

ALPHEUS LOTTINI GUÉRIN, 1829 (CRUSTACEA, DECAPODA): PROPOSED CONSERVATION. Z.N.(S.)2370

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In 1979 Holthuis, pp. 7–10, proposed the substitution of the name *Alpheus sublucanus* (Forskål, 1775) for the currently used *Alpheus lottini* Guérin, 1829. In his publication Holthuis gives a thorough and excellent discussion of the various names used for this species, here given in rapid review in chronological order of general usage:

Alpheus laevis Randall, 1839. This was the most commonly used name for the species in the 19th century.

Alpheus ventrosus Milne Edwards, 1837. While Coutière in 1897, p. 195, pointed out that this species was the same as *A. laevis*, he continued to use Randall's name until 1905 (p. 882), when he stated he had re-examined the 'types' of Milne Edwards and had no doubt that the two nominal species were identical. Only a few workers used Randall's name after Coutière's 1905 publication became available, although it persisted in the literature until 1921 (Urita, vol. 33. p.216).

Alpheus lottini Guérin, 1829. (The date given is of the publication of the plates — see Holthuis 1961, p. 168 — while the description was published in 1838). Kingsley, 1882, p. 113, after the examination of the types of *A. lottini* and *A. laevis* stated that only one species was involved and that *A. lottini* was the senior synonym. Only Sharp in 1893, p. 113, followed Kingsley's lead until Holthuis cited him in 1958 (p. 22).

However, Stebbing in South Africa did revive *A. lottini*, apparently independently, in 1915, p. 82, and 1919, p. 123, and he was followed by Barnard, 1950, p. 748 and Macnae & Kalk (first ed., 1958, not seen; second ed., 1969, p. 37 ff.) also from South Africa. Banner, 1958, p. 166 (published in April) suggested that the name *A. lottini* be suppressed as a *nomen oblitum*. Holthuis, 1958, p. 22 (published in September) reviewed the history of the names used for the species and firmly supported the use of Guérin's name. Banner & Banner, 1964, p. 89, conceded that the 'fifty-year rule' (Article 23b of the 1961 code) precluded the retention of the name *A. ventrosus*. Subsequently, *A. lottini* was used more and more extensively (see listings, paragraphs 6 and 7).

Alpheus sublucanus (Forskål, 1775). Forskål's name, published posthumously, was almost entirely ignored by all carcinologists for two centuries. Holthuis (1979, *loc. cit.*) has suggested that the name was not used by those working with the

Indo-Pacific fauna as it was based almost entirely upon color notes taken in the field and that by the time specimens were returned to Europe in preservative, the distinctive coloration would have faded (Guérin reported that his type for *A. lottini* was of 'jaune verdâtre dans l'alkool'). There is no indication that any type specimens were ever brought back by the ill-fated expedition to 'Arabia Felix'. Holthuis, however, while collecting in 1962 in the southern portion of the Red Sea with Forskål's colour description before him, found that the species then known as *A. lottini* agreed with Forskål's terse description. He therefore raised Forskål's name as the senior synonym to replace *A. lottini* (*loc. cit.*).

Dr. Holthuis has kindly listed for us all the uses of *sublucanus* that he knows of in the literature:

HERBST, 1792. *Versuch einer Naturgeschichte der Krabben und Krebse* (Berlin and Stralsund), vol. 2 (2), pp. 66–67.

FISHELSON, 1971. *Mar. Biol.*, vol. 10(2), p. 121 ff. (coral reef ecology).

MERGNER & SCHUHMACHER, 1974 (publ. Dec., 1974). *Helgoländer wiss. Meeresunters*, vol. 26(34), pp. 238–356, tab. 6, 13 (coral reef ecology).

HOLTHUIS, 1980. *FAO Fish. Synop.* (125) Vol. 1, pp. 122–123 (distribution, listing of synonyms, etc., together with remarks on the use of the name as a senior synonym).

The use by Fishelson of Forskål's name was in violation of the 'fifty-year rule' then in force. The Mergner & Schuhmacher article was published after the revision of Article 23 had appeared (in August, 1974) so it was not in violation; however, that article merely carried Forskål's name in two extensive faunal lists without comment on the change. Dr. Holthuis has stated that he applied the names used by Dr. Fishelson (personal communication) while Mergner & Schuhmacher specifically acknowledge his help. Thus, while the name *A. sublucanus* has appeared four other times in the literature since 1970, all uses were those of Dr. Holthuis and he did not explain the synonymy of *A. sublucanus* until late 1979.

2. The species has also been placed under two different generic names and been given three different trivial names. These are recorded and accepted synonyms and do not affect this discussion.

3. Forskål, as a student of Linnaeus, used the linnaean genus *Cancer* for this species, but he did state that the animal was 'macrourus'. Beyond that he gave almost no morphological details that would separate this species from other genera and families of shrimp-like decapods. He did mention '*antice spina oculis longiore*' but made no mention of the characteristic orbital hoods that are found in all species of the genus *Alpheus*; he also mentioned that the

left chela was larger — a type of asymmetry that is also found in unrelated shrimps, as in the PONTONIINAE.

4. The identification by Holthuis therefore rests largely upon the colours described by Forskål. Forskål stated that the shrimp was "*incarnatus* [usually translated as flesh-coloured or pink], *dorso nigro*"; he also specified "*Antennae nigrae...Chelae...dorso nigrae, lateribus fuscopunctatae...*" In the literally hundreds of specimens of this species that we have collected through the breadth of the Indo-Pacific we have found the colour to be quite variable. The ground colour is usually an orange-red of various degrees of intensity and the lateral portions of the body and the chelae usually bear spots of deeper red to red-brown. In some geographical areas individuals may bear a mid-dorsal longitudinal stripe of the colour of the mottling or even darker, at times with the red-brown approaching blackness. We are currently publishing in a paper on the alpheidids of the Red Sea some colour notes on *A. sublucanus-lottini* made by Dr. Holthuis on a specimen he collected from the coral *Stylophora* in the Dahlak Archipelago in which he states the general colour was 'orange-brown...[with a] very dark brown longitudinal band... The sides of the body are a much paler brown with an orange tinge. The tailfan is dark brown... The antennular and antennal peduncles are brown... The fingers of the large chela are reddish brown, the palm is lighter reddish brown beneath; the upper half... shows dark (blackish) spots...' While Dr. Holthuis is describing a darker specimen than we usually have seen, and a lighter specimen than that which Forskål was attempting to describe, we concede his description is close enough to that of Forskål to support his contention that Forskål was indeed describing the species now known as *A. lottini*.

5. However, the question is not whether the specimen seen and named by Forskål was the species now known as *Alpheus lottini*, but whether the revival of Forskål's name to replace that of Guérin follows the present interpretation of the Law of Priority as stated in Article 23, section (a-b) of the present rules. Holthuis contends that the use of *A. sublucanus* 'might even do away with the controversy of *ventrosus-lottini*'. We contend that the controversy is now over and that the name *A. lottini* is now stabilized.

6. Holthuis states that *A. ventrosus* was 'seriously challenged by *A. lottini* after 1955'. Our bibliography indicates that the serious challenge occurred only with the publication of Holthuis' paper in September, 1958, and we find only five authors using the name *A. ventrosus* after that date:

BANNER, 1959. *Pacific Sci.*, vol. 13, p. 141 (distribution and colour notes; paper in press when Holthuis' 1958 paper was received).

AL-KHOLY, 1961. *Publ. mar. biol. Sta. Al-Ghardaqa*, no. 11, pp. 71-86 (not seen).

JOHNSON, 1962. *Bull. natn. Mus. St. Singapore*, vol. 30, p. 51 (distribution).

PATTON, 1966. *Crustaceana*, vol. 10, p. 282 (commensalism).

McNEILL, 1968. *Sci. Repts. G. Barrier Reef Exped.*, vol. 7, p. 15 (distribution).

7. Holthuis further states that 'between 1955 and 1975 I counted 17 uses of *A. lottini* and 10 of *A. ventrosus*'. We, using the 1958 date of his publication, find 18 authors in 26 separate publications have used *A. lottini*:

FOURMANOIR, 1958. *Nat. Malgache*, vol. 10, p. 119 (distribution).

CHACE, 1962. *Proc. U.S. natn. Mus.*, vol. 113, p. 608 (distribution).

TIWARI, 1963, *Ann. Fac. Sci., Saigon*, 1963, p. 285 (distribution).

BANNER & BANNER, 1964. *Pacif. Sci.*, vol. 18, p. 38 (acceptance of name change and distribution).

———1966. *Siam Soc. Monogr.*, no. 3, p. 91 (redescription and distribution).

———1967. *Bishop Mus. Occ. Pap.* vol. 23, p. 267 (distribution).

———1968. *Micronesica*, vol. 4, p. 281 (distribution).

MACNAE & KALK, 1969. *A natural history of Inhaca Island, Moçambique* (2nd ed.), pp. 37 ff. (distribution).

KENSLEY, 1970. *Ann. S. Afr. Mus.*, vol. 57, p. 105 (distribution).

BANNER, 1970. *Hawaii Institute Geophysics* 70-23 160 (distribution).

CASTRO, 1971. *Pacif. Sci.*, vol. 25, p. 400 (commensalism).

GARTH, 1974. *J. mar. biol. Ass. India*, vol. 15, p. 198 ff. (distribution).

BRUCE, 1975. *Endeavour*, vol. 4(121), p. 25 (colour notes).

ABELE, 1974. *Smithson, Contrib. Zool.*, no. 176, p. 72 (vol. for 1975) (distribution).

———& PATTON, 1976. *Journ. Biogeogr.*, vol. 3, p. 37 (distribution).

BRUCE, 1976. *Micronesica*, vol. 12, p. 92 (commensalism).

GLYNN, 1976. *Ecolog. Monogr.* vol. 46, p. 443 (ecology).

LASSIG, 1977. *Proc. 3rd Intern. Coral Reef Symp.* vol. 1, p. 569 (commensalism).

———1977. *Mar. Biol.*, vol. 42, p. 86 ff. (commensalism).

BANNER & BANNER, 1977. *Bull. Br. Mus. nat. Hist. (Zool.)*, vol. 31, p. 282 (on the identity of *A. thetis* White, a *nomen nudum*).

———1978. *Micronesica*, vol. 14, p. 224 (distribution).

———1980. *Pacif. Sci.*, vol. 33, p. 26 (distribution).

———1981. *Rec. Aust. Mus.* [In press] (redescription and distribution).

PEYROT-CLAUDE, 1977. *Faune cavitaire mobile des platiers... (Madagascar)*. Thèse Université d'Aix-Marseille 2 pour ... Docteur des Sciences Naturelles (distribution and coral reef ecology).

RIBES, 1978. *La Macrofaune vagile associée à la partie vivante des scléractiniares... (Océan Indien)*. Thèse de Doctorat du 3^{me} cycle en Océanologie, Université Aix-Marseille 2 (distribution and coral reef ecology).

THOMASSIN, 1978. *Peuplements des sédiments coralliens dans la région de Tuléar (S.O. Madagascar)... dans le contexte cotière Indo-Pacifique*. Thèse Dr. Sciences Université d'Aix-Marseille 2 Archiv. Original CNRS (distribution and coral reef ecology).

(We do not believe these French theses constitute publications under Articles 7, 8 and 9 under the International Code; they are offered only as examples of the current usage of the binomen *Alpheus lottini*).

8. This species is not a rare and insignificant species known only to the specialists in the identification of macrurous decapod crustaceans. It is one of the larger of the alpheid shrimps, conspicuously coloured, abundant in living heads of coral of certain species of the family POCILLOPORIDAE wherever they are found in the coral reef environment. It not only reaches across the entire breadth of the Indo-Pacific faunal realm from the Red Sea to eastern Polynesia, but it has also jumped the 'eastern Pacific barrier', being reported from the Gulf of California to the Galapagos Islands. To give some idea of the abundance and collectability of this species, we are reporting on 118 specimens made in 57 collections from Australia, found in all Australian museums that have collections from the tropics (Banner & Banner, 1981, in press). The annotations on the bibliography above attest that the investigators of commensal relationships and those making broad studies on coral reef ecology have published upon this species. As is shown in paragraph 6, even those specializing in the nomenclature of the decapod crustaceans may lag behind in accepted changes in nomenclature by ten years. Those who are not specialists but are interested in other aspects of the coral reef problem will undoubtedly lag even more. The change from the presently accepted name will produce a decade or more of unnecessary confusion in the literature.

9. As an example of the use of the plenary powers by the Commission within the family ALPHEIDAE, may we cite Opinion 334, 1955, wherein the name *Crangon* Weber, 1795 was suppressed and the junior synonym *Alpheus* Fabricius, 1798 was placed on the Official List of Generic Names in Zoology. This was despite the clear priority of Weber's publication and despite the utilization of Weber's name by almost all American and Australian carcinologists following M.J. Rathbun's revival of the senior synonym in 1904 (p. 170). Although we then protested the change on the basis of priority (1951, p. 74), we now commend this action for promoting stability and universality.

10. We therefore request that the International Commission on Zoological Nomenclature:

- (1) use its plenary power vested in Article 79 to suppress the specific name *sublucanus* as published under Forskål's authorship in 1775 as *Cancer sublucanus*, a specific name virtually unused from its time of publication until 1979, for the purposes of the Law of Priority, but not for those of the Law of Homonymy;
- (2) place on the Official List of Specific Names in Zoology the specific name *lottini* Guérin, 1829, as published in the binomen *Alpheus lottini*;

- (3) place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *sublucanus* Forskål, 1775, as published in the binomen *Cancer sublucanus*.

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Comment on the above Application

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The identity of Cancer sublucanus Forskål, 1775.— The species was first published in P. Forskål's *Descriptiones Animalium*, 1775, a well-known early publication on Red Sea animals. Petrus Forskål (1732–1763) took part as a zoologist in the 1761–1767 Danish expedition to Arabia and died on 11 July 1763 in the Yemen. His notes were taken to Denmark by Carsten Niebuhr, the leader and sole survivor of the expedition, and it was he who saw to it that the *Descriptiones Animalium* were published. Because Forskål had not had the time to work out his notes himself, the descriptions of the new species give relatively little morphological information and relatively many details on the colour of the live animals. Many of the species described by Forskål (especially in fishes, crustaceans and other invertebrates) can be recognised from his descriptions, and for those his names are widely used. As Crustacea lose their colour when preserved (one of the



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