Japanese Journal of Ichthyology
Vol. 38, No. 1 1991

魚類学雑誌
38巻1号 1991年

New Record of *Neosynchiropus rubrovinctus* (Callionymidae) from Izu Peninsula, Japan

Tetsuji Nakabo[1] and Masahiro Aizawa[2]

[1] Department of Fisheries, Faculty of Agriculture, Kyoto University, Kyoto 606, Japan
[2] Department of Zoology, University Museum, University of Tokyo, Hongo, Bunkyo-ku, Tokyo 113, Japan

A small reddish dragonet was collected in a tide pool near the Tsumekizaki Light, Tsumekizaki, Shimoda, southern coast of Izu Peninsula. It was identified as *Neosynchiropus rubrovinctus* (Gilbert). Because this species was previously known only from the type specimens from the Hawaiian Islands, we describe it here in detail. Our specimen provides the first description of a female of the species.

Methods of counting and measuring follow Nakabo (1982). Counts, actual measurements and proportional measurements are shown in Table 1. Vertebrae were counted from Soft-X-ray negatives.

Neosynchiropus rubrovinctus (Gilbert)
(New Japanese name: Akaobi-koteguri)
(Figs. 1, 2)

Callionymus rubrovinctus Gilbert, 1905: 650–651, fig. 252 (type locality, channel between Maui and Lanai Islands, Hawaiian Islands, 28–43 fms). Jordan and Seale, 1906: 415 (after Gilbert). Jordan and Jordan, 1922: 80 (after Gilbert). Fowler, 1928: 422–423 (after Gilbert). Fowler, 1938: 299 (after Gilbert). Böhlke, 1953: 103 (after Gilbert).

Synchiropus rubrovinctus: Gosline and Brock, 1960 (in part): fig. 77 (after Gilbert). Tinker, 1978: 371 (after Gilbert). Springer, 1982: 27 (reference).

Synchiropus (Synchiropus) rubrovinctus: Fricke, 1981: 139–142, fig. 44 (off south coast of Molokai Island, Hawaiian Islands, description of paratype). Fricke, 1983: 660–662, figs. 201, 204 (essentially a repeat of Fricke, 1981).

Yerutius rubrovinctus: Whitley, 1931: 115 (reference).

Neosynchiropus rubrovinctus: Nakabo, 1982: 79 (listed).

Material examined. FAKU (Department of Fisheries, Faculty of Agriculture, Kyoto University) 57155, a female, 21.5 mm in standard length, tide pool near Tsumekizaki Light, Tsumekizaki, Shimoda City, southern coast of Izu Peninsula, Shizuoka Prefecture, coll. by M. Aizawa, 13 Sep., 1988.

Comparative material examined. USNM (National Museum of Natural History, Washington, D.C.) 51580, holotype, male, 18 mm in standard length, channel between Maui and Lanai islands, Hawaiian Islands, 28–43 fms.

Diagnosis. This species clearly differs from other species of *Neosynchiropus* in the following characters: transparent first dorsal fin without any marks, and an elongate filamentous first dorsal spine. When fresh, it has 4 bright red bands on the dorsal half of the head and body.

Description (a female specimen from Japan). Body elongate and slightly depressed, almost cylindrical. Head slightly depressed. Snout short. Eye large. Interorbital space narrow and shallowly concave. Gill-opening oval, located a little behind midway between dorsoposterior edge of eye and upper origin of pectoral fin. Preopercular spine with

Table 1. Counts and measurements for *Neosynchiropus rubrovinctus*. Measurements are in mm; percent standard length in parentheses. *, we could not know the rays are branched or unbranched distally because they are broken.

Locality	Izu Pen., Japan	Hawaii
Cat. no.	FAKU 57155	USNM 51580 (holohype)
Sex	female	male
Standard length	21.5	18.0
Dorsal fin	IV-8	IV-8
Anal fin	7	8
Pectoral fin	v+15	19*
Pelvic fin	I, 5	I, 5
Caudal fin	i+7+ii	10*
Vertebral number (AV+CV)	7+14	7+15
Body width	5.0 (23.3)	3.8 (21.0)
Body depth	3.8 (17.7)	2.9 (16.1)
Caudal peduncle depth	2.0 (9.3)	1.6 (8.9)
Predorsal length	7.2 (33.5)	6.0 (33.3)
Caudal fin length	6.5 (30.2)	—
Head length	7.2 (33.5)	5.6 (31.1)
Eye diameter	2.4 (11.2)	2.3 (12.8)
Snout length	2.5 (11.6)	1.2 (6.7)
Upper jaw length	2.1 (9.8)	1.6 (8.9)
Interorbital width	0.6 (2.8)	0.2 (1.1)
1st dorsal spine length	8.1 (37.7)	10.7 (59.4)
2nd dorsal spine length	2.1 (9.8)	1.9 (10.6)
3rd dorsal spine length	1.1 (5.1)	1.0 (5.6)
4th dorsal spine length	0.7 (3.3)	0.6 (3.3)
1st dorsal ray length	3.3 (15.3)	—
Last dorsal ray length	2.9 (13.5)	—
1st anal ray length	2.1 (9.8)	1.8 (10.0)
Last anal ray length	3.5 (16.3)	—
Pectoral fin length	4.6 (21.4)	—
Pelvic fin length	7.4 (34.4)	5.1 (28.3)
Anal papilla length	0.1 (0.5)	—

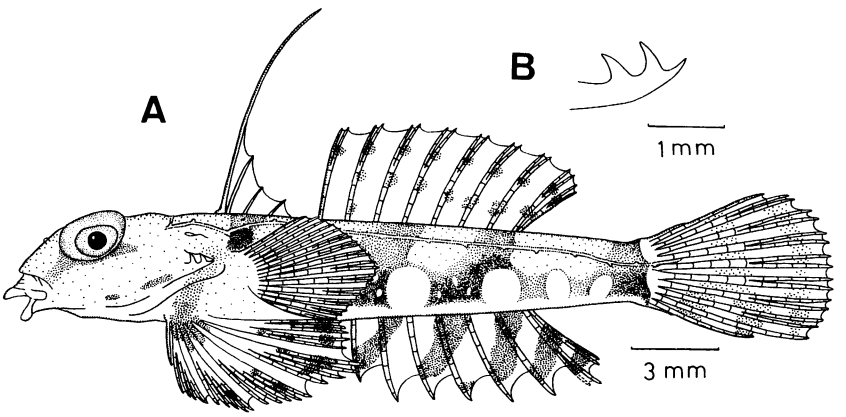

Fig. 1. *Neosynchiropus rubrovinctus* (Gilbert) from Izu Peninsula, Japan, FAKU 57155, female, 21.5 mm SL. A, lateral view. B, preopercular spine.

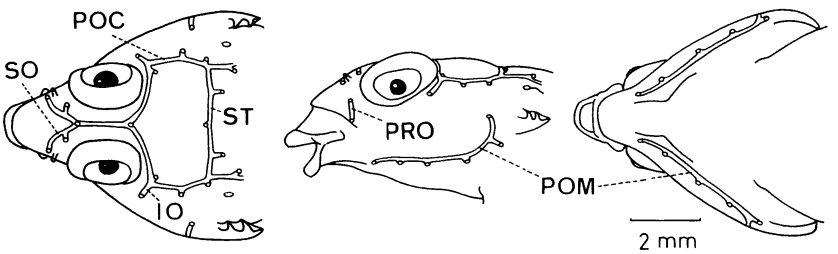

Fig. 2. Cephalic lateral line of *Neosynchiropus rubrovinctus*, FAKU 57155. Left, dorsal view. Center, lateral view. Right, ventral view. IO, infraorbital canal; POC, postocular commissure; POM, preoperculomandibular canal; PRO, preorbital canal; SO, supraorbital canal; ST, supratemporal canal.

2 dorsally directed processes on inner side; base lacking an antrorse process; posterior tip slightly upwardly curved (Fig. 1B). Upper jaw protractile, its posterior end almost reaching anterior edge of eye. A pair of short tubular nostrils before eye. Teeth on jaws villiform in broad bands. Palatine and prevomer toothless. Anal papilla very small.

Cephalic lateral line system developed (Fig. 2); infraorbital canal simple, reaching only posteroventral edge of eye; postocular commissure not connected with preoperculomandibular canal. Lateral line single, running near dorsal fin base, curved downward at caudal peduncle and extending a little beyond caudal peduncle; lines on both sides not connected on dorsal surface of caudal peduncle.

First dorsal fin small, but with 1st spine elongate and filamentous. Second dorsal fin somewhat convex; dorsal rays branched distally, last ray divided at base. Anal rays increasing in length posteriorly and unbranched distally, except for last ray divided at base, both branches of the last ray divided distally. Pectoral fin slightly pointed, reaching 3rd dorsal ray. Pelvic fin rounded, reaching 1st anal ray. Caudal fin rounded.

Color in life. Dorsal half of head and body with 4 bright red bands; anteriormost on head and both sides of 1st dorsal fin, 2nd on both sides of anterior part of 2nd dorsal fin, 3rd on both sides of posterior part of 2nd dorsal fin and posteriormost on caudal peduncle. Caudal fin with 2 broad red bands.

Color in 70% ethyl alcohol. Body faint brown above with 4 bright brown bands dorsally, dark brown with 5 large white circles and some small white spots on ventral side, and white ventrally. Head with dark marks below eye and on lower side of cheek. First dorsal fin transparent without marks. Second dorsal fin transparent with about 2 rows of small dark spots. Anal fin transparent with 5 oblique dark brown bands. Pectoral fin transparent. Pelvic fin with a dark mark at base and several dark spots

on posterior half. Caudal fin with a inverse Y-shaped faint dark band and a transverse faint dark band.

Remarks. The specimen from Japan agrees well with the holotype of *N. rubrovinctus* in having a long, filamentous 1st dorsal spine, the preopercular spine with 2 dorsally directed processes and slightly dorsally curved posterior tip, and 4 bright red bands on the dorsal half of the head and body. The specimen from Japan differs from the holotype in coloration of the anal fin (with 5 oblique dark bands in the former and almost black in the latter), coloration of the lateral and lower sides of the body (dark brown with 5 large white circles in the former and faintly dark with 4 large darker marks in the latter), length of the first dorsal spine (shorter in the former and longer in the latter), the number of anal rays (7 and 8), and the vertebral number (7+14 vs. 7+15).

The holotype is in poor condition; the 2nd dorsal, anal, pectoral and caudal fins are broken, and the anal papilla is not distinct because of its bad condition. Judging from the coloration of the anal fin, the holotype is a male, as is the paratype redescribed by Fricke (1981, 1983), which has the same anal fin color as the holotype.

Therefore, the differences in the coloration of the anal fin and lateral side of the body, and the length of the 1st dorsal spine are due to sexual dimorphism. The differences in number of anal rays and vertebrae are probably due to individual variation; one of the two paratypes from the south coast of Molokai has 7 anal rays (Gilbert, 1905). Callionymids often exhibit variation in the number of caudal vertebrae (Nakabo, 1983b, Table 7).

The female of *N. rubrovinctus* is very similar to females of *Neosynchiropus ocellatus* (Pallas), *Neosynchiropus morrisoni* (Schultz), *Neosynchiropus ijimai* (Jordan et Thompson) (figures of these 3 species are shown in Nakabo, 1983a) in having several oblique dark bands on the anal fin.

Based upon the aforementioned sexual dimorphic characters, *N. rubrovinctus* seems to mature at a standard length of about 20 mm.

The holotype of this species was originally figured as having no divided dorsal rays (Gilbert, 1905, fig. 252). However, this was in error, as all the dorsal rays are divided distally.

Gosline and Brock (1960) reported 2 specimens from the western shore of Maui, Hawaiian Islands, as *N. rubrovinctus*. But, we do not think their specimens are *N. rubrovinctus*. They noted that their specimens (the larger one about 2.5 cm in standard length) lacked a filamentous 1st dorsal spine and had the preopercular spine with 4 upward processes (counting method follows Nakabo, 1982). These characters do not agree with those of either male or female specimens of *N. rubrovinctus* as noted above. Because their specimens were a little longer in standard length than our specimen and the types of *N. rubrovinctus*, such differences are not growth-related, but indicate a species distinct from *N. rubrovinctus*.

Referring to sexual dimorphism of *N. rubrovinctus*, Fricke (1983: 663) noted that "Males have a longer first spine of the first dorsal fin than females which bears a long filament." This description was not based on examination of female specimens of the species, but rather on the description of Gosline and Brock (1960) (Fricke, personal communication). But, the two specimens of Gosline and Brock (1960) are not *N. rubrovinctus* as noted above.

Although Springer (1982) treated *N. rubrovinctus* as endemic to the Hawaiian Islands, it is now seen to have a much wider distribution.

Acknowledgments

We are grateful to Dr. Victor G. Springer of National Museum of Natural History, Washington, D.C. for loan of the holotype of the species, Mrs. Kasumi Aizawa for helping us to collect the specimen and Dr. Ronald Fricke of Staatliches Museum für Naturkunde in Stuttgart for information on the sexual dimorphism of the species.

Literature cited

Böhlke, J. E. 1953. A catalogue of the type specimens of recent fishes in the Natural History Museum of Stanford University. Stanford Ichthyol. Bull., 5: 1–168.

Fowler, H. W. 1928. The fishes of Oceania. Mem. Bernice P. Bishop Mus., 10: i–iii+1–540, pls. 1–49.

Fowler, H. W. 1938. The fishes of the George Vanderbilt South Pacific Expedition, 1937. Monogr. Acad. Natr. Sci. Philadelphia, (2): i–viii+1–349, pls. 1–12.

Fricke, R. 1981. Revision of the genus *Synchiropus* (Teleostei: Callionymidae). Theses Zoologicae vol. 1, J. Cramer, Braunschweig, 194 pp.

Fricke, R. 1983. Revision of the Indo-Pacific genera and species of the dragonet family Callionymidae. Theses Zoologicae, 3, J. Cramer, Braunschweig, x+774 pp.

Gilbert, C. H. 1905. The deep-sea fishes of the Hawaiian Islands. Bull. U. S. Fish Comm., 23, pt. 2: 575–713, pls. 66–101.

Golsine, W. A. and V. E. Brock. 1960. Hand book of

Hawaiian fishes. Univ. Hawaii Press, Honolulu, x+372 pp.
Jordan, D. S. and E. K. Jordan. 1922. A list of the fishes of Hawaii, with notes and descriptions of new species. Mem. Carnegie Mus., 10(1): 1–92, pls. 1–4.
Jordan, D. S. and A. Seale. 1906. The fishes of Samoa. Descriptions of the species found in the archipelago, with a provisional check-list of the fishes of Oceania. Bull. U. S. Bur. Fish., 25, 1905: 173–455, pls. 33–53.
Nakabo, T. 1982. Revision of genera of the dragonets (Pisces: Callionymidae). Publ. Seto Mar. Biol. Lab., 27 (1/3): 77–131.
Nakabo, T. 1983a. Revision of the dragonets (Pisces: Callionymidae) found in the waters of Japan. Publ. Seto Mar. Biol. Lab., 27(4/6): 193–259.
Nakabo, T. 1983b. Comparative osteology and phylogenetic relationships of the dragonets (Pisces: Callionymidae) with some thoughts of their evolutionary history. Publ. Seto Mar. Biol. Lab., 28(1/4): 1–73.
Springer, V. G. 1982. Pacific Plate biogeography, with special reference to shorefishes. Smithson. Contr. Zool., (367): 1–182.
Tinker, S. W. 1978. Fishes from Hawaii, a hand book of the marine fishes of Hawaii and the central Pacific Ocean. Hawaiian Service, Honolulu, xxxx+532+XXXVI pp.
Whitley, G. P. 1931. Studies in ichthyology. No. 4. Rec. Austr. Mus., vol. 18: 96–133, pls. 11–16.

(Received August 16, 1990; accepted February 26, 1991)

伊豆半島から採集された日本初記録のネズッポ科アカオビコテグリ（新称）

中坊徹次・藍澤正宏

伊豆半島下田市爪木崎の灯台下のタイドプールにおいてネズッポ科コウワンテグリ属の *Neosynchiropus rubrovinctus* (Gilbert)（アカオビコテグリ：新称）の雌1個体を採集した．*N. rubrovinctus* はハワイ諸島から模式標本のみしか知られておらず，今回報告した標本は第2番目の記録であるとともに日本初記録である．また，本種はこれまで雄の形態しか記載されておらず，雌の記載は初めてである．

本種は体長約 20 mm 程度で成熟する矮小種であると思われる．背鰭は小さく無斑紋で，第1棘が著しく長く糸状に伸びる．生時は頭部と体の背側に4本の赤い帯がある．

（中坊：606 京都市左京区北白川追分町　京都大学農学部水産学教室；藍澤：113 東京都文京区本郷 7-3-1　東京大学総合研究資料館動物部門）