



OL
640
5616
Rept.

THREE NEW SPECIES OF REPTILES
FROM
HAINAN ISLAND, GUANGDONG PROVINCE

Translation and Introduction
by
AKIHIRO KOSHIKAWA

SMITHSONIAN
HERPETOLOGICAL INFORMATION
SERVICE
NO. 53

1982



Introduction

According to a handbook titled "Synopsis of Reptiles of China" (1977)¹ 326 species and subspecies of reptiles are known from China. Comparison of this figure to that given by Clifford H. Pope in 1935² (218 taxa) indicates a great advance of herpetofaunal investigation in China, most of which was carried out by their own people in the latter half of this century. A series of well-organized herpetofaunal researches has resulted in many published reports (and still many more seem to await publication); these include new geographical records and descriptions of new forms. Most of these herpetological reports appeared in journals such as ACTA ZOOLOGICA SINICA and ACTA ZOOTAXONOMICA SINICA. Recently a purely herpetological journal was initiated by Chengdu Institute of Biology (Acta Herpetologica Sinica) which will be a stepping stone for the further advance of herpetology in China.

Many herptiles are valuable natural resources in China and their importance in economics (food, medicine, leather, etc.) is well documented in a recently published booklet, "Economic Herptiles".³ This booklet stresses the importance of further investigation of distribution and ecology of herptiles to take necessary conservational measures including captive propagation. Snakebite is another aspect of herpetology for which a well-edited handbook is available. This handbook, "Chinese Poisonous Snakes and Treatment of Their Bites"⁴ contains many interesting accounts of venomous snakes of China as well as very unique herbal medication for snakebites. These two areas of para-herpetology seem to have played an important role in the advancement of their researches on various aspects of these animals in China.

The following is a translation of one of these reports, mentioned above; it appeared in the Acta Zoologica Sinica (24(4):379-384 + pl., 1975). Before presenting the translation, I wish to offer a few comments:

- 1) The introductory part of the text as well as "types" and "diagnosis" are directly transcribed from the original English summary with a minor addition.
- 2) Terminology used for morphological description is mainly based on James A. Peters' "Dictionary of Herpetology"⁵ except the "interoccipitals" which in this paper is used to describe a group of small scales behind the parietals and separating the posterior temporals. Peters mentions the use of this term in saurians and in scolecophidian snakes but not in colubrid snakes such as Achalinus. The Chinese name for this scale, Jian zhen ban, however, seems to be seldom used and is not mentioned in the section on snake lepidosis in "Synopsis of Reptiles of China".
- 3) Sichuan Biological Research Institute is now called "Chengdu Institute of Biology, Academia Sinica". This must be the largest center of herpetology in China.
- 4) The author of X. hainanensis and D. rosozonatum, Djao, is written as Zhao (Zhao Ermi) in recent papers.
- 5) Xenopeltis hainanensis is now known also from Longsheng prefecture (ca. 25° 42'N, 110°-01'E) of Guangxi Zhuang Autonomous Province (=Kwangsi) and Longquan area (ca. 28° 04'N, 199° 07'E) of Zhejiang Province (=Chekiang).

(Specimens in Guangxi Medical College and Zhejiang Province Museum respectively. "Synopsis of Reptiles of China", p. 51. Geographical locations are after Rand McNally International Atlas, 1979.)

- 6) Dinodon rosozonatum is illustrated by a color photograph and described in a short text in "Chinese Poisonous Snakes and Treatment of Their Bites" as a snake which is occasionally misconceived to be poisonous. The first edition of the book was published in 1974, one year before the "original description". Description of this snake (page 108 of the first edition and page 114 of the second edition) is translated as follows:

Fen Lian She Dinodon rosozonatum Hu et Djao (Color plate 26)
 Local name: Huo Jia She
 Belongs to the same genus and family as Chi Lian She (=Dinodon rosozonatum : Red Chain-snake) and Huang Lian She (=D. septentrionalis : Yellow Chain-snake); Genus Dinodon, subfamily Colubrinae and Family Colubridae. Nonpoisonous. Distinguished from the latter two species in having 19-17(15) dorsal scale rows, 221-234 ventrals and relatively fewer number 28-33 and 9-13) of pinkish red cross bands. Found on plains and mountains along streams below 600 meters above sea level. Presently only known from Hainan Island, where people consider the snake to be a close relative of Bungarus fasciatus and poisonous.

In the second edition of the book this snake is described in Chapter 3 which is written by Hu and Zhao. However, in the first edition, the authors of each chapter are not credited. I wish to thank Showichi Sengoku who drew my attention to this fact.

- 7) "Chestnut brown" used in the description of Cuora hainanensis is translated from "zong he se". It is possible that "zong he se" is a little darker than chestnut brown. I could not find any literature in which this color is well explained.
- 8) The number of taxa of reptiles known from Hainan Island is here given as 108; however, I could count only 104 species and subspecies in the distribution table of "Synopsis of Reptiles of China" (p. 77-93).

I wish to express my sincere gratitude to Mr. Showichi Sengoku of Japan Wildlife Research Center for his help and encouragement throughout the preparation of this text.

References

- 1) Herpetological Laboratory, Sichuan Biological Research Institute (ed.). 1977. Zhongguo paxingdongwu xitongjiansuo (Synopsis of Reptiles of China). Kasuechuban sha, Beijing (In Chinese).
- 2) Pope, C.H. 1935. Reptiles of China, Natural History of Central Asia, vol. 10:1-604. American Museum of Natural History, New York.
- 3) Sichuan Biological Research Institute and Natural History Museum of Shanghai (eds.). 1978. Jiangji liangqipaxingdongwu (Economic Herptiles). Shanghai kasuejushue bhuan sha, Shanghai (In Chinese).

- 4) Chengdu Institute of Biology, Museum of Natural History of Shanghai, Zhejiang Province Institute of Chinese Medicine et al., (eds.). 1979. Zhongguodedushe ji sheshangfangzhi (Chinese Poisonous Snakes and Treatment of Their Bites). Shanghai kasuejushue chuban sha, Shanghai (In Chinese). (First edition published in 1974 by Shanghai renmin chuban sha.)
- 5) Peters, J.A. 1964. Dictionary of Herpetology. Hafner Publishing Company, New York and London.

Akihiro Koshikawa
December 1980

Three New Species of Reptiles from Hainan Island,
Guangdong Province

Sichuan Biological Research
Institute, Chengdu

Beijing Institute of Zoology
Academia Sinica

From 1963 to 1964, three herpetological explorations were carried out in Hainan Island, Guangdong Province. Up to the present, 108 species and subspecies of reptiles belonging to 61 genera, 18 families and 3 orders have been recorded from Hainan Island. Among the reptiles recorded in China, only crocodylians, Anguillidae and Xenosauridae of the saurians have so far not been found on this island. The reptilian fauna of Hainan Island consists mainly of Oriental forms. Among these, the species which are generally distributed in South China predominate. Many reptiles are endemic to the island. Zoogeographically, Hainan Island has been classified as a subregion of the South China Region. Hainan reptiles comprise one-fifth of the entire Chinese reptile fauna.

In the following, three new species, one new taxonomic revision and three species new to China are described.

1. Xenopeltis hainanensis Hu et Djao, sp. nov. (Fig. 1a, b, c)*

(New Chinese Name: Hainan Shan Lin She, Brilliant scaled snake of Hainan)

TYPES: Holotype, an adult male (SBRI No. 64III6016; June 15, 1964; Dali of Diaulo Shan, Hainan, altitude 200 m); allotype, an adult female (SBRI no. 64III6650; September 4, 1964; Yacha Matou, Baisa Hsien, Hainan altitude 217 m).

DIAGNOSIS: This new species distinctly differs from Xenopeltis unicolor Reinwardt, the monotype of the genus Xenopeltis, in having 22-24 maxillary teeth on each maxilla; one postocular; seven upper labials, the fourth and fifth of which enter the eye; 152-157 ventrals and 16-18 pairs of subcaudals.

DESCRIPTION: The measurement and scale counts of the two type specimens are shown in Table 1. Head relatively small, somewhat depressed; snout round and robust, body cylindrical; tail short, about 1/13 to 1/14 of the total length. Hemipenis thick and short, with longitudinal sulcuses, no spines. When alive, back is indigo brown and has metallic luster; two series of white longitudinal spots between D1 and D3; D1 grayish white with indigo brown base. Underside of the head light indigo gray or light brown; underside of the body and the tail's base grayish white; other part of the tail's underside indigo brown.

HABIT: Allotype was collected among grasses, under a basket of young pineapple plants near a harbor at 0800 hours. It was found when a basket was moved.

DISCUSSION: For almost 100 years, Xenopeltis unicolor Reinwardt, which is widespread in Southeast Asia and also recorded from Yunnan in China, has been the sole member of the family Xenopeltidae. This species has 35 to 45 maxillary teeth on each maxilla; two postoculars; eight upper labials with the fourth and fifth entering the eye; 164 to 196 ventrals and 22 to 31 subcaudals. The new species is sufficiently distinct from the former form.

* Figures are not reproduced herein. Please see original article. (SHIS ed.)

2. Dinodon rosozonatum Hu et Djao, sp. nov. (Fig. 2)

(New Chinese Name: Fen Lian She, Pink Chain-Snake. Lian She (Chain-Snake) is common name for Dinodon sp.)

TYPES: Holotype, an adult male (SBRI No. 64III6089; June 21, 1964; Dali of Diaulo Shan, Hainan, altitude 200 m); allotype, an adult female (SBRI No. 64III5246; May 11, 1964; Wuzhi Shan, Hainan altitude 540 m); paratypes 3 males and 5 females (1964-1972, Diaulo Shan, Wuzhi Shan and Haidou, altitude 80-580 m).

DIAGNOSIS: This new species differs from all of the known species of the genus Dinodon by having the composite characters: 1) dorsal scales in 19-19-15(17) rows, the vertebral row distinctly more enlarged than the adjacent scale rows; 2) more ventrals (221-234); 3) blackish brown above, crossed by 28-35 + 9-13 narrow pink bands.

DESCRIPTION: Based upon four male and six female specimens of type series. Each maxilla has 12 to 13 teeth which are divided into three groups by diastemas with the dental formula of 6(7) + 3 + 3, the first group teeth gradually enlarge, the middle group smaller and the last group the largest. Loreal single, very small, entering the eye in one specimen; single preocular, which is absent on the left side in one specimen; two postoculars; two anterior temporals, exceptionally united into one piece; three posterior temporals, exceptionally two; eight upper labials with 2+3-3 formula, sometimes 3-2-2 on one side. Dorsal scales in 19-19-15(17) rows, with weak keels on three to nine middle rows. Length of the male specimen 850 + 210 mm (holotype) and that of the female 802 + 174 mm (allotype).

When alive, back is blackish brown with 28-35 + 9-13 pink cross bands on body and tail; each cross band width is equal to one to two dorsal scales, and each cross band bifurcates at D5 or D6 and reaches ventrals, but those on posterior part of the tail do not show clear bifurcation, on those cross bands are more or less scattered blackish brown flecks; on the neck is "Λ"-shaped pink marking whose anterior end reaches the parietals and posterior ends reach the rictuses; upper labials pinkish brown and the seam between them black; series of intermittent narrow black stripes from the parietal seam and the temporals to the upper labial edge. Underside of the head whitish with a few blackish brown spots; the first quarter of the underside of the body grayish white, the remaining part with blackish brown blotches, underside of the tail predominantly blackish brown.

HABIT: Found in the hills and on the plain along streams and around rice paddies at altitudes of less than 850 m. Usually comes out at dusk or at night. The allotype was captured at 1020 hours in the hole of a large tree trunk about 1.5 m above ground. Her head was seen a few centimeters out of the hole, and she was captured when baited out by a live frog. This snake was observed to eat a green pit-viper (Zu Ye Qing = Trimeresurus stejnegeri) which was kept in the same cage in September, 1972.

NOTE: The Wildlife Retail Department of Haikou City has been supplying this snake for food. The snake is called "Huo Jia She" (meaning fire-armored snake) and considered to be a close relative to the banded krait (Bungarus fasciatus). But it does not have any venom.

3. Achalinus hainanus Huang, sp. nov. (Fig. 3a, b, c)

(New Chinese Name: Hainan Ji She; Vertebral or Back Snake of Hainan. Ji She (back snake) is common name for Achalinus sp.)

TYPES: Holotype, an adult female (IZAS No. 1076; January 20, 1964; Chien Fung Ling, Hainan, altitude 800 m); paratype, an adult female (IZAS No. 1016; January 16, 1964; from the same locality as the holotype).

DIAGNOSIS: This new species is similar to Achalinus rufescens Boulenger, but differs from the latter in having only one anterior temporal, in the upper tertiary temporals directly contacting each other mesially without an interoccipital, and in having more ventrals (165-168).

DESCRIPTION: Table 2 summarizes measurements and scale counts of the two type specimens. The seam between the internasals as long as that between the prefrontals; parietals long, which anterolaterally enter between the supraocular and the temporals, and may or may not reach the upper-posterior edge of the eye; the eye small, the pupil almost circular; the temporals in three rows, 1 + 2 + 3, but four posterior temporals on the right side of the holotype. The uppermost posterior temporals in great contact with the parietals, and are not separated by the interoccipital; upper labials gradually enlarge from front to back and the sixth the longest, longer than five anterior scutes combined; five lower labials with three anterior pairs in contact with the anterior chin shield, two pairs of chin shields of the same size, almost rectangular in shape; dorsal scales evenly keeled except smooth D1 scales; the anal single.

In preservative, snout tip and dorsal aspect of the head indigo gray, temporal region, the edges of the upper and lower labials brownish gray; dorsal aspects of body and tail lighter than that of the head; belly grayish white, with the base of each ventral scale darker; entire body has metallic luster.

DISCUSSION: Smith (1923) described Achalinus meridianus based on Hainan specimen. This was the first record of an Achalinus from the island. Major characteristics of the species are 2+ 2 temporals, suture between the prefrontals are twice as long as that of the internasals, 147 ventrals and 77 subcaudals. Pope (1935) and Bourret (1936) synonymized Hainan Achalinus with A. rufescens. This new species is distinct from all the known specimens of Achalinus from Hainan in the number of the anterior temporals and in the absence of interoccipitals. These two characters of the present species distinguish it from all other species of the genus. They have two anterior temporals and interoccipitals on the posterior end of the parietals.

4. Cuora hainanensis (Li), new taxonomic position.

Li described Cyclemys flavomarginata hainanensis (Chinese Journal of Zoology, 2(4):234, 1958) which is now considered as a full species and a member of the genus Cuora. Description of the types is as follows:

TYPES: Holotype, an adult male (FU No. 200; Dali of Diaulo Shan, Hainan, altitude 200 m); allotype, an adult female (SBRI No. 64III6110; June, 1964; Nanxi of Diaulo Shan, Hainan, altitude 82 m); paratypes 3 males and 4 females (1963-1964, Diaulo Shan and Chien Fung Ling, Hainan).

DIAGNOSIS: This new species is similar to Cuora flavomarginata (Gray), but differs from the latter by: 1) snout more pointed, its tip projecting beyond the upper jaw; 2) the margin of the upper jaw straight, without hook; 3) hinder part of the head covered with small scales; 4) anterior three vertebral (= central) shields projecting medially in front and with a medial notch behind; 5) anal shield single, without any rudiment of median suture; and 6) a different color pattern.

DESCRIPTION: Size of the nine type specimens are listed in Table 3. Carapace relatively high, vertebral ridge on the midline; no distinct emargination in front and back, slight outward curvature of the carapacial edge in front and back, no serration of margin. Nuchal very small; vertebrals as broad and long, each narrower than its adjacent pleurals, anterior three vertebrals projecting

medially in front, two anterior vertebrae have notches behind.* Each carapacial shield has indistinct concentric pattern. Plastron relatively wide and flat, front and hind edges round and not emarginated, connected to the carapace by ligaments, ligament between pectoral and abdominal, front and hind halves can close to the carapace; no distinct bridges, no axillary nor inguinal; abdominal seam longest, humeral seam shortest; anal single without any seam nor rudiment of it. Head moderate, snout obtusely pointed, slightly projecting beyond the upper beak; top of the head smooth, occipital region with small scales; orbit as long as snout; upper beak edge smooth, not notched nor hooked, lower beak slightly shorter than the upper beak. Limbs moderate, covered with relatively large imbricate scales, the largest scales on the back of the forelimb, upper arm and heel covered with few large scales; five claws on forelimb and four claws on the hindlimb, fingers and toes half-webbed. Tail relatively short, long-conical in shape and covered with hard scales.

When alive, back light yellow, middle (vertebrae and adjacent part of pleurals) and edges (cervical, dorsal surface of marginals, and postcentrals) chestnut brown; light yellow area has brushed stripes or spots or chestnut brown, chestnut brown area, on the other hand, has few light yellow stripes, the midline on the vertical keel is also light yellow. Ventral surface of marginals is a mixture of chestnut brown and light yellow. Plastron chestnut brown with few irregularly scattered light yellow spots. Top of the head olive, chestnut brown spots on snout, occipital part, cheeks and upper beak, light yellow tympanic membrane, lower beak and throat grayish white. Neck light yellow with blackish brown bands on the outer side; hindlimbs grayish brown on the back and light yellow below. Tail light yellow with blackish brown blotches.

HABIT: Found at mountain streams, this turtle's habitat is completely different from that of Cuora flavomarginata which is mainly found along pond banks or in rice paddies.

5. Acanthosaura armata armata (Hardwicke et Gray) (Agamidae)

Newly recorded from China.

One male, January 20, 1964, Chien Fung Ling, Hainan, altitude 750-850 m.

Postocular spiny scales and beard like spiny scales on the throat are relatively long, as long as the eye's diameter.

6. Calotes microlepis Boulenger (Agamidae)

Newly recorded from China.

Two males and one female, April 30, 1963 to January 17, 1964, Wushi Shan, 580 m, and Chien Fung Ling, 750 m, Hainan.

Keels on the scales on the side of the body are directed posteroventrally, no shoulder fold, hindlimb reaches shoulder when adpressed against the body, 60 to 70 scale rows around the midbody.

7. Bungarus niger Wall (Elapidae)

Newly recorded from China.

One female, October 12, 1964, bought at Haikou City's Wildlife Retail Department.

* Translator's Note: This account on the notches of vertebral shields disagrees with that of DIAGNOSIS which says the three anterior vertebrae have notches behind. However, it is almost certain that the third vertebral does not have any notch behind because medial projection of the fourth vertebral is not mentioned in the DIAGNOSIS nor the DESCRIPTION.

Back blackish brown, belly white, interrupted series of black and white blotches on the side. Total length 1320 mm, tail length 154 mm. 215 ventrals and 50 subcaudals.

Literature Cited

- Li, Zhi Yuan 1958. Report on the investigation of reptiles of Hainan Island. Chinese J. Zool. 2(4):234-239.
- Mahendra, B.C. 1938. The lepidosis of Xenopeltis unicolor Reinwardt. Current Sci. 6(11):559-560.
- Pope, C.H. 1935. The reptiles of China. Nat. Hist. Central Asia 10:1-604.
- Schmidt, K.P. 1927. The reptiles of Hainan. Bull. Amer. Mus. Nat. Hist. 54(3):395-465.
- Smith, M.A. 1923. On a collection of reptiles and batrachians from the Island of Hainan. J. Nat. Hist. Soc. Siam 6(2):195-212.
- 1931-1943. Reptiles and amphibians. Vols. 1-3; In Fauna of British India. London.
- Taylor, E.H. 1934. Notes on two collections of Hainan reptiles and amphibians. Lingnan Sci. J. 13:465-474.

Translator's Note: This scientific article follows the current Chinese policy of crediting authorship to the institutions where the research was performed. However, to comply with standard nomenclatural practice, new scientific names are credited to individual scientists.

Specimens	Total Length (mm)	Tail Length (mm)	Dorsal Scales	Ventral Scales	Sub-Caudal Scales	Upper Labial Scales	Anal Scales	Maxillary Teeth
Holotype ♂ SBRI 661116016	628	49	15-15-15 smooth	152	18 paired	3-2-2	2	24
Allotype ♀ SBRI 641116650	521	38	15-15-15 smooth	157	16 paired	3-2-2	2	22

Table 1.

Xenopeltis hainanensis

Specimens	Total Length (mm)	Tail Length (mm)	Dorsal Scales	Ventral Scales	Sub-Caudal Scales	Upper Labial Scales	Anal Scales	Maxillary Teeth
Holotype ♀ IZAS 1016	290	77	23-23-23	165	67 single	3-2-1		
Paratype ♀	310	80	23-23-23	168	69 single	3-2-1		

Table 2.

Achalinus hainanus

Specimens	Carapace Length (mm)	Carapace Width (mm)	Shell Height (mm)
Holotype ♂ FU 200	160	111	78
Allotype ♀ SBRI 641116110	136	101	68
Paratypes 3 ♂♂; 4 ♀♀	83-186	68-129	40-92

Table 3.

Cuora hainanensis

