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Vanneaugobius dollfusi Brownell, 1978, a junior synonym of *Vanneaugobius pruvoti* (Fage, 1907)

(Actinopteri: Teleostei: Gobiidae)

Marcelo Kovačić

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Vanneaugobius pruvoti (Fage, 1907) is one of two most enigmatic gobies in the Mediterranean, known just from the holotype, now lost, described more than a century ago, and with one additional published record assigned to this species from Canary Islands, Atlantic Ocean. All later findings of *Vanneaugobius* across the Mediterranean Sea were attributed to another species, *Vanneaugobius dollfusi* Brownell, 1978, including additional records from the *V. pruvoti* type locality. Unfortunately, the type specimens of *V. dollfusi* are lost, too. All assignments to *V. dollfusi* of Mediterranean *Vanneaugobius* records were based on the single character, i. e. differing counts of the second dorsal and anal fin. *Vanneaugobius dollfusi* has the second dorsal fin count I+9–10 and anal fin count I+8–9, while *V. pruvoti* has the second dorsal fin count I+11 and anal fin count I+10. Reviewing all published data on the taxonomy of the genus *Vanneaugobius* and of the data in Fage's papers from 1907, evidence have been found for Fage having systematically overcounted by one ray in the second dorsal fin and anal fin for all gobiid species that were studied and published by him in 1907. An explanation for the cause of one ray overcounting by Fage is provided. All other characters, inferred to be diagnostic for *V. pruvoti* match those of all specimens identified as *V. dollfusi* in all later publications. It can be concluded that just one *Vanneaugobius* species exists in the Mediterranean and Moroccan Atlantic. This species has fin ray counts of the second dorsal fin I+9–10 and anal fin I+8–9, and this species was originally described as *V. pruvoti*, and *V. dollfusi* is considered its junior synonym. Additional specimens reported as *V. pruvoti* from the Canary Islands with a second dorsal and anal fin count of I+11 and I+10 represents a yet undescribed Atlantic species of *Vanneaugobius*.

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Introduction

The two most enigmatic gobies in the Mediterranean are *Didogobius bentuvii* Miller, 1966 and *Vanneaugobius pruvoti* (Fage, 1907). Both are known just from the holotype, described more than half a century and more than a century ago, respectively (Fage 1907, Miller 1966, Kovačić 2025). However, regarding *D. bentuvii*, a bit of illumination was provided by the recent finding of Atlantic sister species, *Didogobius*

lanceolatus Schliewen, Knorrn & Böhmer, 2023 from Mauritania (Schliewen et al. 2023). Regarding *Vanneaugobius pruvoti* (Fage, 1907), the few non-type individuals identified as *V. pruvoti* were collected from the Canary Islands in the Atlantic (Van Tassel et al. 1988). In the Mediterranean the rediscovery of individuals of the genus *Vanneaugobius* began in 2000 and until 2023 this has been recorded in a total of eleven papers (from Pallaoro & Kovačić (2000) to Kovačić & Frogia (2023)). All records

were assigned to *Vanneaugobius dollfusi* Brownell, 1978, based exclusively on the second dorsal and anal fin meristics, including also new records from *V. pruvoti* type locality.

The aim of the present paper is to infer a most parsimonious solution for the mystery of the Mediterranean *Vanneaugobius* species.

Material and methods

Nomenclature follows Fricke et al. (2026). The present valid names are used, except in the context of chronological reconstruction, where the then-existing valid and used names are cited. The count of fins follows Miller & Tortonese (1968) and Van Tassel et al. (1988). The fin count is expressed for the second dorsal and anal fins as roman numerals for spines + western digits for rays, except in citations. In the citations, the original expressions from publications are literally quoted, including the published typographical errors.

Results

Available knowledge on *Vanneaugobius* taxonomy from the published data in chronological order

1907: *Eleotris pruvoti* Fage, 1907 was described on material from Balearic Sea, Dragonera, north of Cabrera Island (Fage 1907). The holotype, stored in Muséum National d'Histoire Naturelle, Paris, France, is missing today and it was already not been available for examination in 1988 (Van Tassell et al. 1988, Fricke et al. 2026).

1930: De Buen (1930) erected a new genus, *Odondebuena* De Buen, 1930, for the two species *Eleotris pruvoti* Fage, 1907 and *Eleotris balearicus* (Pellegrin & Fage, 1907). At this time no additional specimens of *E. pruvoti* had been collected, i.e. *E. pruvoti* remained to be known just from the holotype.

1955: According to Brownell (1978), Dollfus had identified in 1955 two gobiid specimens collected off Agadir, Morocco, in 1926 as *Eleotris pruvoti* and *Eleotris balearicus*. Dollfus' identification supposedly was the second record of *E. pruvoti*.

1978: Brownell (1978) erected the monotypic genus *Vanneaugobius* for *V. dollfusi* based on the two gobiid specimens from Agadir, Morocco, that had earlier been identified as *E. pruvoti* and *E. balearicus* by Dollfus. Brownell (1978) followed De Buen (1930) for the generic assignment of two related species, *Odondebuena pruvoti* and *O. balearica*. According to Brownell (1978) "The only distinction of generic significance that this author can make between *V. dollfusi* and the two species of *Odondebuena* is

the presence of a pair of specialized scales with elongate ctenii on each side of the caudal fin in the latter". This has been questioned later (see below) and appears to be objectively wrong, since the caudal scales with elongate ctenii just could have been lost in the Moroccan specimens during or after collection. Even Brownell (1978) admitted about the opinion forwarded by Peter J. Miller to him that the two type specimens of *V. dollfusi* possibly had lost the specialized caudal scales, and that *V. dollfusi* may eventually be congeneric, if not even a synonym of *O. pruvoti*. Indeed, the caudal scales with elongate ctenii are most easily detached in *Vanneaugobius* and *Odondebuena* species during collection and handling specimens (personal observation). Quite a few individuals of these genera, when examined, lack one, more than one or all four caudal scales with elongate ctenii, i.e. upper and lower, left and right, see Pallaoro & Kovačić (2000) for *Vanneaugobius*. The holotype and paratype of *V. dollfusi* are missing today, and they must have been lost between 1978 and 1988 (Van Tassell et al. 1988, Fricke et al. 2026). Thus, with the record of *E. pruvoti* from Agadir having been reidentified as *V. dollfusi*, *O. pruvoti* returned to the state of being known just from the holotype.

1986: Miller (1986) assigned *O. pruvoti* to *Vanneaugobius* and identified *V. dollfusi* as a junior synonym of *V. pruvoti*. No new records of *V. pruvoti* / *V. dollfusi* had become available except for the total of three type specimens from the both descriptions. Miller (1986), in a tiny distribution map, marked two type localities as the only records for *Vanneaugobius*.

1988: Van Tassell et al. (1988) described *Vanneaugobius canariensis* Van Tassell, Miller & Brito, 1988 from the Canaries and Guinea. They resurrected *V. pruvoti*, based on the collected Atlantic specimens from the Canary Islands: four specimens from 1930 and single specimen collected in 1982. They justified the resurrection based on second dorsal fin and anal fin ray counts of their new collected specimens matching the counts reported in the original *V. pruvoti* description by Fage (1907), i.e. second and anal dorsal fin counts with I + 11 and I + 10, respectively. They again expressed in this paper doubts about their own decision: "Also, since it is now found that the distinctive new species, *V. canariensis*, differs from *V. pruvoti* to the same extent, with D1 I/10, and A I/9, it now seems advisable to separate *V. pruvoti* and *V. dollfusi*, pending acquisition of more data on meristic variation. Intuitively, it is felt that the two forms can be no more than local variants of an Atlantic-Mediterranean species whose senior synonym must be *V. pruvoti*". The comment was probably initiated again by Peter J. Miller, since he was one of the coauthors of Van Tassell et al. (1988). Furthermore,

Van Tassell et al. (1988) rejected the character of missing caudal scales for *V. dollfusi* and *Vanneaugobius* in Brownell (1978) as of generic diagnostic value: “This close correspondence, and the similar coralline habitat..., suggested that lack of caudal scales in *dollfusi* was due to damage on capture or previous examination by Dollfus These scales are conspicuous, easily detached, and tempting objects for microscopical preparation. It therefore seemed reasonable to one of us (P.J.M) to regard *V. dollfusi* as a junior subjective synonym of *E. pruvoti*, for which *Vanneaugobius* was conveniently available as a generic name...” The Canary Islands specimens identified as *V. pruvoti* by Van Tassell et al. (1988) are the only ones identified and published as *V. pruvoti* after the original description of the species. The single character being different between *V. pruvoti* and the resurrected *V. dollfusi*, remains the count of one extra ray in two fins, i.e. in second dorsal fin I+11 and anal fin I+10 in *V. pruvoti* against second dorsal fin I+10 and anal fin I+9 in *V. dollfusi* description, as it was given for the type material in their original descriptions (Brownell 1978, Van Tassell et al. 1988). All individuals from later papers that reported *V. dollfusi* records, featured all other characters that were used by Van Tassell et al. (1988) as diagnostic for *V. pruvoti*: separate pelvic fins; modified caudal scales, which include some with all ctenii elongate; elongation of the first dorsal fin spine in males; and the presence of a dark spot near the base of the first dorsal fin (e.g. see Kovačić 2008). Thus, since the type material of *V. dollfusi* and *V. pruvoti*, stored in Muséum National d'Histoire Naturelle, Institut Scientifique, Rabat, Morocco (Fricke et al. 2026), had been reported as already not available by Van Tassell et al. (1988), no material exists of *V. dollfusi* at that time, whereas four additional *V. pruvoti* specimens from Las Palmas, Gran Canaria, the Canary Islands, collected in 1930 and one specimen from Las Caletillas, Tenerife, the Canary Islands collected in 1982, were reported by Van Tassell et al. (1988). However, they were identified based only on meristics of the second dorsal fin and anal fin.

2000 to 2023: Specimens of *Vanneaugobius* sp. were reported from across the Mediterranean numerous times, starting with Pallaoro & Kovačić (2000) up to the most recent report of Kovačić & Froglija (2023). These records include also the type locality of *V. pruvoti* (Ordines et al. 2019). However, they were always identified as *V. dollfusi* based on the second dorsal fin count of I+9, I+10 or I+9–10 and anal fin I+9 or I+8–9. Lower counts than those reported in Brownell (1978) had already been found in the first two papers by Pallaoro & Kovačić (2000) and Ahnelt & Dorda (2004). Marcelo Kovačić consulted Peter J. Miller

back in 2000 before the submission of the manuscript by Pallaoro & Kovačić (2000), and both agreed that the anal and dorsal fin meristic left no choice, but to report *V. dollfusi* for the Adriatic Sea and not *V. pruvoti* (personal communication), since the validity of *V. dollfusi*, previously synonymized by Miller (1986), had been revalidated by Van Tassell et al. (1988) and that both species could be distinguished only based on their second dorsal fin and anal fin counts. All subsequent papers identifying Mediterranean new records of *Vanneaugobius* as *V. dollfusi*, just followed Pallaoro & Kovačić (2000), encountering again and again that fin counts never matched the ones reported by Fage (1907) for the holotype of *V. pruvoti*. Numerous published and unpublished individuals collected by Francesc Ordines at the type locality of *V. pruvoti* and the Balearic Islands in general were identified in the same way, as *V. dollfusi* (Ordines et al. 2019; F. Ordines, personal communication).

2003: The genetics of *V. pruvoti* were reported by Rüber et al. (2003) based on one additional individual collected at Mala, Lanzarote, Canary Islands and stored in the American Museum of Natural History (AMNH) with the catalogue number AMNH 233178. The individual stored in the American Museum of Natural History with the catalogue number I-233178 is now recorded in the AMNH database only with genus name as *Vanneaugobius*, with no species identity (AMNH 2025). Presently, there are four lots stored in the AMNH ichthyological collection as *V. pruvoti*, all collected by J. Van Tassell at Lanzarote, Canary Islands (AMNH 2025). However, none of them matches the catalogue number from Rüber et al. (2003), and there is only one lot with three specimens collected at the same locality, Mala, in 2000 (I-256769). The two other samples are from Puerte del Carmen (I-258684 and I-264801), and one sample is with no locality recorded (I-274004), all collected in 1993 (AMNH 2025).

2008: Kovačić (2008) published a photo of a living *V. pruvoti* specimen from Lanzarote, Canary Islands made by James Van Tassel in 2000.

2025: A new species of goby, *Vanneaugobius longignathus* Kovačić, Schliewen & Böhmer, 2025 (Schliewen et al. 2025) was described from São Tomé Island, eastern tropical Atlantic. Based on the molecular phylogenetic results, *V. canariensis* was reassigned to the genus *Wheelerigobius* (Schliewen et al. 2025), keeping, with one new described and one reassigned species, the count of valid *Vanneaugobius* species down to three: *V. dollfusi*, represented apart from the lost types, also by a lot of new material collected in the Mediterranean in 21st century (Pallaoro & Kovačić (2000) to Kovačić & Froglija (2023)); *V. pru-*

voti, represented, considering the lost holotype from the Balearic Islands, only by specimens identified as *V. pruvoti* from the Canary Islands as reported by Van Tassell et al. (1988) and listed in the catalogue of the AMNH ichthyological collection; and the Atlantic *V. longignathus*, known just from holotype and paratype from São Tomé Island (Schliewen et al. 2025). The genetics of *V. pruvoti* reported by Schliewen et al. (2025) was based again on the individual stored in the American Museum of Natural History with the catalogue number I-233178, recorded now in the AMNH database only as *Vanneaugobius*, with no species identity (AMNH 2025).

Rationale

For both species, *V. pruvoti* and *V. dollfusi*, the type specimens are lost and the original descriptions are the only source of scrutinizable data for the two taxa. The only illustrations of the second dorsal and anal fins in the species description of *V. pruvoti* are photographs of the entire holotype in the lateral and in the ventral position. No count of dorsal or anal fin rays is possible from those photographs. The single recognized morphological difference between specimens identified as *V. pruvoti* and specimens identified as *V. dollfusi* since 1988 (Van Tassell et al. 1988) is the higher fin rays count in each of the second dorsal and anal fins of *V. pruvoti*. The higher dorsal and anal fin rays count by Fage (1907) and by Van Tassell et al. (1988) of *V. pruvoti* contrasts the lower fin counts reported in Brownell (1978) and in papers from Pallaoro & Kovačić (2000) to Kovačić & Frogli (2023) for *V. dollfusi*. While the number of rays in second dorsal and anal fins can vary within the same gobiid species (Miller 1986), it appears intraspecifically consistent and is restricted to the single value in *V. longignathus*, with the second dorsal fin I + 10 and anal fin I + 9, and in *V. pruvoti*, with the second dorsal fin I + 11 and anal fin I + 10, although both species data are based on small number of known individuals. On the contrary, *Vanneaugobius dollfusi* has the second dorsal fin I + 9–10 and anal fin I + 8–9. Van Tassell et al. (1988), also all authors from Pallaoro & Kovačić (2000) to Kovačić & Frogli (2023), and, finally, Schliewen et al. (2025) followed the same meristics methodology, so the miscounting by the different methods is rather unlikely for that entire period.

Interestingly, a detailed look in the data from Fage's works in 1907 provides a plausible explanation for the mismatch of counted rays in the second dorsal and anal fins in Mediterranean *Vanneaugobius* specimens between Fage (1907) and all later authors. The counts of one additional ray for second dorsal and anal fins by Fage (1907), as compared to specific fin ray counts reported after Fage (1907), are not just

restricted to *V. pruvoti*, and, thus can be inferred to be a systematic error. Fage apparently miscounted meristics values of second dorsal and anal fins for gobiid species studied in Fage's works published in 1907 (Fage 1907, Pellegrin & Fage 1907). According to Fage (1907), *Eleotris (Valenciennea) pruvoti*, n. sp., features a dorsal fins formula of "6/1 + 11" and of the anal fin "1/10", meaning the second dorsal fin I + 11 and the anal fin I + 10, against second dorsal fin I + 10 (in some individuals 9) and anal fin I + 9 (in some individuals 8) later known for *V. dollfusi*. In the same publication, Fage (1907) provided counts for other gobiid species. Fin ray counts of *Gobius strictus*, n. sp., later identified as a synonym of *Gobius cruentatus* (Kovačić 2004), are reported as "6/1–15" (dorsal fins) and "1/13–14" (anal fin), meaning the second dorsal fin I + 15, the anal fin I + 13–14. Fage's (1907) counts have one ray more in each fin as compared to the published data for *Gobius cruentatus* (Miller 1986: second dorsal fin I + 14, anal fin I + 12–13). The fin ranges are based on both *G. cruentatus* and *G. strictus* data in Miller (1986), since Miller (1986) still considered *G. strictus* as valid species, providing the species data, with his note that it could be juvenile of *G. cruentatus*. Unfortunately, the syntypes of *G. strictus* are also lost as the type material of *V. dollfusi* and *V. pruvoti* (Fricke et al. 2026). Interestingly, the type locality of *G. strictus* is the same as for *V. pruvoti*, Dragonera, north of Cabrera Island, Balearic Islands, western Mediterranean Sea (Fricke et al. 2026). The third goby for which Fage (1907) provided morphological data was *Eleotris balearicus* Pellegrin & Fage, 1907, reporting the dorsal fins formula as "6/10–11", which is probably typographical error missing the spine of the second dorsal fin; the anal fin count was reported to be "1/9–10". The inference of a typological error is supported by the fact that both values were correctly written in the original description of *Eleotris balearicus* from the same year (Pellegrin & Fage 1907) as "VI–I 10–11" for dorsal fin and "I 9–10" for anal fin. In the redescription of *Odondebuenia balearica* (Pellegrin & Fage, 1907), Miller & Tortonese (1968) provided the second dorsal fin count as I + 9–10, whereas the anal fin count is missing despite the fact that Miller & Tortonese (1968) had explained their counting method also for the anal fin count. Thus, all of Fage's counts of the second dorsal fin and the anal fin of gobies in his 1907 papers reported exactly one fin ray more than reported otherwise for the same species in later publications. The most probable reason for this mismatch is that Fage had counted the terminal bifid ray of the second dorsal and anal fin as two rays. At least since Miller's papers in 1960's (Miller 1966, Miller & Tortonese 1968), the terminal bifid ray of European gobies has been always counted as single ray. Considering the systematic overcount by

exactly one ray in all gobies studied by Fage in 1907 (Fage 1907, Pellegrin & Fage 1907) and the availability of a plausible explanation of how that mismatch could have happened, it is highly likely that Fage had counted the last bifid ray as two separate rays and that the lost holotype of *V. pruvoti* most likely had a count of the second dorsal fin of I+10 and of the anal fin I+9, i.e. fitting in the range of all later records identified as *V. dollfusi*, including those from the locality where the holotype had been collected (Brownell 1978 to Kovačić & Froglija 2023).

All other characters, used by Van Tassell et al. (1988) as diagnostic for *V. pruvoti*, match the characters of the specimens reported from Pallaoro & Kovačić (2000) to Kovačić & Froglija (2023), all identified as *V. dollfusi* (see section “Available knowledge on *Vanneaugobius* taxonomy from the published data in chronological order” above).

The coloration in preservative was shortly described in the original description of *V. pruvoti* (Fage, 1907), with no data on coloration in life of the holotype. Brownell (1978) declared the coloration in life unknown, and did not describe coloration in preservative. The coloration in preservative described by Fage (1907) matches all later preserved material identified as *V. dollfusi* from Pallaoro & Kovačić (2000) to Kovačić & Froglija (2023): “Dans l’alcool, le corps a une couleur fauve, les nageoires sont grisâtres, et la première dorsale porte une large tache noire à sa base (In alcohol, the body has a tawny colour, the fins are greyish, and the first dorsal fin has a large black spot at its base)”.

The original description (Fage 1907) had also a short note on the habitat: “Au nord de l’île de Cabrera, et autour du petit îlot de Dragonera, à peu de distance de la côte, les fonds sous marins sont constitués par des roches roulées, des concrétions à *Lithothamnion*, formant ce que les Espagnols appellent les “cascajos” (North of Cabrera Island, and around the small islet of Dragonera, a short distance from the coast, the seabed consists of rolled rocks, concretions of *Lithothamnion*, forming what the Spanish call “cascajos”)”. Based on the original description it appears that the type habitat ranged from maerl to shell debris or represented their mixture. The described habitat by Fage (1907) fits well inside variety of habitats of records identified as *V. dollfusi* (Brownell 1978, Kovačić et al. 2022). No depth of collecting was recorded in Fage (1907).

Discussion and conclusions

Based on the most parsimonious explanation provided in Rationale of the Results, it can be concluded that in the Mediterranean and Moroccan Atlantic

exists just one *Vanneaugobius* species, with the fin counts of second dorsal fin I+9–10 and anal fin I+8–9, originally described as *V. pruvoti*, with *V. dollfusi* as its junior synonym. Additional specimens reported as *V. pruvoti* from the Canary Islands by Van Tassell et al. (1988), with the second dorsal fin I+11 and anal fin I+10, represent an undescribed *Vanneaugobius* species. This species appears to be widespread across the Canaries considering that it has been found at different islands of the Canary Islands archipelago (see Available knowledge on *Vanneaugobius* taxonomy from the published data in chronological order). Nevertheless, it appears to be endemic to the Canaries, since it has never been recorded from the well-researched Mediterranean Sea and the continental Atlantic coasts. Therefore, there are three *Vanneaugobius* species presently known: *V. pruvoti*, *V. longinathus* and the undescribed *Vanneaugobius* species from the Canary Islands.

The detailed morphological redescription of *V. pruvoti* and the description of the undescribed *Vanneaugobius* species should reveal more morphological differences between these two species. The genetics are already available in Schliewen et al. (2025) for all *Vanneaugobius* species and confirm the existence of three *Vanneaugobius* species. However, considering the present synonymization, *V. longinathus* is, indeed, the sister species to the undescribed *Vanneaugobius* from Canary Islands, identified in Schliewen et al. (2025) as *V. pruvoti*, whereas *V. pruvoti*, identified in Schliewen et al. (2025) as *V. dollfusi* is the sister taxon to *V. longinathus* / *Vanneaugobius* sp. pair.

Comparing the published data on the undescribed *Vanneaugobius* species from Canary Islands (Van Tassell et al. 1988) and all published *V. pruvoti* / *V. dollfusi* data taken together (Fage 1907 to Kovačić & Froglija 2023), the differences in the coloration and the habitat preference can be summarized.

The photo in life of undescribed *Vanneaugobius* species from Lanzarote, Canary Islands in 2000 was published in Kovačić (2008), provided and identified by James Van Tassell. The first information on coloration in life from *V. pruvoti* / *V. dollfusi* data was published in the same work (Kovačić 2008), accompanied with the photos of each one freshly dead male and female identified as *V. dollfusi*. Photos of *V. pruvoti* identified as *V. dollfusi* were published for living individuals in Iglesias et al. (2020), Kovačić et al. (2022) and Louisy (2022); freshly dead individuals in Kovačić (2008) and Consoli et al. (2019); and preserved individuals in Kovačić & Schembri (2019), Ordines et al. (2019) and Kovačić & Froglija (2023). Comparing the coloration of living, freshly dead and preserved individuals of *V. pruvoti*, it appears that the orange to reddish orange coloration and similar coloration patterns are shared among living

and freshly dead individuals. However, the photographed intensity and extension of orange colour over the body surface vary within each of the states. On the contrary, the proximal dark mark on the first dorsal fin is absent in most published photos of living animals except in Louisy (2022), but it is present in all photos with freshly dead individuals in both sexes. Preserved specimens retain the proximal dark mark on the first dorsal fin, while other coloration pattern elements are reduced to scattered melanophores. The following differences between the coloration in life of *V. pruvoti* (i.e. *V. pruvoti* identified as *V. dollfusi* in Iglésias et al. (2020), Kovačić et al. (2022), Louisy (2022)) and the single photo of the undescribed *Vanneaugobius* species from Canary Islands in Kovačić (2008)) are observed: *V. pruvoti* has an overall orange to reddish orange coloration in life, a dark blotch on the first dorsal fin extending to the first spine, sometimes present in living individuals and always in freshly dead individuals, and leucophores on dorsal and caudal fins are absent or just irregularly scattered. In contrast, the undescribed *Vanneaugobius* species from Canary Islands has an overall yellow coloration in life, the dark blotch on the first dorsal fin is behind spine IV, and it has leucophores arranged as one or two white stripes on the dorsal fins and as two white bars on the caudal fin.

V. pruvoti / *V. dollfusi* was reported on various littoral bottoms: on sediment at the foot of rocky or coralligenous walls or slopes, coralligenous or rocky grounds, maërl, deep algal beds, shell debris, sand, mud, and even near *Posidonia* meadows (Kovačić et al. 2022, Kovačić & Frogia 2023). A similar habitat is recorded for the undescribed *Vanneaugobius* species, coral and rock with muddy interspersed patches (Van Tassell et al. 1988). However, the depth range of *V. pruvoti* / *V. dollfusi* data is reported from 15 to 160 m, thus *V. pruvoti* is a circalittoral species extending to the infralittoral in adequate habitat (Kovačić et al. 2022, Kovačić & Frogia 2023). In contrast, the undescribed *Vanneaugobius* species appears to be present only in the deeper the circalittoral to upper bathyal, yet recorded only between 61 to 270 m (Van Tassell et al. 1988, Kovačić 2008).

Considering that the types of both species are lost and accepting that the hypothesis of single Mediterranean *Vanneaugobius* species as valid, the alternative hypothesis of two species, considered incorrect here, will also never be falsifiable by collecting any new material as source of data. The new Mediterranean material would be just identified again and again as *V. dollfusi*, while *V. pruvoti* would remain a continuing mystery with a single record in the Mediterranean from the holotype. Only through the already published data, it has become possible to cast reasonable doubts on the two Mediterranean species

hypothesis. On the contrary, the single Mediterranean *Vanneaugobius* species hypothesis proposed here is possible to be falsified by new discoveries, just by collecting of a Mediterranean *Vanneaugobius* individual with actual meristics of the second dorsal fin I + 11 and anal fin I + 10. Therefore, even without the data presented in this work, synonymization of the two Mediterranean taxa is the most parsimonious and proper step at the present stage, opening two-ways possibilities for the future.

The description of the undescribed *Vanneaugobius* from Canary Islands and the redescription of *V. pruvoti* based on the new Mediterranean material, including the material from the type locality at Balearic Islands, should be the final step for demystifying this Mediterranean gobiid puzzle that persisted for more than a hundred years.

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