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Redescription of the holotypes of *Vincentia conspersa* (Klunzinger, 1872) and *Apogon punctatus* Klunzinger, 1879. (Pisces, Apogonidae)

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Abstract

The holotypes of *Vincentia conspersa* (Klunzinger, 1872) and *Apogon punctatus* Klunzinger, 1879 were rediscovered during a visit to the Stuttgart Museum of Natural History, West Germany. The holotype of each species is identified from amongst the specimens found in Klunzinger's collection. Descriptions based on the holotypes are provided. Hobson Bay is confirmed as the type locality of *V. conspersa*.

Introduction

In 1869, upon returning to Germany from a five-year trip to Koseir, on the coast of the Red Sea, Dr Klunzinger was given a job in the Stuttgart Museum. During the years 1869-1872, as he worked on his collections from the Red Sea and published his book *Synopsis der fische des Rothen Meeres* (1870), he also examined collections of fishes from South Australia. These fishes were collected by Dr v. Müller, the director of the botanical gardens in Melbourne, Australia, who donated them to the Königlich Naturaliencabinet in Stuttgart. Klunzinger published the results of his studies on Australian species in two papers, one in 1872 and the other after returning from his second trip to the Red Sea, in 1879. Among the numerous new species described in these papers were two apogonid species, *Apogon conspersus* Klunzinger, 1872 and *Apogon punctatus* Klunzinger, 1879. McCulloch (1929) kept both species in the genus *Apogon* Lacepède, 1801. He included the genus *Vincentia* Castelnau, 1872, in the synonymy of *Apogon* and made *V. waterhousii* Castelnau, 1872 a synonym of *A. conspersus*. Munro (1960) synonymised *A. conspersus* with *Vincentia novaehollandiae* (Valenciennes, 1832) and moved *A. punctatus* into genus *Gronovichthys* Whitley, 1929. Fraser (1972) recognised *A. conspersus* as a valid species within the genus *Vincentia*.

Methods follow Gon (1986). The descriptions below are based on the holotypes of the species. Data in parenthesis refer to other specimens found in Klunzinger's collection and are given only when different from holotype. The specimens used in this study are housed in the Stuttgart Museum of Natural History (SMNH), Stuttgart, West Germany.

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Systematics

Vincentia conspersa (Klunzinger, 1872)

Table 1

Apogon conspersus Klunzinger, 1872: 18; Hobson Bay.

Material

Holotype
. SMNH 1591, 89.5 mm SL, Australia, Melbourne, Hobson Bay, coll., von Müller, 1868.

Other specimens
SMNH ex-1591, 53.5 mm SL, locality as for holotype; SMNH 1711/1799, 4: 74.7-97.3 mm SL, Australia, Victoria, Port Phillip, coll., von Müller, 1870 and 1877.

Description

Dorsal fin rays VII (VII-VIII) + I,10 (9-10); anal fin rays II,10 (9-9); last dorsal and anal rays sometimes split to base; pectoral fin rays 15 (15-16); principal caudal rays 9 + 8; pored lateral-line scales 27; scales between lateral-line and dorsal fin origin 2; scales between lateral-line and anal fin origin 7 (6-7); predorsal scales (1-3); branchiostegal rays 7; gill rakers 5 + 13 (4-5) + (11-13); developed gill rakers 10 (9-11); vertebrae 10 + 15.

Measurements expressed as a percentage of SL are given in Table 1. Body depth 2.2 (2.3-2.7) and head length 2.5 (2.6-2.8) in SL; body width 1.9 (2.0-2.4) in its depth; snout length 5.9 (4.8-6.3), eye diameter 3.0 (2.8-3.0) and interorbital space 3.5 (3.1-3.6) in head length; upper jaw 1.8 (1.7-1.9) and lower jaw 1.5 (1.4-1.6) in head length; caudal peduncle depth 1.2 (1.3-1.7) in the length and the length 4.7 (3.9-4.5) in SL. Maxilla reaching posteriorly beyond rear edge of pupil, partly covered by suborbital bone; a polyserial band of small, conical teeth on both jaws; upper jaw band wider, its outer row teeth larger; teeth at symphysis of lower jaw sometimes slightly enlarged; vomer with a narrow band of smaller teeth; palatines with 1-3 rows of minute teeth tapering posteriorly to a single row; post-temporal bone smooth or with few minute serrae.

In alcohol: general colour brown; body and head covered with small spots; centre of scales under lateral-line with a cluster of larger spots; first dorsal fin dark brown with a black tip; pelvic fins dark; pectoral fins pale; other fins dusky; peritoneum silvery with dark spots; intestine pale.

Remarks

One specimen had an unusally short first dorsal spine (5.0 times in second spine).

McCulloch's (1929) doubt whether Hobson Bay is the type locality of *Vincentia conspersa* was justified. No locality was given by Klunzinger (1872) in his original description of this species. However, in his second work on Australian

Table 1 Proportional measurements (expressed as percentage of SL) and counts of the holotype and four other Klunzinger specimens of *Vincentia conspersa* (Klunzinger, 1872).

	Holotype SMNH 1591		Other specimens SMNH 1711/1799		
Standard length (mm)	89.5	97.3	76.2	75.7	74.7
Total length (mm)	106.5	121.4	94.0	*	*
Length of head (mm)	35.6	34.5	29.7	29.6	29.1
Depth of body	45.0	36.7	41.8	43.3	43.3
Width of body	23.2	18.3	20.5	19.3	18.3
Head length	39.8	35.4	39.0	39.1	39.0
Snout length	6.7	7.4	6.9	7.3	6.1
Eye diameter	13.0	11.4	13.4	13.3	13.7
Interorbital width	11.3	11.4	11.1	10.8	11.9
Length of upper jaw	21.6	20.5	20.8	21.5	20.9
Length of lower jaw	26.0	24.7	24.7	24.8	24.6
Length of 1st dorsal fin base	17.1	16.1	14.9	17.0	19.7
Length of 1st dorsal spine	5.1	5.3	**	2.4	4.5
Length of 2nd dorsal spine	12.4	14.2	12.7	11.9	12.9
Length of longest dorsal spine	24.1	22.3	26.2	24.7	27.0
Length of 2nd dorsal fin base	17.3	13.9	16.3	14.6	16.1
Length of 2nd dorsal fin spine	17.4	17.2	19.7	18.2	19.0
Length of longest dorsal ray	**	22.9	**	27.6	**
Length of anal fin base	14.2	15.9	15.2	15.4	14.8
Length of 1st anal spine	5.9	7.0	4.7	6.1	6.4
Length of 2nd anal spine	13.3	14.4	15.0	14.5	16.3
Length of longest anal ray	23.1	20.2	**	**	**
Length of pectoral fin	25.3	23.2	26.2	25.2	25.9
Length of pelvic fin	30.6	28.0	29.0	30.0	30.6
Length of pelvic spine	18.8	17.9	20.1	19.1	19.7
Depth of caudal peduncle	17.2	14.9	16.7	16.9	15.1
Length of caudal peduncle	21.2	25.2	22.0	22.8	25.6
Snout to 1st dorsal fin	44.8	42.7	43.4	43.1	43.0
Snout to 2nd dorsal fin	64.9	60.9	62.0	60.9	61.2
Snout to anal fin	65.8	66.8	64.8	64.2	64.1
Snout to pelvic fin	38.0	36.9	39.2	38.7	40.4
First doral fin	VII	VII	VII	VII	VIII
Second dorsal fin	I,10	I,9	I,9	I,9	I,10
Anal fin	II,10	II,9	II,9	II,9	II,9
Pectoral fin (both sides)	15	15	16	15	15
Lateral-line scales (total)	27	27	27	27	27
Developed gill-rakers	10	10	11	11	9

* Most of caudal fin missing.
** Broken.

fishes (Klunzinger 1879), two localities are mentioned, namely Port Phillip and Hobson Bay. My choice of Hobson Bay as the type locality arises from my decision concerning the holotype of this species. Two lots of fish labelled as *Apogon conspersus* were found in the Stuttgart Museum of Natural History. The one from Port Phillip was dated 1870/1877 and contained four specimens that apparently were collected at this locality on two separate occasions. The largest of the four, 121.4 mm TL, is the closest to the maximum size given by Klunzinger (1879). Of the other three, two have lost most of their caudal fin. The third, with only the tips of the caudal fin rays missing, measured 94.0 mm TL. Since all three were more or less of the same standard length (Table 1), they meet the minimum of the range (Klunzinger 1879). The specimen/s collected in 1870 seem to have reached Klunzinger's hands either too late to be included in his 1872 work or together with those collected in 1877. The other lot from Hobson Bay, was dated 1868 and contained two specimens of which the larger one, 106.5 mm TL, was the closest to the size given by Klunzinger (1872). I assume that this specimen was used by Klunzinger to describe this species, thus representing the holotype of *Vincentia conspersa* (Klunzinger, 1872). The second specimen in this lot, about 65 mm TL, is much smaller than all the other specimens and does not fit in the range given by Klunzinger (1879). This specimen was apparently collected in Hobson Bay, but arrived in Stuttgart probably after the 1879 paper had been published.

At least five nominal apogonid species have been associated with the genus *Vincentia* (Munro 1960; Scott 1964). Two of these, *V. novaehollandiae* and *V. conspersa,* were recognised by Fraser (1972) who found the eighth dorsal spine to be partially obscured by skin and scales in *V. novaehollandiae* and completely obscured in *V. conspersa.* One specimen I examined had eight exposed spines in the first dorsal fin thus showing intraspecific variation with regard to the length and exposure of the eighth spine in *V. conspersa.*

Apogon punctatus Klunzinger, 1879

Table 2

Apogon punctatus Klunzinger, 1879: 345, pl. 3, fig. 3; King George Sound.

Material

Holotype

SMNH 2541, male, 102.5 mm SL, Western Australia, King George Sound, von Müller, 1878.

Other specimens

SMNH ex-2541, 110.5 mm SL; collection data as for holotype (date unknown, see remarks below).

Table 2 Proportional measurements expressed as percentage of SL of the holotype and one other Klunzinger specimen of *Apogon punctatus* Klunzinger, 1879.

	Holotype SMNH 2541	Other specimen SMNH ex-2541
Standard length (mm)	102.5	110.5
Total length (mm)	128.6	136.5
Length of head (mm)	37.8	41.0
Depth of body	37.6	36.3
Width of body	18.7	20.0
Head length	36.9	37.1
Snout length	5.3	5.7
Eye diameter	13.1	12.7
Interorbital width	10.6	11.1
Length of upper jaw	20.4	20.7
Length of lower jaw	24.7	23.7
Length of 1st dorsal fin base	19.8	18.3
Length of 1st dorsal spine	2.9	2.9
Length of 2nd dorsal spine	10.0	9.9
Length of longest dorsal spine	24.1	21.5
Length of 2nd dorsal fin base	16.0	14.9
Length of 2nd dorsal fin spine	17.0	16.1
Length of longest dorsal ray	24.9	25.5
Length of anal fin base	14.2	14.2
Length of 1st anal spine	4.1	4.7
Length of 2nd anal spine	16.3	15.5
Length of longest anal ray	22.4	23.8
Length of pectoral fin	23.4	25.1
Length of pelvic fin	29.0	28.0
Length of pelvic spine	18.8	17.6
Depth of caudal peduncle	13.8	15.4
Length of caudal peduncle	29.3	27.8
Snout to 1st dorsal fin	41.6	43.8
Snout to 2nd dorsal fin	61.7	61.8
Snout to anal fin	61.3	62.0
Snout to pelvic fin	39.5	37.1

Description

Dorsal fin rays VIII+I,10; anal fin rays II,10; last dorsal and anal rays sometimes split to base; pectoral fin rays 15; principal caudal rays 9 + 8; pored lateral-line scales 27; scales between lateral-line and dorsal fin origin 2; scales between lateral-line and anal fin origin 6; branchiostegal rays 7; gill-rakers 3 (4) + 12; developed gill-rakers 7 (8); vertebrae 10 + 14.

Measurements expressed as a percentage of SL are given in Table 2. Body depth 2.7 and head length 2.7 in SL; body width 2.0 (1.8) in its depth; snout length 7.0 (6.5), eye diameter 2.8 (2.9) and interorbital space 3.5 (3.3) in head length; upper jaw 1.8 and lower jaw 1.5 (1.6) in head length; caudal peduncle

depth 2.1 (1.8) in its length and the length 3.4 (3.6) in SL. Maxilla reaching posteriorly to rear edge of eye or slightly beyond it, partly covered by suborbital bone; a wide polyserial band of small, conical teeth on both jaws, vomer and palatines; teeth at symphysis of lower jaw enlarged. Post-temporal bone serrated.

In alcohol: general body colour brown, covered with minute dark spots; a large, dark spot just above the tube of each lateral-line scale, from the origin of the lateral-line to the level of rear end of second dorsal fin base; similar spots present on scales below lateral-line, mainly on anterior part of body, arranged in no particular order; first dorsal fin dark, its anterior three spines with black tips; second dorsal fin, caudal fin and anterior half of pelvic fins dusky; anal and pectoral fins pale; peritoneum silvery; intestine pale.

Remarks

The two specimens of *Apogon punctatus* used in this study were originally found in the same lot. The smaller specimen, 128.6 mm TL, is the closest to the size given by Klunzinger (1879) and is considered here as the holotype of the species. The larger specimen, longer than 136.5 mm TL (tips of caudal rays broken), was apparently collected on a separate occasion at the same locality as the holotype and arrived in Stuttgart Museum after Klunzinger's 1879 paper had been published. Although originally described as *Apogon punctatus*, having eight exposed spines in its first dorsal fin this species is evidently not a member of the genus *Apogon*. Its generic status is currently being examined by Australian ichthyologists (Allen, pers. comm.).

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