the siphonal canal and below the suture. Axial ribs widely spaced; 13-15 ribs on penultimate whorl, 12-14 ribs on last whorl. Axial ribs separated by microscopic axial threads. Sculpture predominately spiral, weakly cancellate, with intersections of spiral and axial sculpture forming slightly more pronounced spiral nodes. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, weakly or obsoletely crenulated (ca. 6-7 denticles) on outer lip; anal canal set off by two very weak denticles. Columella continuous, smooth. Parietal callus adherent to body whorl for its length. Siphonal canal short, open. Color white beneath a thin, tan periostracum (usually lost), with 3 dark brown spiral bands, often reduced to spots at the sculptural intersections; individual tubercles on the siphonal canal may be colored as well. Aperture white. Operculum, radula, and anatomy unknown.

**Remarks.** This species is rather constant in its sculpture and coloration but varies considerably in size. See Table 1 for comparison with *B. cidaris*. *Bailya anomala* does not seem to be closely related to



any other member of the genus. Its large size and conspicuous color bands are unique.

*Bailya (Bailya) cidaris* n. sp.

Figs 9-15

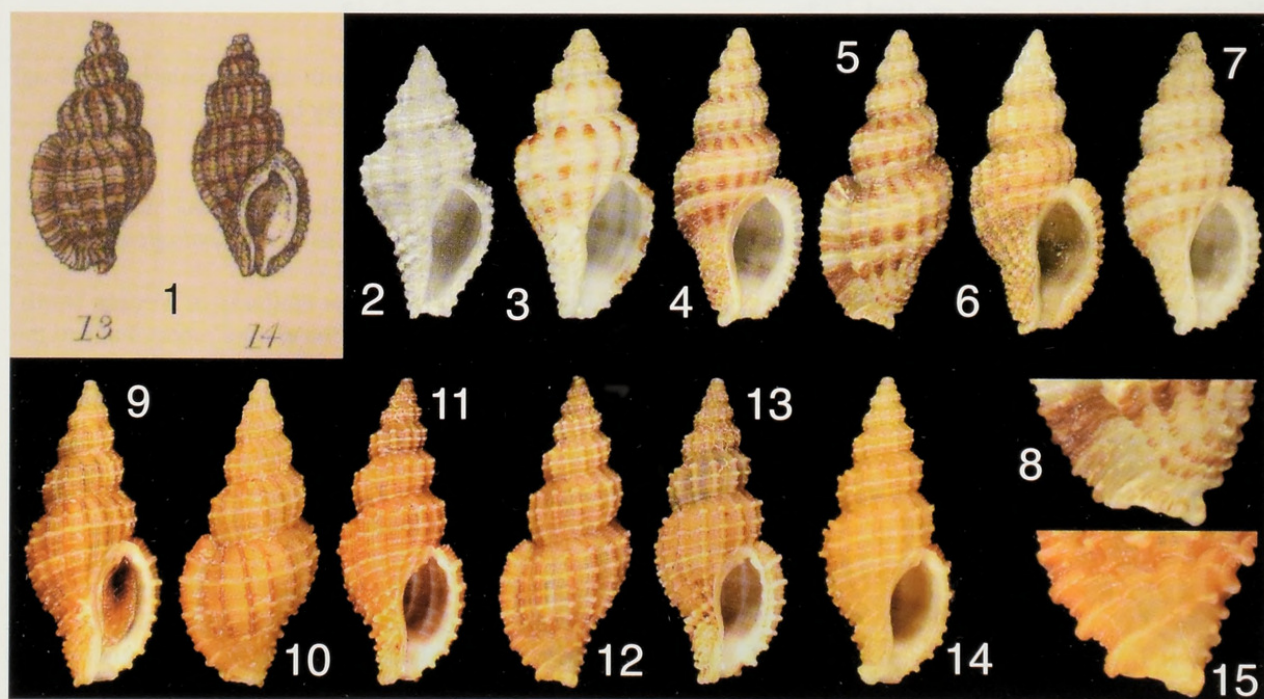
**Type material.** Holotype LACM 3243, 3 m, Isla Coiba, Veraguas Province, Panamá, 3 m.

Paratypes: 1 LACM 3244, 20–30 m, Bahía de Chiriquí, Panamá, 15.8 mm length; 1 OSUM 37272, 20–30 m, Bahía de Chiriquí, Panamá, 15.3 mm length; 1 UF 451539, 20–30 m, Bahía de Chiriquí, Panamá, 14.7 mm length; 1 OSUM 37273, 6–7 m, off Puntarenas Province, Costa Rica, 13.7 mm length.

**Type locality.** Eastern Pacific Ocean, Isla Coiba, Veraguas Province, Panamá, 3 m.

**Distribution and habitat.** Eastern Pacific Ocean. Known only from Bahía de Chiriquí and Isla Coiba, Panamá, to Costa Rica. Specimens have been found from 3 to 30 m; live specimens were collected in 3 m. Based upon the type locality of *B. anomala*, both species occur at Isla Coiba.

**Description.** Average 14.9 mm in length (min, 13.7; max, 15.8; holotype 15.2 x 7.0 mm). Fusiform; spire ca. 50% total length. Protoconch blunt, white or tan, of 1.5 smooth, slightly shouldered whorls. Teleoconch of 6 whorls, abruptly arising from protoconch. Teleoconch sculpture of widely separated, raised, spiral cords; 11–12 1° cords on final whorl; cords most prominent on siphonal canal. Between 1° cords are 3 more or less equally sized 2° cords or threads. Axial ribs widely spaced; 13–14 ribs on penultimate whorl, 12–13 ribs on last whorl. Axial ribs separated by microscopic axial threads. Sculpture cancellate, with intersections of spiral and axial sculpture forming prominent tubercles. Terminal varix well-developed, set back a short distance from outer lip. Aperture oval, weakly crenulated (ca. 6 denticles) on outer lip; anal canal set off by two very weak denticles. Columella continuous, smooth. Parietal callus adherent to body whorl for its length. Siphonal canal short, open. Color tan, axial ribs often dark brown, with or without 4 darker spiral bands, spiral cords and tubercles may be lighter colored. Aperture white. Operculum tan to dark red, leaf-shaped, with terminal apex. Radula and anatomy unknown.



Figures 1–15

1-8. *Bailya anomala* (Hinds, 1844).

1. Figures 13, 14 of *Triton anomalus* from Hinds, 1844a. 2. Holotype MCZ 177176 of *Fusus bellus* Adams, 1852. Panamá, ca. 11 mm length, subadult, figure from Turner (1956). 3. GTW 9114a, 18 m, Isla Venado, Panamá, 12.5 mm length, subadult. 4, 5. GTW 9114b, 1–2 m, Puerto Vallarta, México, 19.3 mm length. 6. GTW 9114c, 1 m, Isla Pedro González, Panamá, 16.6 mm length (with periostracum). 7. GTW 9114e, Bahía Rincón, Costa Rica, 14.5 mm length. 8. Detail of siphonal canal sculpture from GTW 9114b.

9-15. *Bailya cidaris* n. sp.

9, 10. Holotype, LACM 3243, 3 m, Isla Coiba, Panamá, 15.3 mm length. 11, 12. Paratype, LACM 3244, 20–30 m, Bahía de Chiriquí, Panamá, 15.8 mm length. 13. Paratype, OSUM 37272, 20–30 m, Bahía de Chiriquí, Panamá, 15.3 mm length. 14. Paratype, UF 451539, 20–30 m, Bahía de Chiriquí, Panamá, 14.7 mm length. 15. Detail of siphonal canal sculpture from LACM 3244.



**Remarks.** *Bailya cidaris* differs from the only other known *Bailya* in the eastern Pacific Ocean (*B. anomala*) in color and sculptural details (Table 1). It appears to have a much more restricted distribution than *B. anomala*, being limited to the coast of Panamá and Costa Rica. It's closest relative, based on shell features, is the western Atlantic Ocean *Bailya intricata* (Dall, 1884), particularly specimens from eastern Panamá (see Watters, 2009: figs. 131–132).

*Bailya intricata* differs from *B. cidaris* in having more 1° spiral cords on the last whorl (12–16 vs 11–12) and more axial ribs on the last whorl (13–16 vs 12–13). The axial ribs in *B. intricata* are rarely darkly colored as in *B. cidaris*.

**Etymology.** *L. cidaris*, a Persian diadem or tiara. A feminine noun in apposition.

**Table 1.** Shell differences between *B. anomala* and *B. cidaris*. Spiral sculpture – cords arranged by decreasing size A to B.

Shell characteristic	<i>Bailya anomala</i>	<i>Bailya cidaris</i>
Length (mm)	13.3-19.3	13.7-15.8
Number of axial ribs on final whorl	12-14	12-13
Number of axial ribs on penultimate whorl	13-15	13-14
Spiral sculpture pattern on body whorl	A-B-A	A-B-B-B-A
Intersections form prominent tubercles	No	Yes
Sculpture cancellate	Weak	Strong
Number of 1° spiral cords on final whorl	17	11-12
Color pattern	White with three broad interrupted brown spiral bands	Tan with narrow pale bands, axial ribs may be darker

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