Studies on Taiwan Lizards

臺灣鱷蜥類之研究

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This transaction presents the studies on the lizards of Taiwan. There are many species belonging to this field, some of them were recorded by other authors many years ago. The earliest report concerning Taiwan lizards appeared in 1863 Swinhoe’s “a list of Formosan Reptiles” Ann. Nat. Hist (3) XII which included three species of Taiwan lizards: Gekko swinhonis (= Gekko japonicus), Mabouia chinensis (= Eumeces chinensis), and Japalura swinhonis. Later on, in 1864 Gunther’s “The Reptiles of British India London” described two species of Taiwan lizards: Japalura swinhonis and Mabouia chinensis. In 1885 Boulenger listed Hemidactylus frenatus on “Cat. Liz. Brit. Mus.” In 1907, the great herpetologist Stejneger “Herpetology of Japan and adjacent territory” Bull. 58, U. S. N. M., in which he described 14 species of Taiwan lizards, more than half of Taiwan lizards were systematically classified. It was a great contribution in the field of Taiwan lizards; then Van Denburgh in 1909 “New and previously unrecorded species of Reptiles and Amphibians from the island of Formosa” Proc. Calif. Acad. Soc. (4) III pp. 49-56 and in 1912 “Concerning certain species of Reptiles and Amphibians from China, Japan, the Loo-choo island and Formosa,” Proc. Calif. Acad. Soc. (4) III, pp. 187-258, in which he described 14 species of Taiwan lizards, but it had only simple description concerning Taiwan lizards.

In 1935 the greatest herpetologist Pope published a famous herpetological book, “The Reptiles of China.” He had collected and examined numerous Chinese materials in which many of reptiles were same with the Taiwan-san forms; the part of lizards he only listed out the synonym no description.

Okada, one of the greatest Japanese herpetologists who published “a catalogue of Vertebrate of Japan.” Which listed many species of Formosan lizards but it was only one catalogue. In 1936 Okada published “Studies on the lizards of Japan Contribution I Gekkonidae, Contribution II Agamidae and Contribution III Scincidae” Tokyo Bunrika Daigaku. Science Report, Sect. B, Vol. 2, No. 42, p. 233-289; Vol. 3, No. 51, p. 83-94; Vol. 4, No. 73, p. 159-214; They had mentioned many species of Taiwan lizards; it was a great valuable work on lizards.

In 1956 Prof. Johnson T.F. Chen published a valuable book “a synopsis of the Vertebrates of Taiwan” which containing 23 species of Taiwan lizards, and in 1956 Mr. C. S. Wang also published “The reptile of Taiwan” on the Quarterly Journal of the Taiwan Museum but no detailed descriptions about Taiwan lizards.

In this paper, the author has made systematic arrangement, distinct figures and detailed descriptions about all of species that had found in Taiwan especial concerning the variation of those species which are found
frequently and revised them into 24 species assigned to 5 families and 13 genera. Two of species (Sphenomorphus boulengeri Van Denburgh & Japalura swinhonis mitsukurii Stejneger) which were no recorded from Formosa before.

Class REPTILIA
Order SAURIA
Suborder LACERTILIA

KEY TO TAIWANIAN FAMILIES OF LACERTILIA OR LIZARDS

1a. No symmetrical shields on dorsal surface of head.
   2a. No movable eyelid, tympanum exposed ........................................... Gekkonidae
   2b. With movable eyelid, tympanum concealed........................................... Agamidae

1b. With symmetrical shields on dorsal surface of head.
   3a. 2 pairs of legs present.
      4a. Ventral scales cycloid, arranged obliquely, femoral or inguinal pores absent .......................................................... Scincidae
      4b. Ventral scales squarish, arranged in transverse series, femoral or inguinal pores present...........................................Lacertidae

3b. Legs absent............................................................. Anguidae

Family GEKKONIDAE

KEY TO GENEAE AND SPECIES OF GEKKONIDAE

1a. Inner digits differing from in structure.
   2a. Infradigital lamellae in single series (Gekko).
      3a. Lamellae of inner digits 9—japonicus
      3b. Lamellae of inner digits 13—kikuchii
      3c. Lamellae of inner digits 15—gekko
   2b. Infradigital lamellae in double series (Peropus).
      Inner digits clawless—mutilatus

1b. All digits essentially alike in structure.
   4a. Body with lateral expansion (Cosymbotus); tail flat with corneum process on each side ......................................... Platyrus
   4b. Body without lateral expansion (Hemidactylus).
      5a. No large tubercles intermixed with dorsal scales, tail without transverse rows of large tubercles—bouringii
      5b. More or less numerous large tubercles intermixed with dorsal scales; tail with transverse series of tubercles............................................. frenatus

**Gekko japonicus** (Dumeril and Bibron)

*Figure I*


Description: (T. N. U. Eoo) Head broad, flattened above, snout blunt; rostral squarish, about twice as wide as high, bounded above by two large internasals and two small scales between the latter; nostril surrounded by first supralabial, rostral, large internasal and three smaller shields; supralabials 11 and lowerlabials 9; mental pentagonal, scarcely larger than the adjacent lowerlabials; two pairs of chin-shields, a median pair somewhat elongated, on either side of which another similar shield about the same size; behind these several polygonal smaller shields followed; the distance between nostril and eye almost equal the distance between eye and ear-opening; diameter of eye a little more than half the distance between eye and tip of snout; ear-opening small, oval; first toe with 9 lamellae, fourth with 15 underneath; second, third and fourth toes connected by a basal web.

Upper surface covered with granules, those on the snout considerably large; among the granules, from the eye backward to the base of the tail, numerous tubercles not arranged in regular longitudinal series, though about twelve tubercles counted in a line across the back; on the throat and anterior portion of neck covered with granules of the size of those on the back; an angular series of six femoral pores, base of tail swollen, with a single tubercular scale on each side; tail suddenly tapering from it covered above with small scales; underneath scales large with a median series of wide plates.

Coloration: (In alcohol) drab gray above with a double series of obscure dusky spots on back and crossbars on limbs and tail; an obscure dusky band from nostril through eye to occiput meeting its following from the other side on the latter, a similar band from eye to ear opening and ill-defined dusky spots on both upper and lower labials. (In alive) greyish brown on the back with irregular black spots and transverse patterns; the dark greyish patterns distinctly on the limbs, back and on the tail. The black striated band crossing through the eye and the tip of snout; black spots scattered on the upper and lower labials.

One specimen collected by the author from campus of Taiwan Normal University, Taipei, Taiwan. Although this species is known in Taiwan, yet has scarcely been collected in Taipei.

Measurements: TNU E001
Total length .................................. 114 mm
Snout to vent .................................. 59
Vent to tip of tail ................................ 55
Snout to ear opening .............................. 16
Greatest width of head ............................ 13
Fore leg, from axilla .............................. 19
Hind leg, from groin ................................ 27

Gekko kikuchii Oshima

Figure II


Description (after original description)
Rostral pentagonal, about twice as wide as high, bounded above by 2 large internasals and 1 small scale between the latter, the supralateral margin entering the nostril; nostril between first supralabial, rostral, large inter-
nasal, and 2 larger shields above and behind; distance between nostril and eye considerably greater than the distance between eye and ear-opening; diameter of eye nearly equal to one-half the distance between eye and tip of snout; ear opening large and oval, its longest diameter one-half the diameter of eye; 13 supralabials; mental trigonal, larger than the adjacent lower labials; 10 lower labials; behind mental a pair of median, somewhat elongated chinshields, on either postrolateral side of which another similar but smaller shield, 1 pentagonal shield between the latter; whole upper surface covered with granules, from the ear-opening backward to the basal half of the tail, numerous small, rounded tubercles, their mutual distance averaging about one-half the diameter of ear-opening, not arranged in regular longitudinal series, though about 18 tubercles counted in a line across the back; upper surface of limbs covered with granules and tubercles like the back; lower surface of body and limbs covered with imbricate scales, except the throat and anterior portion of neck, which covered with granules of the size of those on the back; first toe with 13 lamellae, fourth with 14 underneath; second, third and fourth toes connected by a basal web; a series of 24 femoral pores on each side, of which the inner 10 are oval; the others round; tail gradually tapering, slightly depressed, not annulate, upper surface covered with small scales and 4 to 6 rows of tubercles; underneath scales larger, with a median series of wide plates, all the same width.

Coloration: (in alcohol) drab gray above, with 2 obscure, dusky, longitudinal bands on the back; pale ill-defined markings on both upper and lower labials; under side whitish; the adult female differing from the male, chiefly in absence of the prenal pores and of the basal web on the toes; back with 9 pairs of ill-defined black spots.

Remark: no specimen in the author's collection the present species described by Oshima in 1912.

_Gekko gekko_ (Linnaeus)

**Figure III**


Description: (TNU. E002) Size largest, adults measuring about 130 m. m. from snout to vent; rostral not entering nostril but wider than high, with a small cleft entering from above, snout subtriangular, obtuse; nostril surrounded by first labial, two postnasals, a supranasal and two prenasals; Supranasal separated from each other by one scale; supralabials 12 and lowerlabials 13, each with a small, rounded, distinct median tubercle or keel; mental small pentagonal not larger than the adjacent lowerlabials; four enlarged chin-shields on each side of jaw bordering lower
labials; two of them in contact with mental and with each other, much larger than broad, and wider than adjacent labials but not so long; a single pentagonal scale following the pair of median chin shields; head large, its width about twice the distance from tip of the snout to orbit, or from orbit to e.jopening; orbital diameter contained about one half of the length of snout; head covered above with conical tubercles; and back covered with rather irregular, flat, juxtaposed granules or scales and about twelve longitudinal series of nipple-shaped tubercles; throat with flat granules; abdominal scales moderately; tail slightly depressed, tapering, distinctly annulate covered with subquadrangular smooth scales, much larger beneath, arranged in transverse series; each annulus composing of 5 or 6 transverse rows of scales above, 3 beneath; on the upper surface, also large conical tubercles, wide and symmetrically arranged; femoral pores in a short angular series on the pre.mental region, 15 altogether; five rows of scales in front of anus slightly enlarged; three tubercles on each side of base of tail; legs large, digits free, 15 broad curved undivided lamellae under inner toe, eighteen under fourth toe and an equal number under fourth finger; digits wider at tips than at base.

Coloration: (In formalin) Slaty gray above, with pale yellow spots; tail annulate with darker and lighter; lower surface greyish white. (In alive) (After Okada's paper) Above gray to ultramarine with numerous bright orange spots covering head, back, sides and tail; dark greyish brown bands on tail and greyish white on underside.

One specimen of Taiwan Normal University, No. TNU E002, one toe destroyed.

Measurements: (TNU E002) m.m.

Total length ...........................................250
Snout to vent........................................130
Vent to tip of tail ..................................170
Snout to ear opening .............................. 40
Greatest width of head ............................ 37
Fore leg, from axilla ............................... 51
Hind leg, from groin ............................... 55

*Peropus mutilatus* (Wiegmann)

Figure IV a, b


*Peropus* (*Dactyloperus*) *peroni* Fitzinger, 1843, Syst. Rept., p. 103.


Description: (TNU E003) Head longer than broad; snout longer than the distance between eye and ear opening; ear opening moderately large, suboval; body and limbs moderately elongate; depressed a fold of the skin bordering the hind limb posteriorly; rostral quadrangular broader than high with a medium cleft above, in contact with supranasals and a minute granule between the latter; two small postnasals; the lower one in contact with 1st supralabial; nostril surrounded by rostral, 1st supralabial, two postnasals, and supranasals;
one small internasal between two somewhat large supranasals; supralabials 9 and lower-labials 9; mental moderately large, pentagonal; 3 pairs of chin shields in one transverse series, their posterior outline forming together a straight line, the median pair being large, elongate pentagonal, the others gradually smaller toward the sides; digits short, more or less webbed at the base; the inferior lamellae double series; toes slightly webbed at base, about 8 pairs of lamellae under longest toe and 6 pairs under the shortest; upper surface and throat covered with small granular scales, abdominal scales moderate; tail rather flat with sharp, serrated lateral edge; its upper surface covered with very small flat scales and lower surface generally with a median series of large transversely dilated scales; 32 femoral pores in a long series on the preanal region.

Coloration: (In alcohol) Above brownish drab with faint indications of darker marblings, below whitish. (In alive) Body uniform greyish fresh color with a few indistinct lighter spots on head; belly yellowish flesh color; lamellae under toe darker.

One specimen was collected by the author from Grass mountain, Taipei, Taiwan.

Measurements: (TNU E003) m.m.
- Total length .......................... 101
- Snout to vent ........................ 55
- Vent to tip of tail ..................... 46
- Snout to ear opening ................... 13
- Greatest width of head ................ 11
- Fore leg, from axilla .................. 17

*Cosymbotus Platyrurus* (Schneider) Figure V

*Stellis platyrurus* Schneider, 1792. Amph. Physiol., II, p. 30


Description: (TNU E004) Head normally oviform, a broad shallow groove on forehead with a slight depression behind nostrils; rostral broader than high in contact behind with two supranasals and a small scale between the latter; nostril surrounded by rostral, first supralabial, two postnasals and a supranasal; 10 supralabials; the anterior five or six broader than high; bordered above by a series of enlarged granules; 7 large lower labials also bordered below by a series of enlarged granules; mental large pentagonal, contact behind with first lower labials; 2 pairs of chin-shields, a median pair in contact with each other behind mental; another pair followed the median pair but not in contact with each other; snout covered with granules larger than those on body; granules on occiput smaller than body granules; the distance from tip of snout to orbit longer than the distance from orbit to ear opening; ear opening small; body and extremities below as well as upper surface of feet covered with larger imbricate scales; from axilla to groin a thin skin flap about 2 mm. wide, and similar fold along the posterior edge of thigh and tibia; five pairs of lamellae under shortest toe and eight pairs under largest; tail broad, constricted at base, flattened below, with annulate scales below tail; numerous small granules on either side of the series of transverse plates; a broad, slightly denticulate fringe on each side of tail, with several spinelike scales near its base.

Coloration: (In formalin) Above drab with indistinct marblings of darker and lighter color;
a distinct dark band from loreal region through lower part of eye and above ear to shoulder; below whitish.

Measurements: (TNU E004) m.m.
Total length ........................................ 113
Snout to vent ........................................ 50
Vent to tip of tail ................................. 63
Snout to ear-opening ............................... 13
Greatest width of head ............................ 10
Fore-limb from axilla ............................. 16
Hind-limb from groin .............................. 20

_Hemidactylus bowringii_ Bouleneger

_Figure VI a, b_

_Hemidactylus bowringii_ Bouleneger, 1855, Cal.
Liz. Brit. Mus., 1, p. 139, pl. XII, fig. 2.—Bouleneger, 1890, Fauna Brit. India.
p. 93.—Stejneger, 1907, U. S. N. M., Bull. 58, pp. 176-178, figs. 169-170—Van
III, p. 207.—Stejneger, 1925, proc. U. S.
N. M. Vol. 66, art. 25, p. 37.—Okada
Vol. 2, No. 42, pp. 2.8-27L.—Wang, 1956,
38.—Wang, 1962, Qua. Jour. Taiwan Mus.
Vol. XV, Nos. 3&4, p. 153.

_Hemidactylus bowringii_ Smith, 1934, Faun.
pp. 99-100.

Phila. Acad., p. 502

_Hemidactylus coetacii_ Guenther, 1872, Ann.
Mag. Nat Hist., (4), IX, p. 86.—Mueller,
637.—Boettger, 1885, Offerbach. Ver.
Naturk., 24-25, Ber., p. 138.

Description: Snout longer than the distance
between the eye and the ear-opening, forehead
slightly concave; ear-opening small, roundish;
body and limbs moderate; rostral squarish,
broader than high, with a median cleft behind,
the upper corners entering the nostrils; nostril
surrounded by first supralabial, internasal and
two small scales; supralabials 10-12; lower
labials 7-9; mental large, triangular, or rather
subpentagonal; two pairs of chin shields, the
median pair large in contact with each other
just behind the mental; the outer pair much
smaller not extended backward, beyond the
median pair in contact with and supralabial;
digits free, moderately dilated; infradigital
lamellae obliquely curved, 5 under the thumb,
7 or 8 under the fourth finger; upper surface
covered with uniform small granular scales,
largest on the snout, smallest on the occiput;
abdominal scales moderate, cycloid, imbricate;
male with a well developed femoral series of
pores interrupted medially, composed of 13
pores on each side; tail depressed, rounded,
oval in section, covered above with uniform
small scales, beneath with a median series of
transversely dilated.

Coloration: (In formalin) above dark grey
with obscure brown marblings, scarcely dis-
cernible dark band from lores through eyes,
above ear opening to side of neck and a
similar one on parietal region, underside
whitish. (In alive) Greyish yellow on the
ground with a dark brown and dark greyish
patterns distributed irregularly; dark band
running through the nostril to the fore-limbs
and along the lateral side of the body gradually
disappeared; on the back from the snout to
the tail, the small dark transverse bands scattered;
on the limbs and tail several dark bands existed;
underneath of the body yellowish white; the color of the body quite changeable
by the environment of the living place. In
north part of Taiwan collecting them easily.

Variation: Fifteen specimens collected
from Taipei, Taiwan, two of them have in contact with each other; one male of two pairs of chin shields and are all 12 femoral pores on one side.

Measurements: m.m.

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*—Reproduce
D—Destroy

*Hemidactylus frenatus* Dumeril and Bibron

Figure VII a, b.


Phila., p. 492.


Description: Snout longer than the distance between the eye and the ear-opening; forehead concave, ear opening small roundish, body and limbs moderate; rostral squarish, broader than high, upper outer corner entering nostril with a median cleft above; nostril pierced between first supralabial, rostral, and three nasals, of which the upper and the lower larger than the one between; 10 to 12 upper and 8 to 10 lower labials; mental large triangular or pentagonal; two or three pairs of chin-shields, the median pair broadly in contact with each other just behind the mental; the outer pair extend a short distance back of the median pair in contact with the first and second lower labials; digits moderately dilated, free, inner with sessile claw; 4 or 5 lamellae under the inner digits, 7-8 under the four fingers, and 9 or 10 under the fourth toe; upper surface covered with small granules, largest on the snout; on the back those granules intermixed with more or less numerous irregularly scattered round convex tubercles always much smaller than the ear-opening, sometimes almost entirely absent; abdominal scales moderate, cycloid, imbricate; male with a series of 30 or 36 femora pores; tail rounded gradually tapering, cylindric toward the tip, more flattened toward the base, covered above with very small smooth scales with indication of annulation, the posterior outline of annuli being marked by these large pointed tubercles on each side and forming longitudinal series; underside of tail with a median series of wide plates.

Coloration: (In formalin) Greyish brown above, with faint indications of dusky mottlings and cross marks; a more or less defined brown streak, light-edged above, on the side of the head, passing through the eye, extending sometimes along the side of the body; underside whitish. (In alive) dark grey on the back, often with faint yellowish and dark spots; light band crossing through the nostril to the anterior margin of ear opening; underneath dark greyish; upper and lower labials with black spots on the surface, yellowish white underneath, this color of the body quite changeable by the environment of the living place. In northern part of Taiwan as H. bowringii collecting them easily.

Variation: Twelve specimens collected from Taipei, Taiwan one of them has only two and half pairs of chin shields.

Measurements: m.m.

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Fore limb from axilla 16 14 12 14 13 11  
Hind limb from groin 20 18 16 17 18 15

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**FAMILY AGAMIDAE**

**KEY TO GENUS AND SPECIES OF AGAMIDAE**

1a. No large symmetrical shields on dorsal surface of head; with movable eyelid, tympanum concealed (*Japalura*)

2a. Width between outer supraciliary edges at center of eye exceeding length of third toe without claw......... *Swinhonis swinhonis*

2b. width between outer supraciliary edges at center of eye not exceeding length of third toe without claw......... *Swinhonis mitsukurii*

**Japalura swinhonis swinhonis** Gunther

Figure VIII


Description: (TNU E0037) Body compressed laterally, covered with unequal scales; tympanum hidden; tail very long, swollen at base, covered above and below with imbricate, keeled and pointed scales; rostral low, separated from nasal by one scale; supraciliary ridge interrupted by a deep notch at the posterior end of orbit, followed by a single low spine; all head scales wrinkled and keeled; back covered by imbricated keeled scales at least three different sizes; low uncal and dorsal crests of pointed scales; the former flattened and conical; the latter triangular, a similar crest on the base of the tail, the three crests being continuous, the spines over the shoulder and between the hind legs; scales on flanks the spines over the shoulder and between the hind legs; scales on flanks not much different from dorsals, except of the axilla and near the groin which much smaller; scales on underside strongly imbricate and keeled, pointed but not mucronate; digits underneath with a double series of spiny keels; third and fourth fingers nearly equal; fourth toe without claw from base of third considerably longer than the distance from center of eye to tip of snout; third toe without claw, from base of the fourth shorter than the distance...
between superciliary edges at center of eye; the distance from upper side of knee of hind leg, bent at right angles, to tip of longest toe without claw longer than the distance from tip of snout to inner angle of elbow; tail very long, swollen at base, covered above and below with imbricate, keeled and pointed scales.

Coloration: (In formalin) above brownish with a broad pale grey band along each side of back; on the dorsal back between the pale grey bands 6-7 chevron bands pointing backward; these bands separated from one another by narrow white cross streaks which formed by larger scales; head with numerous black spots which on temporals and under eye form interrupted line radiating from the eye; throat and chest dark slate grey, the former with large, rounded, white spots; rest of underside pale grey; tail with alternating broad bands of pale grey and dark brown.

Remark: In Taiwan we can collect them easily. The author have studied a lot of them, now only list out 10 in the following data for representation.

Measurements: m.m.

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<td>Snout to center of eyes</td>
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_Japalura swinhonis mitsukurii_ stejneger

_Figure IX_


Description: _Japalura swinhonis mitsukurii_ differs from _J. swin. swinhonis_ chiefly in proportions and coloration. Thus, the snout especially is longer and narrower; hind legs are somewhat longer and the tail very much so. As a rule, the scales are somewhat smaller with less contrast between the extremes, but the nuchal and dorsal crest are better developed, the latter continuous with the caudal, the keels on underside sharper and the scales more pointed. The coloration is marked by seven dark bars across the back separated by narrow pale cross stripes, which combine with the strongly defined light dorso-
lateral band into a ladder pattern, the throat in the male is pale bluish with large whitish spots, forming about three broad bars across the throat; the sides below the dorso-lateral band dark with numerous whitish spots; the white longitudinal stripe under the eye is conspicuous, but mostly crossed by narrow black lines radiating from the eye.

Remark: The author collected specimens from southern part of Taiwan.

Measurements: m.m.

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<tr>
<td>Greatest width of head</td>
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5b. Posterior loreal much longer than high, in contact with three supralabials, with five pale longitudinal stripes

..................................................marginatus

4b. Two unpaired postmentals; lower temporal of the second row largest, wedge-shaped; sole of hind feet with two series of enlarged tubercles between heel and base of third and fourth toes. Normally no nasal and two pairs of nuchals

..........................chinensis

2b. Supranasals absent

7a. Fronto-parietals in contact; claws not retractile.

8a. Lower eyelid scaly (Sphenomorphus)

9a. A patch of enlarged scales on the posterior lower surface of thigh

........................................boulengeri

9b. No a patch of enlarged scales on the posterior lower surface of thigh

........................................indicus

---

FAMILY SCINCIDAE

KEY TO GENERA AND SPECIES OF SCINCIDAE

1a. One fronto-parietal only; interparietal small (Emoia)..................atrocostata

1b. With a pair of fronto-parietals; interparietal large.

2a. Supranasals present

3a. Palatine bones in contact on the median line (Mabuya)..................longicaudata

3b. Palatine bones separated on the median line (Eumeces)

4a. A single unpaired postmental; upper temporal of the second row largest, wedge-shaped; sole of hind feet granular with only a few large tubercles on heel.

5a. Posterior loreal nearly as high as long normally in contact with two supralabials with five distinct pale longitudinal stripes...........elegans
8b. Lower eyelid with an undivided transparent disk (Leiolopisma)...........

................................. laterals

7b. Fronto-parietals not in contact; claws retractile(Lygosaurus)-smaragdium

Lmoia atrocostata (Lesson)
Figure X a, b.

Scincus atrocostatus Lesson, 1830, Voy. Coquille, Zoo., 2, p. 50, p.l. 4, fig. 3.
Mohouya atrocostatum Gray, 1843. Cat. Liz., p. 95.

Description: Snout long and obtusely pointed; rostral wider than high in contact with fronto-nasal which broader than long; supranasals small and elongate widely separated each other by frontonasal; prefrontals large in contact with each other and frontonasal in contact with frontal behind; frontal shorter than its distance form tip of snout and slightly smaller than fronto-parietal; four supraoculars; frontal in contact with two supraoculars; interparietal very small; parietals forming a suture behind the latter; a pair of nuchals; nostril in the center of a single nasal which nearly squarish surrounded by supranasal, postnasal, first supralabial and rostral; 7 supralabials; the 5th largest located under the eye; 7 lower labials; mental wider than rostral with a single unpaired postmental; three pairs of chin-shields, the first pair in contact with each other and the other separated by gulars; 34 smooth scales around the middle of the body; dorsals and ventrals subequal; preanalts elongate moderately enlarged.

Coloration: (In formalin) grey brownish with some black and white spots; a black lateral band or series of spots on each side; underneath whitish.

Variation: One of the specimens has the frontonasal in contact with frontal so prefrontals not in contact with each other, one other specimen has 8 supralabials on right side and its 5th supralabial became longest but 6th and 7th under the eye; lower labials varied from 6 to 7.

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* Three specimens from Dept. of Zoology, National Taiwan University.
Mabuia longicaudata (Hallowell)

Figure XI


Description: Snout blunt; interorbital and lorens flattened; Ear-opening round; rostral wider than deep not in contact with frontonasal; nostril pierced in the center of a single elongate nasal; a pair of narrow supranasals in contact with each other; a pair of small postnasal in contact with supranasal and anterior loreal; frontonasal somewhat wider than long and narrowly in contact with frontal, but separated from rostral by supranasals; prefrontals separated by fronto-nasal; loreals two, nearly equal in size, anterior loreal quadrangular, slightly longer than high in contact with second and third supralabials; posterior loreal in contact with third supralabial only; upper preocular smaller than 1st supracocular, in contact with posterior loreal and prefrontal not in contact with anterior loreal; frontal a little longer than its distance from tip of snout, slightly narrowed posteriorly, in contact with second supracocular; supracoculars four, the 2nd largest in contact with entire outer edge of the frontal, as large as the 3rd and 4th together; fronto-parietal broadly in contact with each other; its length shorter than interparietal; single interparietal as long as parietal narrow posteriorly; parietals separated by interparietal with a pair of nuchals behind; 7 supralabials, the 5th largest under the eye; temporals subequal body scales undistinctly; low eye-lid scaly; supraciliaries scales 6, mental as wide as rostral; one postmental and 3 pairs of chin-shields followed; the 1st pair in contact with each other, but the others separated by gular plates; 7 lowerlabials; 28 scales rows around the body, dorsal and ventral subequal, subcaudals enlarged; a series of preanal twice as large as preceding ones; 19 lamelae under the 4th finger and 25 under longest toe.

Coloration: (In formalin) above chestnut brown, seven black longitudinal lines extending down the back along the edges of the scales; a broad black lateral band sprinkled with a few white spots, from posterior border of the eye through over ear and shoulder to the beginning of the tail; above narrowly edged with white; below the lateral band scattered black spots; dorsal part of head scattered with black spots; sutures between 2nd, 3rd, 4th and 5th upper labials edged with black; underside greenish yellow; posterior half of tail brown.

The author examined two specimens of this species, one from National Taiwan University, the other from Taiwan Normal University.
Measurements: (m.m.)

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<td>Hind leg from groin</td>
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MNTU—This specimen from Department of Zoology, National Taiwan University.
D ——Destroyed.

Eumeces elegans Bouleneger

Figure XII


Description: Snout slightly long and obtusely pointed; rostral high, rather narrow, the portion visible from above slightly smaller than frontonasal; supraanasals broadly in contact behind rostral; rostral in the anterior portion of a single nasal which much higher in front than behind; no postnasal; frontonasal much broader than long not in contact with rostral, but with frontal; prefrontals smaller than fronto-nasal, not in contact with each other, but with both loreals, upper preocular and anterior supraocular; anterior loreal higher than the posterior, in contact with supranasals, nasal, first and second supralabials; posterior loreal pentagonal, in contact with second and third supralabials; frontal longer than parietals and than its distance from tip snout, anteriorly a little wider than behind, in contact with three supraoculars; four supraoculars, the second largest; six or seven superciliaries; frontoparietals smaller than interparietal; interparietal as long as the parietals and broadly in contact behind with the nuchals; parietals not in contact each other behind the interparietals; one pair of nuchals; 7 supralabials, the
seventh largest, the fifth under the eye; two temporals in first row, lower one many times larger than the upper one; upper temporal in the second row very large, wedge-shaped, or conical, with the apex forward; lower temporal of the second row long and narrow with nearly parallel upper and lower edges; a single scale between seventh supralabial and ear-opening, which bordered anteriorly by several projecting lobules; mental followed by single pentagonal, unpaired postmental; seven lower labials, the sixth longest; 28 scales rows around the middle of body, those on the sides apparently smaller than those on back and abdomen; a pair of large prenasal plates; soles of hind limb granular with a single larger tubercle and several others at the heel; a small keeled scale behind the vent at corner; tail cylindrical, tapering, with a series of wide transverse plates underneath.

Coloration: (In formalin) In adult above dark olive brown on the middle of the back, dark brown on the sides becoming more lighter toward the terminal half of the tail, with five distinct pale longitudinal stripes, viz. one median, somewhat broader than the others bifurcating on the interparietal, each branch following the outer edge of the frontal to the snout which pale buff; a dorsolateral stripe on each side proceeding from the outer edge of the supraoculurs down the sides of back, two scale widths from the median stripe; finally lateral stripe on each side originating on the upper lip proceeding backward through the ear-opening and above fore and hind limbs; all continued on the tail and gradually disappear; the outer edge of the frontal to the snout buff; underside of head pale buff, abdomen and flanks slaty. (In alive) young, dark blackish, with five strongly defined cream lines extending halfway back on tail, the median one bifurcating on nuchal, each branch following the outer edge of the frontal to the snout; dorsolaterals from the prefrontals or the first supercillaries following the lower two thirds of the third scale.

Measurements: (m. m.)

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* Young specimen

_Eumeces marginatus_ (Hallowell)

Figure XIII a, b.


Description: Rostral small pentagonal; supranasals present, in contact behind rostral; nostril in the anterior portion of a single nasal somewhat higher in front than behind; no postnasal; fronto-nasal somewhat broader than long not in contact with rostral, but broadly so with frontal; prefrontals smaller than fronto-nasal in contact with both loreals, upper preocular and anterior supraocular but not with each other; anterior loreal high and narrow in contact with nasal, first and second supralabials; posterior loreal pentagonal, much wider than high, in contact with second, third supralabials; frontal longer than parietals and much longer than its distance from tip of snout, anteriorly wider than behind in contact with three supraoculrals; four supraoculrals, none unusually developed; fronto-parietals scarcely more than half as large as interparietal; interparietal as long as parietals, broadly in contact behind with nuchals; parietals rather small separated by interparietal; one pair of nuchals; seven supralabials, the seventh largest, fifth under the eye; two temporals in first row, lower one several times larger than upper one; two temporals in second row, the upper one largest wedge-shaped with the apex forward, the lower nearly parallel with upper and lower edges; a single large scale between seventh supralabial and ear-opening which bordered anteriorly by several projecting lobules; mental followed by a single narrow, pentagonal, unpaired postmental; seven lower labials, the sixth very long and narrow; 28 scales around the middle of body, those on the sides apparently smaller than those on back and abdomen; a pair of large preanal plates; length of hind leg contained two and half times in the distance from snout to vent; the depressed limbs overlapped by the longest; toe; sole of hind foot with small scales or granules, but no enlarged tubercles except a few at heel; a strongly keeled scale behind the vent at each corner; tail cylindrical by swollen at base underneath, with a series of wide transverse plates on the underside.

Coloration: (In alive) Above grey brown with five pale longitudinal stripes; median one somewhat broad than the others, originating between a pair of nuchals proceeding backward to the base of tail; a dorsolateral stripe on each side from preocular proceeding backward through the outer edge of the supraoculars down the side of the black, one scale width from the median stripe; a lateral white stripe on each side from the upper lip proceeding backward through the ear-opening and above both fore and hind limbs and all continued on the tail gradually disappear; between dorso-lateral and lateral stripe a dark reddish band on each side; under lateral whitish stripes a lot of orange reddish spots forming a band proceeding backward above the fore limbs and gradually disappear; underside pale buffy white, addomen and flanks grayish.

Variation: Four specimens collected from Grass mountain Formosa, two of them five stripes absent, nearly light blue greenish above; only a latetal whitish stripe on each side from upper lip
Studies on Taiwan Lizards

proceeding backward through the ear-opening and above fore limbs then gradually disappear; a well-defined patch of enlarged irregular scales on posterior side of femur.

Measurements: (m.m.)

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D = DESTROYED

Eumecces chinensis (Gray)

Figure XIV a, b.


Description: Rostral large nearly triangular, nostril in the center of a single squarish nasal; normally no postnasal; prefrontals somewhat smaller or larger than fronto-nasal; frontal in contact with or not in contact with frontonasal; anterior loreal nearly twice as high as wide in contact with first and second supralabials; supranasal, frontonasal and prefrontal, but not in contact with upper preocular; posterior loreal slight longer than high in contact with second and third supralabials; frontal much longer than parietals, anteriorly somewhat wider than behind, in contact with anterior two supra-oculars; 4 supraoculars, the second largest; interparietai pointed behind, somewhat shorter than parrEtals; normally two pairs of nuchals; two temporals in second row, the upper rather narrow, the lower much
larger, wedge-shaped, with the apex forward; two small scales between seventh supralabials and ear-opening; 7 lower labials; 24 smooth scales rowed around the middle of the body, laterals smaller than dorsals; a pair of large preanal plates;

Coloration: (In adult) Above yellow brown, the scales having a few black areas; on each side wide orange redish band from proceeding backward to the base of tail with some irregular white and black spots; ventral surface dull cream. (In young) Above clay-color with the network of brownish black color, each scale being marked with the dark and light color, in such a way as to bring out a median dorsal, and on each side a dorsolateral pale black-edged stripe from first nuchals to some distance on tail; a wide orange redish band from each side of head proceeding backward through the ear-opening along the flanks to the base of tail, but with irregular black and white spots; underside uniform pale yellowish.

Variation: fifteen specimens collected from Grass Mountain and Taipei Hsien, Taiwan two of them with large distinct postnasals on each side, two of them with postnasals only on one side, one of them the prefrontals not in contact each other, five of them with three pairs of nuchals, but the other two of them only with 2\(\frac{3}{4}\) pairs of nuchals.

Measurements: (m.m.)

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\(*\) — Destroyed

**Sphenomorphus boulengeri** Van Denburgh

Figure XV a, b.

**Sphenomorphus boulengeri** Van Denburgh, 1912.


**Sphenomorphus leveretti** Schmidt, 1927, Amer.
Mus. Nat. Hist., LIV p. 422, fig. 10.

Description: Rostral wide broadly in contact with fronto-nasal, about equal to \( \frac{1}{2} \) of the frontonasal; nostril pierced in a single nasal no supranasal and postnasal; frontonasal shorter than frnoral, broadly in contact with nostril and frnoral; prefrontal squarish separated by frontoanosal, about \( \frac{1}{2} \) width of frontonasal; loreals two, anterior loreal narrower and higher than posterior one, in contact with nasal, frontonasal, prefrontal, first and second upperlabials; posterior loreal as wide as high, in contact with prefrontal, 2nd and 3rd upper labials; upper preoccular large, triangular, but smaller than first supraocular in contact with posterior loreal and prefrontal not in contact with anterior loreal; frontal longer than its distance from tip of snout, narrowed posteriorly, broadly in contact with frontonasal and anterior two supraoculars; four supraoculars anterior largest about two times of the length of the others; fronto-parietals longer than interparietal in contact with 2nb, 3rb and 4th supraoculars; Interparietal as wids as long, longer than the length of frontoparietal suture; parietals with a short suture behind the interparietal, with a pair of nuchals; seven supralabials, the 5th and 6th largest, below the eye; two rows of temporals, the upper of second row largest; low eye-lid scaly; ear-opening large without lobules; supraciliary scales 8-11; mental as wide as rostral; one postmental and 4 pairs of chin-shields; postmental in contact with 1st and 2nd lower labials. the 1st pair of chin-shields in contact with each other, the others separated by gulars; 7 lowerlabials; 37 scale rows around of body; dorsals and ventrals subequal; 4 preanal scales; two median enlarged preanalas longer than longitudinal axis of anterior chin-shield; scales under hand and foot smooth; scales under 4th finger 13; 22 under longest toe; on the posterior lower surface of thigh with a patch of enlarged scales.

Coloration: (In formalin) above olive brown, scattered with black spots, with a slender median black line; from loreal to hind legs a broad blackish band with zigzag edges and with median series of white spots; above this black band a narrow white band from 1st loreal through median part of ear-opening to groin, not interrupted by black spots; below this again a dark brown band with median large white spots; supraoculars spotted with black; under-side whitish; tail pale brown with pale brownish spots on the continuation of dorsal and lateral blackish band legs above brown with light spots; sutures of labials marked with dark spots.

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*Sphenomorphus indicus* (Gray)

Figure XVI a, b.


Description: Snout obtusely pointed; rostral wide and convexly broad in contact with frontonasal and nasal; nostril in the center of a single squarish nasal; no supranasal and postnasal; frontonasal broader than long in contact with rostral and forming a narrow suture with the frontal; prefrontals smaller than frontonasal in contact with both anterior and posterior loreals, upper precocular and anterior supraocular but not with each other; anterior loreal shorter than posterior one in contact with 1st and 2nd, supralabial, prefrontal and frontonasal; loreal region vertical; upper precocular smaller than anterior supraocular not in contact with anterior loreal; frontal long, anteriorly wide tapering backward almost to a point in contact with anterior two large supraoculars, the suture with third supraocular very small; fronto-parietals and interparietal distinct, the former in contact with third and fourth supraoculars; interparietal obtusely pointed behind separating parietals; parietals with a short suture behind interparietal; a pair of small nuchals; seven supralabials, the fifth and the sixth largest below the eye; lower eye-lid scaly; ear-opening large without lobules; superciliary scales 7-8; mental large as wide as rostral, followed by one azygous postmental, the former band-like the latter pentagonal; four pairs of chin-shields followed the postmental; 38 scale rows around the middle of body, laterals smallest; scales smooth; 4 preanal scales, median pair largest; soles nearly uniformly granular.

Coloration: Above olive brown with numerous small scattered blackish spots on each side of flanks; from loreal to hind legs a broad blackish band with zigzag edges and median series of small white spots; above and below this band with a white line which from first proceeding backward through the median part of ear-opening to groin somewhat interrupted by black spots; below this again a pale dark brown band with median large white spots; supraoculars spotted with black
color; under side whitish; tail olive brown with pale brown spots on the continuation of dorsal and lateral blackish band; legs above brown with light spots, under side pale yellowish.

Variation: Supralabials and lowerlabials varying from 7-8; supraciliary scales also varying from 7-8; one pair of small postnasals presenting in some of specimens collected from Grass Mountain.

Remark: a lot of specimens collected from Grass Mountain and Peitu, Taipei, Taiwan by the author.

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*Leiopolisima laterale* (Say)

Figure XVII


*Euconesc modestus* Guenther, 1864, Pept. Brit. Indea, p. 87, pl. X, Fig. G.


Description: (After Okada, 1939, Sci. Pept. Tokyo Bunrika Daigaku, Sect. B, Vol. 4, No. 73, pp. 203-204.) Rostral broadly in contact with frontonasal; no supranasals in the center of a single shield; no postnasals; fronto-nasal in contact with frontal, broader than long; prefrontals not in contact; anterior loreal in touch with first supralabial, in contact with second supralabial, fronto-parietal and prefrontals; frontal much longer than its distance from tip of snout, shorter than length of frontoparietals and interparietal together, very wide in front, tapering nearly to point behind, in contact with first and second supraoculars; four supraoculars, the second largest; frontoparietals long and narrow, longer than interparietal shaped like the frontal but not so long; parietal long and narrow, as long as frontal in contact behind interparietal; four pairs of nuchals, the first not in contact; lower eyelid granular with a small, transparent disk; seven supralabials, the fifth under the eye, the sixth largest; a very large upper temporal, fan-shaped with the apex forward in contact with the entire edge of the parietal; ear opening large, as large as eye, without lobules along the anterior border; a single unpaired pentagonal shield behind the mental; 28 smooth scale rows around the middle of the body, those on the sides slightly smaller; two large preanal plates with a small one on each side; hind leg contained about three times in distance from snout to vent; fore and hind legs failing to meet
when pressed along the side; 16 lamellae under longest toe; tail cylindric, pointed with transversely widened plates underneath only towards to the tip.

Coloration: (In alcohol) above uniform olive brown; a blackish-brown line from nostril through eye widening on tympanic region and extending above the ear-opening backward along fore and hind legs to sides of tail; as a broad dark-brown band above and below narrowly and indistinctly edged with whitish; on the flanks below this edge a paler brown, more edged with whitish; on the flanks below this edge a paler brown, more indistinct band; underside pale.

Remark: no specimen in the author's collections

*Lycosoma smaragdinum* (Lesson)


Description: (After Taylor, 1922, The Liz. of Phil. islands p. 205-208) Rostral low, wider than deep; no supranasals; fronto-nasal as long as broad, anterior border convex, froming a wide suture with rostral; prefrontals very large, in contact medially; frontal longer than its distance to end of snout, and longer than the combined parietal length; fronto-parietales short distinctly in contact; interparietal small; three pairs of nuchals, nostril, pierced in a single undivided nasal; latter followed by two elongate loreals; four supraoculars, the first three bordering frontal; nine supercillaries, the first two large, the others small; nine upper labials, the sixth very wide below eye; two much enlarged temporals; seven lower labials; postmental at least three time size of mental; three pairs of chin shields, two pairs in contact; eye moderately large; lower eyelid scaly; ear-opening small with anterior lobules projecting; eye nearer ear than end of snout; ear nearer foreleg; twenty-four rows of scales around body, smooth, dorsals enlarged; preanalys slightly enlarged; scales at base of tail very small and with a transversal dilated row under the remainder; limbs strong, well developed; depressed hind limb reached elbow; digits compressed, fourth toe with thirtythree smooth lamellae below; an enlarged heel plate.

Coloration: (In alive) Anterior part of body bluish green with slight brownish dorsally, the edge of each scale narrowly edged with dark brown; head the same except labials, which are very light greenish white; posterior part of body brown with small, light greenish spots surrounded by darker brown; tail except at base greenish, legs brown spotted with greenish; below greenish to yellowish white; underside of tail greenish; an indistinct dark stripe behind hind leg continued a short distance on tail.

Remark: no specimens in author's collections

**FAMILY LACERTIDAE**

**KEY TO THE GENUS AND SPECIES OF LACERTIDAE.**

1a. Ventral scales squarish, arranged in transverse series; femoral or inguinal pores present. (*Takydromus*)

2a. Three pairs of submental shields

3a. One inguinal pore on each side

..................................................*septentrionalis*

3b. Two inguinal pores on each side

..................................................*formosanus*

2b. Four pairs of submental shields

4a. One inguinal pore on each side
Studies on Taiwan Lizards

4b. Four or five inguinal pores on each side

**Takydromus septentrionalis** (Gunther)

Figure XVIII, XIX


Description: Body slender with long tail; snout obtusely pointed; rostral wider than high not in contact with frontonasal; supranasals present in contact with each other just behind the rostral; frontonasal slightly wider than long, broadly in contact with anterior loreal; three supraoculars, two anterior large supraoculars in contact with frontal, the smallest posterior supraocular in contact with fronto-parietals; parietals slightly longer than frontal; interparietal moderate; interoccipital much smaller, about the size of third supraocular; seven supralabials, the fifth under the eye, several small scales between seventh supralabial and ear opening; an elongated shield along the anterior half of the outer edge of the parietal; five long and narrow lower labials; mental broader than rostral nearly triangular followed by three pairs of submental shields two anterior pairs in contact with each other and 3rd pair separated by granular scales; nuchals absent; small and cycloid-like scales in the nuchal region, gradually enlarged and keeled posteriorly, forming three longitudinal rows on each side; two rows of keeled small scales on median line gradually disappeared at half of trunk; laterals granular forming a broad longitudinal band on each side; eight rows of strongly keeled squarish ventral scales pointed behind; preanal plate large, smooth, with two smaller plates on each side; a single inguinal pore on each side; tail covered above and below with strongly keeled scales as large as the largest dorsals.

Coloration: (In alive) Olive brownish dorsally, lateral granular band slaty; on each side a pale yellowish dorso-lateral line from nuchal region proceeding backward along the flanks to the base of tail; another pale yellowish line from nostril proceeding backward through lower eyelid and ear-opening to the shoulder; lower surface whitish, suffused with tawny on tail.

Variation: A lot of specimens of this species collected in the campus of Taiwan Normal University, two of them have four submental shields on right side and three submental shields on left side; another two specimens lateral granular band in green color.

**Measurements:** (m. m.)

<table>
<thead>
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<th>TNU</th>
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<td>♂</td>
<td>♂</td>
<td>♂</td>
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<tr>
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<td>200</td>
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<td>190</td>
<td>176</td>
<td>168</td>
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<tr>
<td>Snout to vent</td>
<td>57</td>
<td>56</td>
<td>51</td>
<td>55</td>
<td>52</td>
<td>48</td>
<td>50</td>
<td>52</td>
<td>55</td>
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<td>Vent to tip of tail</td>
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<td>129</td>
<td>149</td>
<td>156</td>
<td>138</td>
<td>128</td>
<td>118</td>
<td>96*</td>
<td>D</td>
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<tr>
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<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
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<td>19</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Hind leg from groin</td>
<td>23</td>
<td>24</td>
<td>24</td>
<td>23</td>
<td>25</td>
<td>23</td>
<td>23</td>
<td>24</td>
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</table>
Takydromus formosanus Boulenger

Figure XX


Description: (TNU 0030) Snout elongate; rostral wider than high in contact with supranasals but not in contact with frontonasal; frontonasal larger than prefrontal; separating from frontal by prefrontals; three supraocclusals, 3rd one smallest; a series of granules between the supraocclusals and superciliaries; a small shield separating the large anterior supraocular from temporal; scales very small and keeled; seven supralabials; sixth one largest and under the eye; mental large nearly triangular followed by three pairs of submental shields; six longitudinal series of large strongly keeled scales, separated on the vertebral line by two series of small scales; ten rows of strongly keeled ventral scales pointed behind; two inguinal pores on each side; a pair of keeled preanal plates slightly large, with two pairs of plates on each side; tail long, covered above and below with strongly keeled scales and as large as the largest dorsals.

Coloration: (In formalin) Dark brownish dorsally, lateral granular band dark slaty; a pale grey line from snout proceeding backward through upper eyelid to the base of tail; another dark line from nostril proceeding backward through the eye and ear-opening to shoulder disappeared; lower surface pale yellowish.

Remark: One specimen from Tunghai University, Taichung, Taiwan.

Measurement: (m.m.)

<table>
<thead>
<tr>
<th>No.</th>
<th>TNU E1180</th>
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<td>Sex</td>
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<tr>
<td>Total length</td>
<td>148</td>
<td>168</td>
<td>185</td>
<td>190</td>
</tr>
<tr>
<td>Snout to vent</td>
<td>51</td>
<td>52</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Vent to tip of tail</td>
<td>97</td>
<td>116</td>
<td>129</td>
<td>134</td>
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<td>Greatest width of head</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Fore leg from axilla</td>
<td>16</td>
<td>16</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Hind leg from groin</td>
<td>24</td>
<td>24</td>
<td>25</td>
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</table>

Takydromus suteri Van Denburgh

Figure XXI


Description: (TNU E0191) Snout elongate; rostral broad than high in contact with supranasals but not in contact with frontonasal; frontonasal nearly hexagonal; prefrontals longer than frontonasal in contact with each other; frontal feebly keeled as long as its distance from tip of
snout, longer than width, slightly narrowed posteriorly; frontoparietals shorter than frontal; parietais large separated by interparietal and two azygos small interocipitals; seven supralabials, 5th largest and under the eye; seven lower labials; mental broader than rostral followed by four pairs of submental shields, two anterior pairs in contact with each other and two other pairs separated by granular scales; nuchals absent; six longitudinal series of larger strongly keeled scales, separated on the vertebral line by a series of keeled small scales; six rows of strongly keeled squarish ventral scales pointed behind; preanal plate large, smooth two small plates on each side; a single inguinal pore on each side; tail long covered above and below with strongly keeled scales and larger than the largest dorsals.

Coloration: (In formalin) Dark brown dorsally; lateral granular band dark bluish; supralabials, lower edge of eye, ear opening, lateral surfaces of legs, and ventral whitish.

Measurements: (m.m.)

<table>
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<tr>
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<tr>
<td>Total length</td>
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<td>Snout to vent</td>
<td>57</td>
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<td>Vent to tip of tail</td>
<td>193</td>
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<tr>
<td>Greatest width of head</td>
<td>7</td>
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<td>Fore leg from axilla</td>
<td>20</td>
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<tr>
<td>Hind leg from groin</td>
<td>27</td>
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*Takydromus kuehni* Van Denburgh

*Takydromus kuehni* Van Denburgh, 1912


Description: (After Denburgh, 1912, Proc. Calif. Acad. Sci., (4), II, pp. 252–254.) Rostral separated from the internasal by anterior nasals; nostril between anterior and posterior nasals (and sometimes first labial); two loreals, the posterior much large, separated from the anterior large supraocular by a small plate; two large supraoculars in contact with frontal, the anterior in contact with first superciliary, the posterior separated from superciliaries by a row of granules; seven supralabials, the sixth very large, under eye; temporals moderate, keeled; four pairs of postmentals, back with three rows of large keeled scales on each side, inner row largest, separated anteriorly by one row of smaller keeled scales. Behind the level of the elbows this row is wanting, or is represented only by an occasional scale; the large rows of the two sides being in contact; a few of the upper and lower series of lateral granules are enlarged and keeled, and close to the large dorsals, and also adjoining the ventrals, are small keeled scales; ventrals in six longitudinal series of which all but the outer one on each side are smooth; preanal single, large, smooth, with a much smaller plate on each side; five inguinal pores on each side; limbs moderate, the hind leg carried forward reaches the elbow; tail covered with strongly carinate scales.

Coloration: Above greenish olive, becoming lighter yellowish olive on the limbs and tail. The sides dark olive brown. A light line edged above with dark, brown, starting at the nostril, crossed the lower eyelid, the lower part of the ear-opening and faded away above the axilla. The upper labials, dorsals, limbs and tail dotted or spotted with dark brown. The lower surfaces greenish white, tinged with orange on the tail.
Remark: no specimen in the author’s collections

FAMILY ANGUIDAE

KEY TO GENUS AND SPECIES OF ANGUIDAE

1a. No rudiments of limbs externally

(Ophisaurus)

2a. Two scales separating frontonasal from rostral ................................ harti

2b. One scales separating frontonasal from rostral: .................. formosensis

Ophisaurus harti Boulenger

Figure XXII


Description (TNU E0031) Body cylindrical; no rudiments of limbs externally; on each side a lateral fold from more behind the ear-opening proceeding backward to the each side of cloacal opening; scales squarish rhomboidal forming straight longitudinal and transverse series; nostril distinct larger than ear-opening; snout elongated; rostral wider than high; a azygous post-rostral and internasal between the rostral and frontonasal; supranasal present; two small scales between the rostral and nasal; frontonasal larger than prefrontal behind not in contact with frontal; frontal large nearly triangular; a pair of small frontoparietals, far separating by a long triangular interparietal, a small interoccipital followed behind, five supraoculars in contact with frontal and frontoparietals; temporals divided into three rows, five shields in first row, four shields in second row and six shields in third row; they all nearly in same size; mental very small followed by two azygous postmentals; four pairs of chin shields, median pair in contact with each other but the other pairs separated by gular scales; no nuchal; a pair of large preanals; dorsal scales in 16 longitudinal series.

Coloration: (In formalin) pale olive above with brownish transverse narrow bands on the back of trunk; head dotted with brownish; underneath whitish.

Measurements: (m.m.)

No. 364
Total length 245
Snout to vent 119
Ventr to tip of tail 19
Greatest width of head 27
Snout to ear-opening

Ophisaurus formosensis Kishida

Figure XXIII


Description: (NTUM 02678) Rostral small; no postrostral, only a internasal between the rostral and frontonasal; one small scales separating nasal from rostral; a pair of prefrontals not in contact with each other; frontal very large nearly triangular; a pair of very small frontoparietals far separating by a narrow triangular interparietal; one small interoccipital followed behind; ear-opening
minute, smaller than the nostril; dorsal scales in 14 longitudinal series.

Coloration: (In formalin) pale olive above; on the middle of back with small brownish spots; underneath pale freshly.

Measurements: (m.m.)

<table>
<thead>
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<tr>
<td>Total length</td>
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<tr>
<td>Snout to vent</td>
<td>234</td>
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<tr>
<td>Vent to tip of tail</td>
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<tr>
<td>Greatest width of head</td>
<td>15</td>
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<tr>
<td>Snout to ear-opening</td>
<td>21</td>
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中文摘要
臺灣蜥蜴科之研究
劉慕昭

臺灣位於亞熱帶，天氣炎熱，爬蟲類之種類繁多，全省各地均有分布，其中尤以新竹縣不論山地、平原、田野以至於房屋門窗及牆壁上均有其蹤跡。

本報告係作者將臺灣各地所採集之蜥蜴類計24種，分列13屬，根據其特徵列成檢查表（Key），分別作有系統之分類與詳盡之記載，並附圖示，其中波氏蜥蜴（Sphenomorphus boulenegri Van Denburgh）曾在蘭嶼有記載及龚作氏蜥蜴（Japalura swinhonis mitsukurii Stejneger）為本島之新記錄，關於臺灣常見之種類如中華石龍子（Eumeces chinensis Gray）及蛇舅母（Takydromus septentrionalis Gunther）等之變異（Variation）亦作扼要之說明。
Fig. I  *Gekko japonicus* (Dumeril and Bibron)

Figure II

1. Dorsal view of head
2. Ventral view of head
3. Lateral view of head
4. Underside of hand
5. Underside of anal region

(After Osada's paper)

Fig. III  *Gekko gekko* (Linnaeus)
Peropus mutilatus (Wiegmann)

1. Dorsal view of head \(x3\)
2. Ventral view of head \(x3\)
3. Lateral view of head \(x3\)
4. Underside of hand \(x3\)
5. Underside of anal region \(x3\)

Fig. IV b. *Peropus mutilatus* (Wiegmann)
Studies on Taiwan Lizard

Figure 7

Cosymbotus plathyurus (Schneider)
1. Underside of throat  x 6
2. Lateral view of head  x 6
3. Underside of hand  x 6

Figure vi a

Hemidactylus boulengi Boulenger
1. Dorsal view of head
2. Ventral view of head
3. Lateral view of head
4. Underside of anal region
5. Underside of hand

Fig. VI b  Hemidactylus boulengi Boulenger
**Figure VII a**

1. Dorsal view of head
2. Ventral view of head
3. Lateral view of head
4. Underside of hand
5. Underside of anal region

**Fig. VII b. Hemidactylus frenatus** Dumeril and Bibron
Fig. VIII  *Japalura swinhonis swinhonis* Gunther

Fig. IX  *Japalura swinhonis mitsukuii* stejneger
Figure Xa

Emoia atrocostata (Lesson)
1. Dorsal view x 2
2. Ventral view x 2
3. Lateral view x 2

Fig. Xb Emoia atrocostata (sson)

Figure XI

Habuia longicaudata
(Hallowell)
1. Dorsal view x 2
2. Ventral view x 2
3. Lateral view x 2
**Eumeces elegans** Boulenger
1. Dorsal view  \( \times 3 \)
2. Ventral view  \( \times 3 \)
3. Lateral view  \( \times 3 \)

**Eumeces marginatus** (Hallowell)
1. Dorsal view  \( \times 2 \)
2. Ventral view  \( \times 2 \)
3. Lateral view  \( \times 2 \)

Fig. XIII b  *Eumeces marginatus* (Hallowell)
Figure XIV a

Eumecones chinensis
(Gray)

1. Dorsal view x 2
2. Ventral view x 2
3. Lateral view x 2

Fig. XIV a  Eumecones chinensis (Gray)
Fig. XV a  *Sphenomorphus boulengeri* Van Denburgh

Figure XV b

1. Dorsal view  x 3
2. Ventral view  x 3
3. Lateral view  x 3
Fig. XVI a  *Sphenomorphus indicus* (Gray)

Figure XVI b *Sphenomorphus indicus* (Gray)
1. Dorsal view × 3
2. Ventral View × 3
3. Lateral View × 3

Figure XVII

*Ceratophis lutatus* (Gray)
after Gleda
1. Dorsal view × 3
2. Ventral view × 3
3. Lateral view × 3
Figure XVIII  *Takydromus septentrionalis* (Gunther) Dorsal view

Figure XIX  *Takydromus septentrionalis* (Gunther) Ventral view
Fig. XX  *Takydromus formosanus* Leaunger

Fig. XXI  *Takydromus sauteri* Van Denburgh
Fig. XXII  *Ophisaurus harti* Boulenger

Fig. XXIII  *Ophisaurus formosensis* Kishida