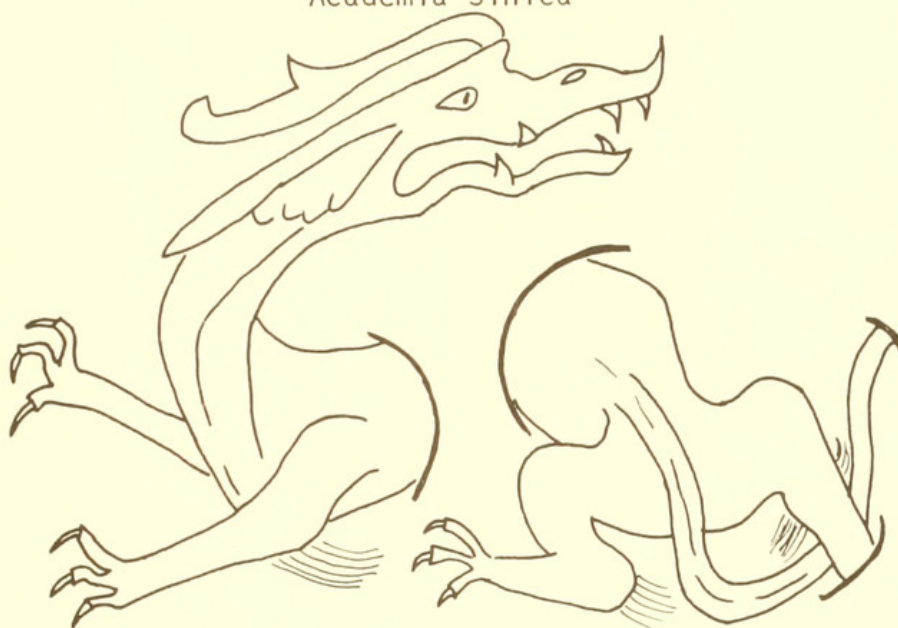


KEY TO THE
SNAKES AND LIZARDS
OF CHINA

Zhao Ermi & Jiang Yaoming
1977
Chengdu Institute of Biology
Academia Sinica



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Translators' note:

The original title page of this work appeared (as translated):

Systematic key of reptiles of China

Department of Herpetology
Sichuan Institute of Biology

Published in 1977 the work included keys to the turtles and crocodilians. The translation was prepared while Yang Datong was in residence at the Field Museum in 1985-86. We attempted to prepare as literal a translation as possible. At a few points it was necessary to diverge slightly from the original. The only significant revision involved snakes originally grouped under the heading Natrix; these are distributed in six genera in the translation. The entire translation was reviewed by the original authors and approved by them.

Key to Families of Snakes

1. Small snakes, worm-like; all scales around body same size; eye obscured under scales Typhlopidae
 Moderate or large snakes; ventral scales usually larger than dorsals; eye not obscured 2
2. Tail compressed 3
 Tail cylindrical 4
3. Granular scales on body; top of head without enlarged scales Acrochordidae
 (A single species: Acrochordus granulatus)
 Scales of body not granular; top of head with large, symmetrical scales Hydrophiidae
4. Width of ventral scales less than 3 times width of adjacent lateral scales 5
 Width of ventrals more than 3 times width of adjacent scales 6
5. More than 30 rows of dorsal scales; vestige of hind limb present Boidae
 Scale rows 15; no vestige of hind limb Xenopeltidae
6. No grooved or tubular fangs at front of upper jaw... Colubridae
 Fangs present at front of upper jaw 7
7. Immovable, grooved fangs; pupil usually round; body slender; usually black or dark brown on back, black alternating with white or brown, or with longitudinal stripes Elapidae
 Tubular, movable fangs; pupil vertical or oval; head triangular; neck slender; a pit on side of head present (Crotalinae) or absent (Viperinae) Viperidae

TYPHLOPIDAE

Key to species

- Scales in 20 rows; nasal divided into two parts Ramphotyphlops braminus
- Scales in 22-23 rows; nasal divided only from nostril to contact with second labial Typhlops koshunensis
- Scales in 24-28 rows, rarely 22; nasal divided only from nostril to contact with second labial Typhlops diardi

BOIDAE

Key to species

- Head distinct from neck, with large symmetrical shields; rostral and first two supralabials with pits Python molurus
- Head not distinct from neck, small scales on head; no supralabials with pits Eryx miliaris

XENOPELTIDAE

Key to species of Xenopeltis

- Eight upper labials, 3-2-3; 2 postorbitals; ventrals 164-196; subcaudals 22-31 unicolor
- Seven upper labials, 3-2-2; one postorbital; ventrals 152-164; subcaudals 16-19 hainanensis

COLUBRIDAE

Key to subfamilies

- | | | |
|----|--|--------------|
| 1. | Nostril opening on side of snout | 2 |
| | Nostril opening on top of snout; right and left nasal scales in contact; internasal single, behind suture of nasals... | |
| | | Homalopsinae |
| 2. | Mental groove present | 3 |
| | Mental groove absent | Pareinae |
| 3. | Subcaudals in two rows; anal plate single or divided... | |
| | | Colubrinae |
| | Subcaudals in single row; anal plate single.. | Xenoderminae |

XENODERMINAE

Achalinus

- | | | |
|----|---|-------------------|
| 1. | One pair of rostral scales, in contact; first pair of submentals in contact behind mental; no postorbital | 2 |
| | Prefrontal long, meeting tip of nasal; first pair of submentals not in contact; first pair of infralabials in contact | |
| | | <u>meiguensis</u> |
| 2. | Middle of body with 27 scale rows | <u>formosanus</u> |
| | Middle of body with 21-25 scale rows | 3 |
| 3. | Internasal suture shorter than prefrontal suture | 4 |
| | Internasal suture longer than prefrontal suture | 5 |
| 4. | Midbody with 21-23 scale rows; ventrals 146-168... | |
| | | <u>spinalis</u> |
| | Midbody with 25 scale rows; ventrals 178-184... | |
| | | <u>niger</u> |
| 5. | One temporal scale | <u>hainanus</u> |
| | Two temporal scales | 6 |
| 6. | Midbody with 21 scale rows; loreal about twice its height; dark brown, no middorsal stripe | <u>ater</u> |
| | Midbody with 23 scale rows; loreal length about equal to its height; brown with a middorsal stripe | <u>rufescens</u> |

PAREINAE

Pareas

1. Purple on back; some scales half white, half black forming transverse bands 2
Brown on back; many small black spots; some spots join to form network 3
2. Scales of back smooth (distr.: Hainan) margaritophorus
Scales of rows 3-7 with keels macularius
3. Prefrontal separated from orbit; dorsals keeled except rows 1-2 carinatus
Prefrontal entering orbit; dorsal almost smooth, at most only several central rows with keels 4
4. No preocular; loreal entering orbit 5
Preocular present 6
5. Ventrals 151-160; subcaudals 48-60; several middorsal scale rows keeled stanley
Ventrals 175-189; subcaudals 63-69; all scale rows smooth... boulengeri
6. Preocular broadly in contact with lower corner of eye...

	Preocular broadly in contact with center of eye; loreal not entering orbit	<u>monticola</u>	7
7.	Maxillary teeth 4-6	<u>chinensis</u>	
	Maxillary teeth 7-9		8
8.	Ventrals 180-196	<u>hamptoni</u>	
	Ventrals 163-182 (distr.:Taiwan)	<u>formosensis</u>	

COLUBRINAE

Key to genera

1. Vertebral row of scales slightly larger than others; dorsal scales oblique 2
 Vertebral row of scales not enlarged 4
2. Body green; ventrals with a white line; a long, narrow head, snout pointed; side of snout with deep groove; pupil horizontal Ahaetulla 3
 Not green over entire body 3
3. Pupil round; head oval; body slender; ventral scales with strong keel Dendrophis
 Pupil vertical; head triangular, body not especially slender; ventrals without keels Boiga
4. Tip of snout long, flexible, with small scales; green on back Rhynchophis
 (A single species: R. boulengeri)
 Not as above 5
5. Head triangular; large scales of head keeled; temporal scales small, keeled Macropisthodon
 (A single species: M. rudis)
 Head oval; scales of head smooth 6
6. Loreal scale absent 7
 Loreal present 8
7. Internasals absent; no temporals; preocular present... Calamaria
 Internasals present; temporals present; no preocular... Blythia
8. Internasals and prefrontals paired 11
 Internasals or prefrontals irregular, not paired 9
9. A single internasal and a single prefrontal; dark brown or back, belly yellow Rhabdops
 (A single species: R. bicolor)
 More than one internasal 10
10. Two internasals; a single prefrontal; nostril near dorsal surface of snout Opisthotropis
 Two to 4 internasals and prefrontals; nostril on dorsal surface of snout Atretium
 (A single species: A. yunnanensis)
11. Large area of rostral scale visible on dorsal surface of head; internasal suture short; in some species internasals absent Oligodon
 Rostral barely or not visible on dorsal surface 12
12. More than one loreal; eye large Ptyas
 Only one loreal 13
13. Temporals small, scarcely distinguished from neck scales... Coluber
 Temporals moderately large, in 2 or 3 rows 14
14. Scale rows in even numbers, 14 or 16 Zaocys
 Scale rows in odd numbers 15
15. Scale rows 13-15 16
 Scale rows 17 19
 Scale rows 19 25
 Scale rows 21; 2 postoculars Elaphe (part)

16. Back mostly green, with a few crossbars Opheodrys 17
Back partly green
17. Upper labials 7, third and fourth bordering eye; 15 scale rows throughout Liopeltis
(A single species: L. frenatus)
Upper labials less than 6 18
18. Nape of neck with arrow-shaped mark; 15 scale rows... Plagiopholis
No such mark on neck; 13 or 15 scale rows; nape with groove Trachischium
19. Seventeen scale rows throughout; back brown, with a black mark on top of head Sibynophis
More rows of scales on neck than at midbody, or fewer than 17 at end of body 20
20. Ventrals with a keel and notch laterally; body and tail slender Chrysopelea
(A single species: C. ornata)
Belly without keel or weakly keeled; in either case ventrals without a notch 21
21. Dorsal scale rows oblique, at least anteriorly... Pseudoxenodon
Scale rows not oblique 22
22. Back with crossbars 23
Back without crossbars 24
23. Posterior group of maxillary teeth 3 Dinodon
Posterior group of maxillary teeth 2 Lycodon
24. Back with lines Psammophis
(A single species: P. lineolatus)
Back not lined Psammodynastes
(A single species: P. pulverulentus)
25. Three or more postoculars 27
At most 2 postoculars 26
26. Back with reddish crossbars, 28-35+9-13 Dinodon (part)
Without above pattern Elaphe
27. Loreal variable (0-2); eye small; some subcaudals not paired; subcaudals more than 200 Thermophis
(A single species: T. baileyi)
Loreal single, rarely 2; all subcaudals paired, less than 200 28
28. Hemipenis forked, sulcus spermaticus divided or not 29
Hemipenis and sulcus spermaticus simple 31
29. Sulcus spermaticus divided 30
Sulcus spermaticus simple Sinonatrix
30. Maxillary dentition continuous, teeth gradually or abruptly larger posteriorly Xenochrophis
(A single species: X. piscator)
Maxillary dentition with posterior two teeth strongly enlarged, recurved, preceded by a diastema Rhabdophis
31. Maxillary dentition continuous, teeth gradually larger posteriorly in the series; internasals narrowed anteriorly, nostrils dorsolateral Natrix
Maxillary dentition usually continuous, teeth gradually becoming larger posteriorly or the posterior two abruptly enlarged, occasionally separated from the preceding teeth; internasals broad anteriorly, nostrils lateral 32

32. Maxillary teeth less than 35; no white, vertical bar in front and behind eye Amphiesma
 Maxillary teeth more than 40; a prominent white, vertical bar over preocular and fourth supralabial, bar narrowly edged with black Amphiesmoides
 (A single species: A. ornaticeps)

Ahaetulla

1. Dorsal scale rows 13-13-11 or 9 near vent gorei 2
 Dorsal scale rows 15-15-11 or 9 near vent
 2. Supralabials 9, rarely 8, fourth to sixth touch eye; ventrals 167-200; caudals 127-164 putus
 Supralabials 7 or 8, only one touches eye; ventrals 153-175; caudals 85-105 subocularis

Amphiesma

1. Temporals present 2
 Temporals absent, or a single small scale between parietal and fifth upper labial atemporalis
 2. Scale rows 17 throughout sauteri
 Scale rows 19 anteriorly and at mid-body, 17 near vent 3
 3. Each ventral with 3 large blackish-brown spots forming dotted lines on belly, sometimes median one not clear; a pair of light stripes on back modesta
 Ventrals without large spots, or with scattered small dots 4
 4. Orange-yellow narrow crossbars on back, no longitudinal stripes optata
 Not as above 5
 5. Many dark crossbars or squarish spots on back between light longitudinal stripes 6
 Not as above 7
 6. A white streak behind eye extending posteriorly to connect with dorsal stripe; subcaudals 94-105 boulengeri
 No white streak behind eye; subcaudals 52-83 stolata
 7. Back light brown, with 3 conspicuous black stripes; ventrals 141-152 miyajimae
 Color otherwise 8
 8. No light stripes or light dotted lines on body 9
 With light stripes or light dotted lines 10
 9. Upper labials 7, lower labials 7; ventral 147-153; subcaudals 59-66 vibakari
 Upper labials 8, lower labials 10; ventrals 174-217; 86-107 subcaudals platyceps
 10. Body with alternating light and dark stripes octolineata
 No more than two stripes on body 11
 11. Subcaudals less than 78, ventrals usually less than 161 12
 Subcaudals more than 78, ventrals more than 165 14
 12. No light, longitudinal streak or stripe on head behind eye popei
 A light streak or stripe behind eye 13
 13. Light longitudinal streak on side of head well-separated from eye craspedogaster
 Narrow, light, longitudinal stripe beginning at rear or below eye khasiensis

14. Back olive-brown with two light yellow stripes edged with black extending to tail; scales strongly keeled

bitaeniata

Back olive-brown with light spots forming two less distinct lines; scales weakly keeled, outer smooth johannis

Boiga

Temporals normally 1-3 in first row; anal plate single... multomaculata

Temporals small; anal plate divided kraepelini

Calamaria

1. No preocular yunnanensis 2
Preocular present
2. Rostral scale at least half length of prefrontal suture; tip of tail pointed pavimentata
Rostral scale one-third length of prefrontal suture; tip of tail blunt septentrionalis

Coluber

Scale rows 17-17-15; a black-edged vertebral stripe from head to tail spinalis

Scale rows 21-21-15; diamond-shaped markings on vertebral area ravergieri

Dendrophis

1. Scale rows 13-13-11 (or 9) gorei 2
Scale rows 15-15-11 (or 9)
2. Upper labials 9 (rarely 8), 4-6 border eye; ventrals 167-200, subcaudals 127-164 pictus
Upper labials 7 or 8, only one bordering eye; ventrals 153-175, subcaudals 85-105 subocularis

Dinodon

1. Scale rows at midbody 19; loreal not bordering eye; light red, narrow crossbars 28-35 + 9-13 rosozonatum 2
Scale rows at midbody 17, rarely 19
2. Scales smooth, rarely a few rows with weak keels; loreal usually bordering eye; more than 60 light red, narrow crossbars rufozonatum
A few scale rows with weak keels; loreal usually not bordering eye; many yellowish white crossbars... septentrionalis

Elaphe

1. Most of body green, without dark markings 2
Body not green, with markings of some sort 3
2. Loreal present prasina
Loreal absent frenata
3. Markings on head consisting of black lines radiating from eye; a narrow black occipital crossbar radiata
Markings on head, if present, not as above 4
4. No stripes or crossbars on top or side of head 5
Top or side of head with stripes or crossbars 8
5. Sutures of dorsal head plates black carinata

- Not as above 6
6. Head dark red; body with more than 30 reddish, square markings; tail ringed with red and brown moellendorffi
- Not as above 7
7. Top of body and tail with large, dark brown, round spots; side of body and tail with smaller, irregular spots... davidi
- Body usually with indistinct light crossbars... schrenki
8. Only stripe on head a short, dark postorbital one; back with black trapezoidal blotches, at rear of body forming black stripe taeniura
- Not as above 9
9. Top of head with 3 short, longitudinal stripes not crossing head porphyracea
- Stripes or bands cross top of head 10
10. Body with stripes 11
- Body with spots, diamonds, or crossbars 12
11. Stripes on top of head form 2 V's, each continuous with stripes on body rufodorsata
- Stripes on top of head form one V continuous with stripes on body dione
12. Body with a row of round, dark spots on each side connected over back by dark crossbars bimaculata
- Not as above 13
13. Back with large dark diamonds having light centers... mandarina
- Back with black crossbars perlacea

Lycodon

1. No preocular, prefrontal and loreal border eye; dorsal scales weakly keeled; back black, a few (10) white crossbars anteriorly subcinctus
- Preocular present; prefrontal not bordering eye 2
2. Scales smooth; loreal not bordering eye 3
- Middle scale rows weakly keeled; loreal not touching internasal 4
3. Loreal with a broad contact with internasal aulicus
- Loreal narrowly in contact with internasal laoensis
4. Back and belly with black and yellow rings fasciatus
- Back with alternating black and white crossbands; ventrals white ruhstrati

Natrix

One preocular; 7 upper labials; back uniform olive green

Three preoculars; 8 upper labials; back with alternately arranged, large black spots natrix

tesselata

Oligodon

1. Fewer than 17 scale rows at midbody 2
- At least 17 scale rows at midbody 4
2. Scale rows 13 at midbody eberharti

- Scale rows 15 at midbody 3
3. Ventrals more than 170; about 10 dark crossbars... ornatus
- Ventrals less than 160; more than 30 crossbars... erythrorachis
4. Scale rows at midbody 17 5
- More than 17 scale rows at midbody 6
5. Nape and rear of head with wide V-shaped, dark mark; ventrals with 2 rows of square, dark brown spots... chinensis
- Without dark V on nape; belly unmarked swinhonis
6. Scale rows at midbody 21 cyclurus
- Scale rows at midbody 19 7
7. Anal single 8
- Anal paired; vertebral area with about 50 black-edged, brown crossbars bellus
8. Upper labials 7; trunk and tail with large brown crossbars, 22-24 + 4-8 albocinctus
- Upper labials 8; scales edged with black forming a network.. formosanus

Opheodrys

1. Anal single; back uniform green doriae
- Anal paired 2
2. Back uniform green major
- Rear of body with short, yellow crossbars multicinctus

Opisthotropis

1. Scale rows at midbody 17 2
- Scale rows at midbody 19 5
2. Black above, belly yellow maxwelli
- Not as above 3
3. Upper labials 7-9 4
- Upper labials 10-11 lateralis
4. Usually without preocular, rarely 1 or 2; loreal meeting eye latouchi
- Usually 2-3 preoculars, rarely 1; loreal not touching eye.. andersoni
5. Scale rows at end of body 17; body with black rings... balteata
- Scale rows 19 at end of body; body not ringed... kuantunensis

Plagiopholis

1. Loreal present, temporals 1 + 2 nuchalis
- No loreal 2
2. Upper labials 5; temporals 1 + 1 blakewayi
- Upper labials 6; temporals 2 + 2 styani

Pseudoxenodon

1. Body and tail dorsally with black or blackish crossbars... bambusicola
- No blackish crossbars 2
2. Black-edged gray stripes on top of tail and rear of body... nothus

Not as above

3

3. Dark arrow-shaped mark on nape with light front margin; top of head grayish white, without markings; body without yellow and red

karlschmidtii

Dark arrow on nape without light edge; head with or without dark markings; yellow and red between trunk scales...

macrops

Ptyas

Scale rows 15-15-11 or 15-13-11; ventrals less than 175; dorsum brown, each scale with blackish brown streak...

korros

Scale rows 19-17-14; ventrals more than 185; dorsum dark brown, a dark network or crossbars

mucosus

Rhabdophis

1. Scale rows 15 at midbody 2
Scale rows 17 or 19 at midbody 3
2. Scales weakly keeled, 15 rows throughout; a distinct nuchal groove; back olive green, with scattered reddish brown spots, or with a black patch on the occiput nuchalis
Scales distinctly keeled, 17 rows anteriorly; nuchal groove less obvious; back yellowish brown with many regularly arranged small blackish spots swinhonis
3. Scale rows 17 at midbody; back uniform olive green; an obvious nuchal groove leonardi
Scale rows 19 at midbody 4
4. Back with dark transverse markings; as bands crossing back or alternating on right and left sides, or as shorter bars in two rows 5
Back without crossbands or bars 7
5. With black transverse bands crossing back or alternating on right and left sides nigrocincta
With shorter dark bars in two rows on back, each bar on three adjacent scale rows 6
6. A distinct nuchal groove; two upper labials touch the eye; back with orange-red bars, belly grayish white, a pair of orange-red patches on side of neck himalayana
No distinct nuchal groove; three upper labials touch eye; back with yellow bars, belly light yellow chrysarga
7. Back green, interstitial skin of neck and forebody scarlet subminiata
Back green or greenish yellow, black and red bars on sides of neck and forebody tigrina

Sibynophis

1. Ten upper labials, rarely 9 or 11; one anterior temporal, touching 8th upper labial collaris
Nine upper labials, rarely 8; 2 anterior temporals, lower one touching 7th and 8th or 6th and 7th upper labial 2
2. Ventrals 168-187, subcaudals 98-122 chinensis
Ventrals 185-194, subcaudals 83-94 grahami

Sinonatrix

1. Maxillary teeth fewer than 29; ventrals more than 144 2

Maxillary teeth 29-32; ventrals 132-144; blackish brown rings circling body and tail wider dorsally and split by lighter center percarinata

2. Dark rings 30-40 on body, 12-20 on tail; belly between dark rings orange-red or orange-yellow in life annularis
Dark rings 18-21 on body, 11-13 on tail; rings edged with black and greenish brown in center aequifasciata

Trachischium

Scale rows 13 throughout; ventrals 125-140 tenuiceps
Scale rows 15; ventrals 113-125 monticola

Zaocys

1. Loreals 2-3; upper labials 8-10; rear of body with dark network carinatus
Only 1 loreal 2
2. Two to 4 vertebral scale rows keeled; greenish brown to blackish brown; a dark stripe on each side near mid-line; large individuals with stripes indistinct near end of body.. dumnades
Four to 6 vertebral rows keeled; green or greenish yellow on back; a black stripe anteriorly on each side of midline; lateral edges of ventrals with black streak nigromarginatus

HOMALOPSINAE

Enhydriis

1. Scale rows 19 at midbody; more than 2 upper labials border eye plumbea
Scale rows 21-25 at midbody; only 1 labial touching eye 2
2. Scale rows 21 at midbody, rarely 19 or 23 3
Scale rows 23-25; loreal usually not touching eye; some individuals with large black spots on back chinensis
3. Loreal touching internasal enhydriis
Loreal not touching internasal bennetti

ELAPIDAE

1. Vertebral scales enlarged, hexagonal; subcaudals in single row (Bungarus) 2
Vertebral scales normal in shape, not larger than adjacent scales; subcaudals in two rows or partly single 4
2. Back uniformly black Bungarus niger
Body with white or yellow rings 3
3. Back with black and white rings; white rings narrow, 30-50 + 9-15 B. multicinctus
Back with black and yellow rings of equal width; yellow rings 20-28 + 3-5; tail blunt B. fasciatus
4. Neck expandible; black or blackish brown on dorsum; internasal bordering nostril 5
Neck not expandible; brownish or purplish above; internasal not bordering nostril (Calliophis) 6
5. No enlarged post-parietal plates Naja naja
With enlarged post-parietal plates Ophiophagus hannah
6. Brown or reddish brown dorsally with black crossbands 7
Purplish red with 3 black stripes Calliophis japonicus
7. Scale rows 17 throughout; wide, white crossbands on head...

C. maclellandi

Scale rows 15; with inverted V-shaped mark on head...

C. kelloggi

VIPERIDAE

1. No facial pit (Viperinae) 2
 Facial pit present (Crotalinae) 5
2. Top of head with large plates; head light with brown markings; trunk with dark red crossbars 12-14 + 3-4...
Azemiops feae
 Top of head with small scales or just a few large plates...
(Vipera) 3
3. Top of head with small, smooth scales and a few large plates; 19-21 scale rows 4
 Top of head with small, keeled scales; 27-33 scale rows; back with 3 rows of large, rounded spots each with a dark margin and a light center
Vipera russelli
4. Snout blunt; rostral in contact with 2 small scales; nostril in center of nasal scale V. berus
 Tip of snout pointed; upper border of rostral in contact with one small scale; nostril in lower part of nasal scale..
V. ursini
5. Large, symmetrical plates on top of head (Agkistrodon) 6
 Small scales on top of head; neck slender; head triangular..
(Trimeresurus) 9
6. Rostral pointing upward, projecting Agkistrodon acutus 7
 No rostral projection
7. Scale rows 19 A. monticola
 Scale rows 21-23 8
8. Nasals long and narrow A. halys
 Nasals trapezoidal A. strauchi
9. Usually green 10
 Not green 12
10. Nasal with a complete suture with upper labial 11
 Nasal suture with labial incomplete or absent...
Trimeresurus albolabris
11. Scale rows 17; 8 upper labials T. medoensis
 Scale rows 19-23; 9-11 upper labials T. stejnegeri
12. Yellowish green with yellow, red, and black spots, the red spots forming row on center of back T. jerdoni
 Usually brown, with large, dark markings on back, some of them confluent 13
13. Scale rows 19-21 T. gracilis
 Scale rows 21-29 14
14. Head long, narrow; rostral narrow; nasal and internasal small; 14-16 small superciliaries T. mucrosquamatus
 Head shorter; tip of snout blunt; nasal large with 1-3 small internasals; 6-8 superciliaries T. monticola

Key to Families of Lizards

1. Top of head without symmetrical plates 2
Symmetrical plates on top of head 5
2. No movable eyelid (except in Eublepharus) Gekkonidae
Movable eyelid present 3
3. Total length >1 m; granular scales on the back; tongue long, notched Varanidae
(A single species: V. salvator)
Less than 1 m; dorsals not granular; tongue short and weakly notched 4
4. Tail with or without median dorsal keel or crest Agamidae
Tail with two dorsal keel-like crests Xenosauridae
(A single species: Shinisaurus crocodilurus)
5. Four limbs 6
With no limbs or with hind limbs present as short flaps 7
6. With femoral or pre-anal pores; ventrals squarish... Lacertidae
Without femoral or pre-anal pores; ventrals rounded... Scincidae
7. Body worm-like, without lateral groove; tail very short, less than half length of body; males with short, finger-like hind limbs Dibamidae
(A single species: Dibamus bourreti)
Body snake-like, with lateral groove; tail long, much longer than body; no limbs Anguidae

AGAMIDAE

Key to genera

1. Ribs elongated, supporting wing-like flaps Draco
Without wing-like flaps 2
2. Pre-anal pores present 8
No pre-anal pores 3
3. Digits of hind limb fringed; eyelids with fringe of projecting scales; nostrils valvular Phrynocephalus
Without above characters 4
4. Body depressed, without crest; male with patches of enlarged scales on belly and pre-anal areas Agama
Body compressed, usually with a crest; no patches of enlarged scales in male 5
5. Dorsal scales almost uniform, arranged in regular rows except in C. brevipes and C. khasiensis Calotes
Dorsals heterogeneous 6
6. An erect pointed scale behind eye 7
Without such a scale Japalura
7. Body very compressed; a well developed crest on neck; a gular pouch and fold at shoulder; tympanum naked... Acanthosaurus
Body not or slightly compressed; crest not well developed; no gular pouch or fold at shoulder; tympanum covered with small scales Oriocalotes
[A single species: O. paulus]
8. Body and tail compressed, crest well developed; tympanum at

surface; femoral pores 4-6

Physignathus

[A single species: P. cocincinus]

Body and tail depressed, without crest; tympanum in depression; pores 13-18

Leiolepis

[A single species: L. belliana rubritaeniata]

Acanthosaurus

Length of spines behind orbit and on side of neck subequal to diameter of eye; hind limb brought forward reaching midway between eye and tympanum

armata

Length of spines less than half diameter of eye; hind limb brought forward reaching midway between snout and eye

lepidogaster

Agama

- | | | |
|----|--|----------------------|
| 1. | Ventrals smooth; caudal scales arranged in rings | 2 |
| | Ventrals keeled; caudal scales overlapping | <u>sanguinolenta</u> |
| 2. | Mid-vertebral scales distinctly keeled | 3 |
| | Mid-vertebral scales smooth or feebly keeled | 4 |
| 3. | Lateral scales smaller than dorsals | <u>stoliczkaia</u> |
| | Laterals not smaller than dorsals | <u>tarimensis</u> |
| 4. | Laterals uniform | <u>himalayana</u> |
| | Laterals small, with a few large ones dispersed among them | <u>tuberculata</u> |

Calotes

- | | | |
|----|--|----------------------|
| 1. | A fold at shoulder | 4 |
| | No fold at shoulder, or with a feeble fold | 2 |
| 2. | Scales around body less than 60 | <u>versicolor</u> |
| | Scales around body more than 60 | 3 |
| 3. | Hind limb brought forward reaching to axilla or shoulder; scales around body 65-72 | <u>microlepis</u> |
| | Hind limb not reaching axilla; scales around body 73-80... | <u>brevipes</u> |
| 4. | Scales on back not uniform, a few scattered large scales; dorsals and ventrals equal | <u>khasiensis</u> |
| | Dorsals uniform, larger than ventrals | 5 |
| 5. | Spines behind eye; color brown | <u>emma</u> |
| | No spines behind eye | 6 |
| 6. | Without gular pouch; color green | <u>jerdoni</u> |
| | Gular pouch present | 7 |
| 7. | Tip of scales pointed upward and back; scales around body 48-58; hind limb brought forward reaching shoulder | <u>mystaceus</u> |
| | Tip of scales pointed downward and back, except for upper 2 or 3 rows; scales around body 45; hind limb reaching neck or eye | <u>kingdon-wardi</u> |

Draco

Tympanum without scales; nostrils open upward blanfordi

Tympanum scaled; nostrils open outward maculatus

Japalura

- | | | |
|----|--|---------------------|
| 1. | Hind limb brought forward reaching tip of snout or beyond... | <u>andersoniana</u> |
| | Hind limb not reaching tip of snout | 2 |

- | | | | |
|-----|--|----------------------|----|
| 2. | Tympanum without scales | | 3 |
| | Tympanum scaled | | 5 |
| 3. | Gular fold present; tail length more than twice body length; lateral dorsals with parallel light stripes | <u>dymondi</u> | |
| | No gular fold | | 4 |
| 4. | Hind limb reaching tympanum or eye; black V-shaped marks across back | <u>kumaonensis</u> | |
| | Hind limb reaching neck or tympanum; dark triangular marks on back | <u>varcoae</u> | |
| 5. | One light, greenish transverse mark at mid-body, narrowest at vertebral area | <u>szechuanensis</u> | |
| | No such mark | | 6 |
| 6. | Scattered large scales on side of body | <u>grahami</u> | |
| | Without scattered large scales | | 7 |
| 7. | Gular fold present | | 8 |
| | No gular fold | | 10 |
| 8. | Two small scales between nasal and rostral; one or 2 small scales between nasal and first labial; black lines radiating from eye | <u>flaviceps</u> | |
| | One scale between nasal and rostral; one small scale between nasal and first labial | | 9 |
| 9. | A yellowish line below eye parallel with lip | <u>splendida</u> | |
| | A black line from eye toward angle of jaw | <u>yunnanensis</u> | |
| 10. | Tail twice body length | | 11 |
| | Tail less than twice body | <u>brevipes</u> | |
| 11. | Distance between orbital spines longer than third toe without claw | <u>swinhonis</u> | |
| | Distance between orbital spines less than third toe... | <u>mitsukurii</u> | |

Phrynocephalus

- | | | | |
|----|--|-------------------|---|
| 1. | Distance between nostrils equals distance from nostril to fold in front of eye | <u>vlangali</u> | |
| | Distance between nostrils less than distance to fold before eye | | 2 |
| 2. | Distance between nostrils one half distance to fold before eye | <u>axillaris</u> | |
| | Distance between nostrils more than one half distance to fold before eye | | 3 |
| 3. | Dorsal scales keeled | | 4 |
| | Dorsals smooth | | 5 |
| 4. | Dorsals with strong keels and scattered small black spots; tip of tail white below | <u>przewalski</u> | |
| | Back with dark patches of large, upward pointing scales; tip of tail black below | <u>frontalis</u> | |
| 5. | Hind limb reaches eye or temporal area | | 6 |
| | Hind limb reaches axilla or front of shoulder | | 7 |
| 6. | Fore limbs and dorsal surface of tail with dark transverse bars | <u>versicolor</u> | |
| | No such markings; dorsal surface with dark conical scales... | <u>forsythii</u> | |
| 7. | Tail length 1.5-1.66 times length from gular sac to vent... | <u>theobaldi</u> | |
| | Tail shorter | <u>erythrurus</u> | |

GEKKONIDAE

Key to genera

1. With movable eyelid; claw between 3 scales Eublepharis
(A single species: E. lichtenfelderi)
Without movable eyelid 2
2. Digits not expanded, or only slightly expanded 3
Digits obviously expanded 5
3. Underside of digits with very small scales; sides of digits fringed; dorsal scales uniform, overlapping; mid-dorsal caudal scales expanded Teratoscincus
Digits not fringed; dorsal scales granular intermixed with larger scales; mid-dorsal caudals not expanded 4
4. Distal phalanges compressed, angular; claw between 2 large scales, one dorsal and one ventral Cyrtodactylus
Not as above Alsophylax
5. Digits with one row of ventral lamellae; inner digit without claw Gekko
Digits with 2 rows of ventral lamellae 6
6. Inner digit clawed 7
Inner digit clawless or with very small claw 8
7. Digits half webbed; body with a skin fold from axilla to groin Platyurus
(A single species: P. platyurus)
Digits with rudimentary web; body without skin fold Hemidactylus
8. Inner digit normal in length Gehyra
(A single species: G. mutilata)
Inner digit extremely short and slender, clawless or with rudimentary claw Hemiphyllodactylus
(A single species: H. yunnanensis)

Alsophylax

Dorsal granules irregular or arranged in short rows pipiens
Granules arranged in long rows przewalski

Cyrtodactylus

Twenty five scales across belly; large subcaudals in a single row; 6 preanal pores elongatus
Scales across belly 30-40; without enlarged subcaudals; 12-14 preanal pores khasiensis

Gekko

1. Rostral not in contact with nostril; total length to more than 30 cm gecko
Rostral in contact with nostril; total length less than 20 cm 2
2. Without webbing between digits 3
Webbing between digits 4
3. Many enlarged granules especially anteriorly and on occiput japonicus
A few enlarged granules on back swinhonis
4. Without enlarged granules on back; 7-11 preanal pores subpalmatus
With enlarged granules; more than 17 preanal pores 5
5. Preanal pores 17-23; many moderately enlarged scales dorsally

Preanal pores 24; few enlarged scales dorsally chinensis
kikuchii

Hemidactylus

1. Tail very depressed, edges denticulate garnoti 2
Tail cylindrical, without serrated edges
2. Scales on back granular; no enlarged scales on tail bowringi 3
Large tubercular scales scattered on back; tail with rings of enlarged, tubercular scales
3. Many tubercular scales on body, a few on head brookii
Few tubercular scales on body; head without tubercular scales frenatus

Teratoscincus

Large dorsal scales beginning at shoulder przewalski
Large dorsal scales beginning at occiput scincus

SCINCIDAE

Key to genera

1. Supranasal present 2
Supranasal absent 5
2. Lower eyelid with a transparent disk; frontoparietals fused Emoia
(A single species: E. atrocostata)
Lower eyelid with small scales, no transparent disk 3
3. Dorsals with 2-5 keels Mabuya 4
Dorsal scales smooth
4. Nostril between 2 nasals; one row of enlarged subcaudals Eumeces
Nostril at center of a single nasal; subcaudals not enlarged Riopa
(A single species: R. bowringi)
5. Tympanum large, superficial Tropidophorus 6
Tympanum small, situated in a depression
6. Lower eyelid with transparent disk Leiolopisma 7
Lower eyelid with small scales, no transparent disk
7. Length of frontal about half distance from tip of snout to end of parietal; frontoparietals not in contact or just meet at a point; no enlarged preanal Ateuchosaurus
(A single species: A. chinensis)
Frontal shorter; frontoparietals with broad contact; a pair of enlarged preanals; if without large preanals, heel with an enlarged scale Lygosoma

Eumeces

1. Middle 2 rows of scales larger than laterals 2
Mid-dorsals equal to or only slightly larger than laterals 3
2. Twenty rows of scales around midbody; 4 light lines on body quadrilineatus
Twenty six rows of scales around midbody; 5 light stripes on body marginatus
3. One postmental; anal plate with keel elegans 4
Two postmentals

4. No postnasal; second temporal wedge-shaped, wide posteriorly
chinensis
Postnasal present; outer edge of thigh with several large
scales in a group 5
5. Second temporal fan-shaped; 22-24 scales around midbody
xanthi
Second temporal with dorsal and ventral borders parallel; 28
scales around midbody tunganus

Leiolopisma

1. Three supraoculars przewalski 2
Four supraoculars
2. A scaly projection at front border of tympanic recess
himalayanus 3
Without projection at front of tympanic recess
3. A small tympanic opening, smaller than translucent window in
lower eyelid sikkimense 4
Tympanic opening larger than "window" in lower eyelid
4. Dorsal scales almost equal to laterals; light lateral stripes
separated by 8 full and 2 half rows of scales reevesi 5
Dorsals obviously larger than laterals; fewer than 8 scale
rows between light stripes
5. Fore and hind limbs overlap, at least in males 6
Limbs do not overlap 7
6. Digits long; fourth toe with 16-18 ventral lamellae; dorsals
less than twice size of laterals doriae
Digits short; fourth toe with 10-16 lamellae; dorsals twice
size of laterals modestum
7. Fourth toe with 10-12 lamellae; 24-26 scales around body;
belly blackish monticola 8
Fourth toe with more than 12 lamellae
8. Fourth toe with 17 lamellae; black dots under tail; belly
pale potanini 9
Fourth toe with 13-16 lamellae
9. Seven upper labials; lateral stripes wavy on dorsal margins;
4 full and 2 half scale rows between
Eight upper labials; lateral stripes with straight edges; 6
full and 2 half rows of scales between stripes
septentrionalis

Lygosoma

1. A single prefrontal quadrupes 2
Paired prefrontals
2. A pair of large preanal scales 3
Without enlarged preanals; one enlarged scute at heel
smaragdinum
3. Four supraoculars; tip of snout not concave 4
Five supraoculars; tip of snout concave maculatum
4. Limbs overlap; more than 30 scale rows around body; tympanum
in a depression; 16-22 scales under fourth toe 5
Limbs do not overlap, or just meet; less than 30 scales
around body; tympanum superficial; 12-13 scales under fourth
toe courcyanum
5. Outer surface of thigh with a patch of large scales; gray-
brown on back; side of body blackish, but not in a regular

stripe	<u>boulengeri</u>
Without patch of large scales on thigh;	copper-colored on
back; a regular black stripe on side	<u>indicum</u>

Mabuya

Length of tail 2 1/2 times head plus body; dorsals with 2 keels; supranasals meet; subcaudals expanded longicaudata
 Length of tail 1 1/2 times snout-vent; dorsals with 3-5 keels; supranasals do not meet; subcaudals not enlarged
multifasciata

Tropidophorus

1. Scales on top of head smooth; scales on body smooth or weakly keeled; parietals bordered laterally by 2 or 3 scales
berdmorei
 Scales on top of head rough or with keels; scales of body clearly keeled; parietal bordered laterally by 4-5 scales 2
2. Frontonasal not divided; limbs overlap greatly hainanus
 Frontonasal divided into several small scales; limbs overlap slightly or not all sinicus

LACERTIDAE

Key to genera

1. Dorsal scales keeled; with pores present at groin 2
 Dorsals granular; pores on thigh 3
2. Terminal phalanges of fingers and toes not bent or compressed Takydromus
 Terminal phalanges bent; digits compressed Platyplacopus
3. Scales under digits keeled; ventrals arranged obliquely Eremias
 Scales under digits smooth; ventrals arranged in straight rows Lacerta

Eremias

1. Outer digits with scales forming a fringe gramica
 Outer digits lacking fringe 2
2. Groups of femoral pores continuous across preanal area, or groups interrupted by 3-5 scales 3
 Groups of pores separated by 8-11 scales 4
3. Enlarged ventral scales in 12-16 rows, rarely 17 rows velox
 Enlarged ventrals in 18-20 rows, rarely 21 vermiculata
4. Length of first supraocular equal to or shorter than distance to posterior loreal 5
 First supraocular longer than distance to posterior loreal 7
5. Frontonasal single; 16-20 rows of enlarged ventrals arguta
 Frontonasal divided, rarely single; 12-14 rows of enlarged ventrals 6
6. Subocular borders mouth; 38-50 small scales across back and sides; tail longer than 1.5 times snout-vent brenchleyi
 Subocular not bordering mouth; 42-67 small scales across back and sides; tail less than 1.5 times snout-vent argus
7. Four prefrontals quadrifrons

Two prefrontals

8

8. Enlarged ventrals in 18 rows, rarely 16 or 20; usually 30-41 scales between mental and middle of neck (range 27-45); black crossbars present

przewalski

Enlarged ventrals usually in 12 rows, rarely 14-18; usually 22-28 scales between mental and middle of neck (maximum 35); dark network or dark spots in rows on back multiocellata

Lacerta

Usually 2 postnasals, 2 loreals; 10-21 pores on thigh; 33-54 scales around body

agilis exigua

One postnasal, 1 loreal; 5-15 pores; 25-38 scales around body vivipara

Platyplacopus

1. Large dorsal scales in rows

2

Dorsals not larger than laterals

sylvaticus

2. Three to 5 femoral pores

kuehnei

Two femoral pores, rarely 3

intermedius

Takydromus

1. Four rows of large keeled dorsals

sexlineatus meridionalis

Five to 10 rows of large, keeled dorsals

2

2. Three pairs of mentals, rarely 2 or 4; ventrals keeled

3

Four pairs of mentals, rarely 3 or 5; ventrals smooth or weakly keeled

4

3. Two pores on each side

formosanus

One pore on each side

septentrionalis

4. Three pores on each side

amurensis

One pore on each side

5

5. Tail 3 times snout-vent or longer; 24 scales under fourth toe

sauteri

Tail less than 2;.5 times snout-vent; 19-22 scales under fourth toe wolteri

ANGUIDAE

Ophisaurus

Three small scales between nasal and prefrontal; 14-16 scales across back between lateral grooves

gracilis

Two small scales between nasal and prefrontal; 16-18 scales between lateral grooves harti



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