**Taxonomic Reassignment of the Colubrid Snake,
Opheodrys kikuzatoi, from Kume-jima Island,
Ryukyu Archipelago**

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ABSTRACT : The taxonomic status of *Opheodrys kikuzatoi*, a rare snake described from a single specimen, confined to Kume-jima, the Okinawa Islands, was examined on the basis of three specimens, including two new specimens. The species proved to be not a member of the genus *Opheodrys*. The characteristics of the Chinese members of the genus *Opisthotropis*, i.e., dorsally directed nostril, single prefrontal, pentagonal frontal, and posteriorly strongly keeled dorsal scales, all applied to the examined specimens. Thus, *kikuzatoi* was removed from *Opheodrys* and allocated to *Opisthotropis*.

Okada and Takara (1958) described one specimen of a colubrid snake from Kume-jima, a small Island of the Okinawa Group, Ryukyu Archipelago, as a new species, *Liopeltis kikuzatoi*. This assignment was based on its resemblance to *Liopeltis semicarinatus* from Okinawa Islands. Later, Koba et al. (1959) and Nakamura and Uéno (1963) adopted the generic name *Opheodrys* for *kikuzatoi*, as well as for two other species of Japanese *Opheodrys*, *O. semicarinatus* and *O. herminae*. Recently Cundall (1981) revised the genus *Opheodrys* and placed the Asian members of this genus in *Entechinus*. In his list, however, *kikuzatoi* was neglected, probably because the presence of this unique form has been little known outside of Japan. If the idea that *kikuzatoi* is a congener of *semicarinatus*, as accepted by previous authors, is valid, then *kikuzatoi* would also be a member of the genus *Entechinus*. No detailed studies, however, have been made on this problem.

No additional specimens of *Opheodrys kikuzatoi* had been collected from any island of the Okinawa Group, until Mr. K. Kikuzato, the collector of the holotype, sent the second specimen of this species to our museum in 1981. The specimen had been collected from Kume-jima, the type locality of this species. In 1982 I myself made a collecting trip to Kume-jima and captured a third specimen. This specimen was found in the water of a mountain stream (Fig. 1). This was an unusual situation, when compared with *Entechinus semicarinatus* or *E. herminae*. Subsequent examination of the three available specimens showed that this species is distinct from the members of the genus *Entechinus* and belongs to the genus *Opisthotropis*. This

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paper re-assigns the species to the genus *Opisthotropis*, amending the original description.

Opisthotropis kikuzatoi (Okada et Takara, 1958)

Specimens examined.

Holotype: Faculty of Agriculture, University of the Ryukyus. No. 1. adult male, collected in the upper reaches of the Shirasegawa River, at a point 1,000m from the summit of Mt. Uegusuku-dake (309m), Kume-jima Island, Ryukyu Archipelago by K. Kikuzato on 15 September 1956.

Second Specimen: Okinawa Prefectural Museum (OPM) H 005, adult female, from the same locality as the holotype on 20 August 1965. Collector unknown.

Third Specimen: OPM H 665, adult male from the same locality as the holotype by M. Toyama on 19 September 1982.

Diagnosis. This aquatic snake resembles *Opisthotropis maxwelli* in having a single nasal, two preoculars, and two postoculars, but differs from it in the following characters: supralabials six, the fourth in contact with the eye; body scale rows 15, scales smooth on the trunk but keeled on the tail; ventrals 180—183, subcaudals 69—73.

General characteristics and lepidosis. (Features in parentheses for the additional specimens, OPM H 005, OPM H 665) Head slightly wider than neck; snout short, rounded, depressed, feebly protruding beyond lower jaw; rostral distinctly broader than deep, widely in contact with internasals; internasals four-sided, slightly wider than long (small scale between internasals in OPM H 005); their median suture 1/2

Fig. 1. A male *Opisthotropis kikuzatoi* (OPM H 665), swimming in a shallow portion of the Shirasegawa River, Kume-jima Island.

times the length of the suture with the nasal, 1/3 times the length of the suture with the prefrontal; prefrontal single, large, 2.5 times as broad as long (irregular and incomplete suture in the right side of prefrontal of the holotype and in the middle of OPM H 005, Fig. 2, A and B); frontal large, as broad as long, three times the width of the supraocular, pentagonal, tapered posteriorly, a suture with prefrontal and parietal; parietals modera-

Fig. 2. Head of *Opisthotropis kikuzatoi*. A: Dorsal view of the holotype (adapted from Okada and Takara, 1958); B: Dorsal view of OPM H 005; C-E: Dorsal (C), ventral (D) and lateral (E) views of OPM H 665.

tely long, broad, their median suture as long as the frontal; supraocular two times longer than broad; two preoculars (including subpreocular in the original description); two postoculars.

Nasal single, broader than loreal; nostril small, ellipsoidal, directed dorsally, located in upper part; no postnasal; loreal a little longer than deep, $2/3$ times as

large as nasal, slightly smaller than eye diameter, which is as long as distance between nasal and eye; pupil round; two preoculars; six supralabials, fourth entering the orbit (in the original description the number of supralabials was given as seven); one anterior temporal, long, directly above fifth and sixth supralabial; two posterior temporals, small, a little larger than the body scales.

Mental rounded anteriorly, definitely broader than long, separately from chinshields by first pair of infralabials; infralabials 7-7, first four in contact with anterior chinshields; anterior chinshields longer than broad, in contact, a little longer than the posterior ones; posterior chinshields separated by gular scales; four rows of gulars separate the chinshields from first the ventral.

Dorsal scales 15 rows, smooth on body, but keeled on tail; ventrals 180 (180, 183); anal divided; subcaudals 70 (73, 69). Ventrals+caudals 250 (253, 252). Standard length (snout to vent) 448mm (430, 506mm), tail length 105mm (117, 122mm); tail length as % of total length 19.0 (21.4, 19.4).

Coloration. In life, dorsal surface bright dark brown, orange spots on three to five dorsal scales of the fifth row from outer margin, but indistinct in posterior portion; ventral surface light yellow, dark mottling on subcaudals; lateral margin of ventral scales dark brown as on the dorsals; mental and upper anterior portion of first to fourth infralabials dark brown. The specimen preserved in alcohol (OPM H 665) lacks the orange color of the dorsal spots but retains the dark brown color. The holotype and OPM H 005 are preserved in formalin and their dorsal color is light brown.

Distribution and Habitat. Known only from the upper reaches of the Shirase-gawa River, Kume-jima Island (26°N, 126°E), the Okinawa Group, Ryukyu Archipelago.

The site where the three specimens were collected is situated 1,000m southeast of Mt. Uegusuku-dake (309m) and is 100m in altitude. The upper part of the Shirase-gawa River flows through a forest of *Pleioblastus linearis*—*Castanopsis sieboldii*. The stream is shallow, less than 20cm deep, and its bottom is covered with rocks and pebbles of andesite and tuff breccia. I captured the third specimen (OPM H 665) diving in the stream (water temperature, 24.5°C) at 10:00 a.m.. The holotype was also collected under a rock in the water (K. Kikuzato, personal communication).

Discussion

No attempt was made by previous authors (Okada and Takara, 1958; Takara, 1962; Koba et al., 1959; Nakamura and Uéno, 1963), to examine the idea that "*Opheodrys*" *kikuzatoi* is a congener of *Entechinus semicarinatus*, but *kikuzatoi* is distinct from members of the genus *Entechinus*.

Cundall (1981) revised the genus *Opheodrys* and placed *semicarinatus* in *En-*

techinus together with four other species. The genus *Entechinus*, as grouped by him (Cundall, op. cit.), corresponds to *Eurypholis* of Pope (1935). The members of the genus *Entechinus* (= *Eurypholis*) are characterized by greenish dorsal coloration (Pope, 1935), from which the dark brown color of *kikuzatoi* is quite different, as already pointed out by Nakamura and Uéno (1963). The head scales of *kikuzatoi* also differ from members of that genus, as noted in the original description, but the generic status of the species has never been thrown into doubt. "*Opheodrys*" *kikuzatoi* differs from all members of *Entechinus* in scutellation: single prefrontal, two preoculars, pentagonal frontal, dorsally directed nostrils and keeled caudal scales. In the original description, the prefrontal was counted as two, but this, in fact, is an abnormal condition. The unique condition of the nostrils was also neglected. All these differences indicate that *kikuzatoi* does not belong to *Entechinus*.

"*Opheodrys*" *kikuzatoi* has the characteristics of the members of the Chinese *Opisthotropis* as described below.

Head small, not distinct from neck; two internasals, their anterior margin narrow; nasal situated dorsally, nostril directed upward on antero-dorsal part of nasal; one broad prefrontal; eye small, pupil round or oval; body scales 15—19 rows, smooth or keeled; paired subcaudals. Most of the Chinese species are aquatic, living in mountain streams (Zhejiang Medical College et al., 1980), the same habitat as *kikuzatoi*. Considering all this evidence, it seems appropriate to place *kikuzatoi* in the genus *Opisthotropis*. Among the species of this genus, *maxwelli* seems at present closest to *kikuzatoi*, but these two species differ from each other in many respects. The outline of the genus *Opisthotropis* itself is far from clear (Brown and Leviton, 1961), and a revision of this genus, including *kikuzatoi* as a new member, is required.

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要 旨

キクザトアオヘビの分類学的再検討

当 山 昌 直

沖縄県久米島からの一個体の標本に基づいて記載され、その後記録のなかったキクザトアオヘビの分類学的再検討を、模式標本に加えて、新たに採集された2個体を用いておこなった。本種は緑色を呈しない等、アオヘビ属 (*Opheodrys* ないし *Entechinus*) と合致しない特徴が多く、属の変更が必要と考えられた。本種は中国産の *Opisthotropis* 属の諸種と多くの形態的特徴で一致しており、さらに溪流中に生活するという生態的特徴でも一致したため、本種をこの属に帰属させるのが妥当と考えた。