

First Record of a Filefish, *Thamnaconus tessellatus* (Monacanthidae: Tetraodontiformes) from Jeju Island, Korea

By Jeong-Ho Park, Seo Ha Jang, Do Gyun Kim¹, Jae-Mook Jeong², Sukyung Kang
and Jin-Koo Kim^{3,*}

Fisheries Resource Research Division, National Institute of Fisheries Science (NIFS), Busan 46083, Republic of Korea

¹Department of Seafood and Aquaculture Science, Gyeongsang National University, Gyeongnam 53064, Republic of Korea

²Fisheries Resources Research Center, National Institute of Fisheries Science, Gyeongnam 53064, Republic of Korea

³Department of Marine Biology, Pukyong National University, Busan 48513, Republic of Korea

ABSTRACT A single specimen (273.1 mm in standard length) of the monacanthid *Thamnaconus tessellatus* was caught by one-boat trawl from western Jeju Island and then collected at Busan Cooperative Fish Market (BCFM) on 30 May 2015. The specimen is characterized by both head and body with many dark brown spots densely, posterior margin of caudal fin no black, first dorsal spine originates the posterior half of eye, and 34~37 dorsal fin rays. This is the first record of *T. tessellatus* in Korea; we therefore add the species to the Korean fish fauna. According to the Yamada *et al.* (1995), we propose the Korean name, “Nam-byeol-jwi-chi” for this species.

Key words: Monacanthidae, *Thamnaconus tessellatus*, deep-water leatherjacket, new Korean record, Jeju Island

INTRODUCTION

The family Monacanthidae of the order Tetraodontiformes is widely distributed throughout the world, with 107 species in 28 genera (Nelson *et al.*, 2016). There are 31 species in 17 genera in Japan (Hagiwara and Hayashi, 2013), and 12 species in 9 genera in Korea (Kim, 2011). The monacanthid fishes are characterized by oval to circular compressed body, tough skin covered in rough spines, two dorsal spines; the second spine is usually much smaller than first it (Matsuura, 2015; Nelson *et al.*, 2016). In the western Pacific, the genus *Thamnaconus* Smith, 1949 is represented by five species: *T. fijiensis* (Hutchins and Matsuura, 1984), *T. hypargyreus* (Cope, 1871), *T. modestus* (Günther, 1877), *T. modestoides* (Barnard, 1927), and *T. tessellatus* (Günther, 1880) (Hutchins, 2001b). Of them, two species, *T. modestus* and *T. hypargyreus* had reported in Korea. The genus *Thamnaconus*

is characterized by fully erected first dorsal-fin spine (not enveloped in a loose, prominent flap of skin), pelvic fin rudiment moderate and located at posterior end of pelvis, body depth equal to or greater than length of head length, second dorsal fin rays 31 to 41, anal fin rays 26 to 37 (Hutchins and Matsuura, 1984). The fishes of the genus *Thamnaconus* are poorly known because of their generally deep-water habitats between 72~248 m (Hutchins, 2001a) and normally on the trawling grounds (Peristiwady, 2008).

A single specimen (273.1 mm in standard length) having many dark brown dots that looked like *T. hypargyreus* by one-boat trawl from western Jeju Island in Korea. The specimen was identified as *Thamnaconus tessellatus* (Günther, 1880), based on many dark-brownish spots on the head and body, blackish caudal fin, gill opening below the middle of the eye, and small and fixed pelvic spine. Brief morphological characters and Korean name of this species using Japanese samples were previously described by Yamada *et al.* (1995), subsequently Yamada *et al.* (2009). This is the first record of *T. tessellatus* in

*Corresponding author: Jin-Koo Kim Tel: 82-51-629-5927,
Fax: 82-51-629-5931, E-mail: taengko@hanmail.net

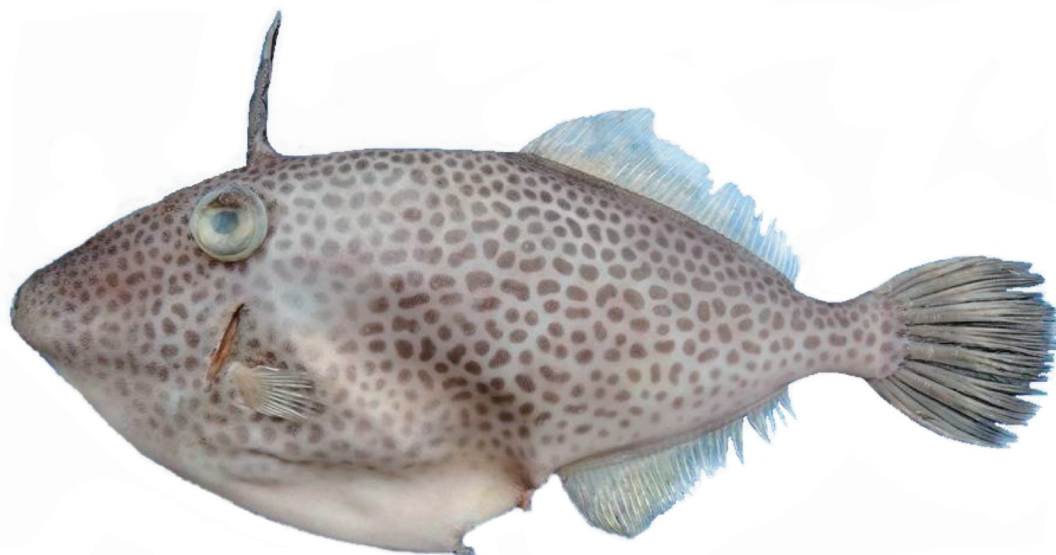


Fig. 1. *Thamnaconus tessellatus* (Günther, 1880), NIFS00002, 273.1 mm SL, western Jeju Island, Korea.

Korean waters. We therefore add the species to the Korean fish fauna. Methods of counts and measurements follow those of Hutchins (1977) with a vernier caliper to the nearest 0.1 mm. This specimen was deposited in the Fisheries Resources Management Division in National Institute of Fisheries Science (NIFS), Korea.

***Thamnaconus tessellatus* (Günther, 1880)**

(Korean name: Nam-byeol-jwi-chi)

(Fig. 1; Table 1)

Monacanthus tessellatus Günther, 1880: 54 (Type locality: Challenger station 204, Philippines).

Thamnaconus tessellatus (Günther, 1880): Matsuura and Tyler, 1997: 193 (New Caledonia); Randall and Lim, 2000: 648 (South China Sea); Hutchins, 2001a: 48 (western Australia); Hutchins, 2001b: 3947 (western Central Pacific); Peristiwady, 2008: 41 (Indonesia); Larson *et al.*, 2013: 235 (northern Australia); Hagiwara and Hayashi, 2013: 1716 (Japan); Matsuura, 2015: 84 (western Pacific and southeastern Indian Ocean).

Material examined. NIFS00002, single specimen, 273.1 mm in standard length (SL), western Jeju Island, 30 May 2015, one-boat trawl, collected by D.G. Kim.

Description. Counts and measurements are shown in Table 1. Body compressed and moderately deep (depth 2.09 in SL and width 6.46 in SL); mouth small and terminal without fleshy lips; snout long; profile of snout slightly concave; teeth almost exposed; gill slit and origin of pectoral fin below the middle of the eye; eye large and locat-

ed dorsally; first dorsal spine very strong and moderate (1.94 in head length), originating posterior half of the eye; pelvic fin rudiment non-mobile, projecting prominently rearward of ventral flap; dorsal and anal fin rays moderately elevated anteriorly; anus located before of the origin of the anal fin; posterior of caudal fin rounded and rays thick; skin coarse, without scales.

Color of specimen. Head and body covered with many dark-brown spots, those on the body slight bigger than them on the head; first spine on dorsal fin blackish; dorsal and anal fin rather bright; caudal fin blackish. No coloration change after fixation with formalin and alcohol.

Distribution. Western Pacific; Jeju Island, Korea (present study), Japan (Hagiwara and Hayashi, 2013), China (Randall and Lim, 2000), Philippines (Günther, 1880), Indonesia (Peristiwady, 2008), New Caledonia (Matsuura and Tyler, 1997), and Australia (Hutchins, 2001a; Larson *et al.*, 2013).

Remarks. The present monacanthid specimen was easily identified *Thamnaconus tessellatus* on the basis of by many dark-brown spots on the side of the body, first dorsal spine originating posterior half of the eye, blackish caudal fin with no spots. Counts and measurements of this specimen well correspond with those of previous descriptions by two authors (Table 1). Comparing with two species, *T. modestus* and *T. hypargyreus*, of genus *Thamnaconus* in Korean waters, this species most resembles the latter. In addition, two species have been confused (e.g. Okamura *et al.*, 1985 and Yoon, 2002). Both are similar in having many spots on the body, however,

Table 1. Comparison of meristic and morphometric characters of *T. tessellatus*

	Present study	Günther (1880)	Peristiwady (2008)
Number of specimens	1	1	1
Standard length(mm)	273.1	127.0	204.0
Count			
Dorsal fin rays	II, 37	II, 36	II, 34
Anal fin rays	33	32	32
Pectoral fin rays	13	–	13
Caudal fin rays	12	–	12
In % of Standard length			
Body depth	47.9	–	47.1
Body width	15.5	–	15.2
Head length	29.7	–	31.8
Snout length	25.7	–	26.2
Eye diameter	8.5	–	9.6
Interorbital width	9.4	–	11.3
Gill opening length	10.1	–	–
Predosal length	32.0	–	33.4
Prepectoral length	29.5	–	–
Preanal length	66.1	–	64.8
Prepelvic length	58.1	–	55.8
Preanus length	63.9	–	–
Pectoral fin length	11.6	–	11.9
First dorsal fin spine length	16.4	–	24.5
Second dorsal fin length	11.9	–	–
Second dorsal fin base length	36.9	–	–
Anal fin base length	30.2	–	27.0
Caudal peduncle length	6.7	–	11.3
Caudal peduncle depth	8.5	–	8.0

the number of spots are greater in *T. tessellatus* than in *T. hypargyreus*. The coloration of spots in fresh specimens has dark brown in *T. tessellatus* and dark yellow or yellowish brown in *T. hypargyreus*. Also, *T. tessellatus* differs from *T. hypargyreus* in the color pattern of head; *T. tessellatus* has dark brown spots on the snout, whereas, *T. hypargyreus* has no spots on the snout but has longitudinal blue lines on the snout (Matsuura and Tyler, 1997; Hagiwara and Hayashi, 2013). We add the species to the Korean fish fauna and follow “Nam-byeol-jwi-chi” provided by Yamada *et al.* (1995) for a Korean name of *T. tessellatus*.

ACKNOWLEDGMENTS

This study was funded by a grant from National Institute of Fisheries Science (NIFS) (No: R2017035), Korea.

REFERENCES

- Barnard, K.H. 1927. Diagnoses of new genera and species of South African marine fishes. *Ann. Mag. Nat. Hist.* 9, 20: 66-79.
- Cope, E.D. 1871. Contribution to the ichthyology of the Lesser Antilles. *Trans. Amer. Philos. Soc. (new ser.)*, 14: 445-483.
- Günther, A. 1877. Preliminary notes on new fishes collected in Japan during the expedition of H. M.S. Challenger. *Ann. Mag. Nat. Hist. (Ser. 4)*, 20: 433-446.
- Günther, A. 1880. Report on the shore fishes procured during the voyage of H.M.S. Challenger in the years 1873-1876. In: Report on the scientific results of the voyage of H. M. S. Challenger during the years 1873-76. *Zool.*, 1: 1-82.
- Hagiwara, K. and M. Hayashi. 2013. Family Monacanthidae. In: Nakabo, T. (ed.), *Fishes of Japan with pictorial keys to the species*, 3rd ed. Tokai Univ. Press, Kanagawa, pp. 1712-1721. (in Japanese)
- Hutchins, J.B. and K. Matsuura. 1984. Description of a new monacanthid fish of the genus *Thamnaconus* from Fiji. *Rec. West. Aust. Mus.*, 11: 387-391.
- Hutchins, J.B. 1977. Descriptions of three new genera and eight new species of monacanthid fishes from Australia. *Rec. West. Aust. Mus.*, 5: 3-13.
- Hutchins, J.B. 2001a. Checklist of the fishes of Western Australia. *Rec. Wes. Aus. Mus. Suppl.*, 63: 9-50.
- Hutchins, J.B. 2001b. Family Monacanthidae. In: Carpenter, K.E. and Niem, V.H. (eds), *Species identification guide for fishery purposes. The living marine resources of the western central Pacific. Bony fishes part 4 (Labridae to Latimeriidae), estuarine crocodiles, sea turtles, sea snakes and marine mammals*. FAO, Rome, pp. 3381-4218.

- Kim, B.J. 2011. Fish species of Korea. In: NIBR (ed.), National list of species of Korea: vertebrates. National Institution of Biological Resources, Incheon, pp. 3-189. (in Korean)
- Larson, H.K., R.S. Williams and M.P. Hammer. 2013. An annotated checklist of the fishes of the northern Territory, Australia. *Zootaxa*, 3696: 1-293.
- Matsuura, K. and J.C. Tyler. 1997. Tetraodontiform fishes, mostly from deep waters, of New Caledonia. In: B. Séret (ed.) *Résultats des Campagnes Musorstom*, vol. 17. *Mém. Mus. Natl. Hist. Nat.*, 174: 173-208.
- Matsuura, K. 2015. Taxonomy and systematics of tetraodontiform fishes: a review focusing primarily on progress in the period from 1980 to 2014. *Ichthyol. Res.*, 62: 72-113.
- Nelson, J.S., T.C. Grande and M.V.H. Wilson. 2016. *Fishes of the world*, 5th ed. John Wiley & Sons Inc., New Jersey, 707pp.
- Okamura, O., Y. Machida, T. Yamakawa, K. Matsuura and T. Yatou. 1985. *Fishes of the Okinawa trough and the adjacent waters*. Japan Fisheries Resource Conservation Association, Tokyo, 781pp.
- Peristiwady, T. 2008. Occurrence of deep-water leatherjacket fish *Thamnaconus tessellatus* (Günther, 1880) (Tetraodontiformes: Monacanthidae) from Bitung, Indonesia. *J. Ikiologi Indonesia*, 8: 41-50.
- Randall, J.E. and K.K.P. Lim. 2000. A checklist of the fishes of the South China Sea. *Raffles Bull. Zool. Suppl.*, 8: 569-667.
- Smith, J.L.B. 1949. *The sea fishes of southern Africa*. Central News Agency, Cape Town, 550pp.
- Yamada, U., M. Tokimura, K. Hoshino, S. Deng, Y. Zheng, S. Li, Y.S. Kim and J.K. Kim. 2009. *Names and illustrations of fishes from the East China Sea and the Yellow Sea*, new ed. Overseas Fishery Cooperation Foundation of Japan, Tokyo, 784pp.
- Yamada, U., S. Shirai, T. Irie, M. Tokimura, S. Deng, Y. Zheng, C. Li, Y.U. Kim and Y.S. Kim. 1995. *Names and illustrations of fishes from the East China Sea and the Yellow Sea*. Overseas Fishery Cooperation Foundation of Japan, Tokyo, 288pp.
- Yoon, C.H. 2002. *Fishes of Korea with pictorial key and systematic list*. Academy Book, Seoul, 747pp.

한국산 쥐치과 미기록종, *Thamnaconus tessellatus*의 최초 보고

박정호 · 장서하 · 김도균¹ · 정재묵² · 강수경 · 김진구³

국립수산과학원 연근해자원과, ¹국립경상대학교 해양식품생명의학과,
²국립수산과학원 수산자원연구센터, ³국립부경대학교 자원생물학과

요 약 : 복어목 쥐치과에 속하는 *Thamnaconus tessellatus* 1개체(표준 체장 273.1 mm)가 제주도 서쪽 해역에서 외끌이중형저인망으로 어획되어 부산공동어시장에서 2015년 5월 30일에 채집되었다. 이 개체는 두부와 몸 모두 암갈색 점이 밀집하여 분포하고 꼬리지느러미 말단이 검지 않으며, 등지느러미 첫 번째 극조가 눈 중앙의 뒤쪽에서 시작하고 등지느러미 연조가 34~37개인 것이 특징이다. 우리나라에서 처음 보고되는 이 쥐치류의 국명으로 Yamada *et al.* (1995)에 따라 “남별쥐치”를 제안한다.

찾아보기 낱말 : 쥐치과, 남별쥐치, 심해 쥐치류, 한국 미기록종, 제주도