

A Field Guide to the Reptiles of Thailand by Tanya Chan-ard, John W. K. Parr and Jarujin Nabhitabhata. Oxford University Press, New York, 2015. 344 pp. paper. ISBN: 9780199736492.

Thai reptiles were first extensively studied by two great herpetologists, Malcolm Arthur Smith and Edward Harrison Taylor. Their contributions were published as SMITH (1931, 1935, 1943) and TAYLOR (1963, 1965, 1970). Recently, other books about reptiles and amphibians in Thailand were published (e.g. CHAN-ARD *ET AL.*, 1999; COX *ET AL.*, 2012) as well as many papers. However, these books were taxonomic studies and not guides for ordinary people. Two additional field guide books on reptiles, or amphibians and reptiles, have also been published (MANTHEY & GROSSMANN, 1997; DAS, 2010) but these books cover only a part of the fauna.

The book under review is very well prepared and will help us know Thai reptiles better. One of the authors, Jarujin Nabhitabhata, was my old friend, formerly the Director of Natural History Museum, the National Science Museum, Thailand. He was an excellent naturalist and had extensive knowledge about Thai animals, especially amphibians and reptiles. In 1995 we visited Khao Soi Dao Wildlife Sanctuary to survey herpetofauna. He advised us to dig quickly around there. We collected four specimens of *Dibamus*, which we described as a new species, *Dibamus somsaki* (HONDA *ET AL.*, 1997). Now I am very glad to know that this book was published by him and his colleagues. Unfortunately he passed away in 2008. His untimely death may have delayed the publication of this book. The book includes nearly all native reptiles (more than 350 species) in Thailand, and most pictures were drawn with excellent detail. It is a very good field guide for identification of Thai reptiles for students and ordinary people. But it does not cover studies made after 2010. More species have been described and several important taxonomic works have been published since then. Below, I note more recent contributions to the herpetology of Thailand and provide notes on newer knowledge about Thai reptiles for a future edition of this book.

Taxonomic changes and species added:

Trionychidae

Amyda cartilaginea

FRITZ *ET AL.* (2014) studied the phylogeography of Asian softshell turtle, *Amyda cartilaginea*, and recognized two species. According to their conclusion, *Amyda ornata* is distributed in the Indochina region including Thailand, but not *A. cartilaginea*.

Geoemydidae

Batagur affinis

PRASCHAG *ET AL.* (2008, 2009) regarded *B. affinis* as a distinct species distributed in Peninsular Thailand.

Cuora mouhotii

The keeled box turtle, *C. mouhotii* is distributed in northern Thailand (VAN DIJK, 2014).

Cyclemys enigmatica

Cyclemys enigmatica is similar to *Heosemys grandis* and is sometimes confused with the latter. CHAN-ARD ET AL. (2011a) collected the turtle from the peat swamp forest in Sungai Kolok District, Narathiwat Province, and identified it as *C. enigmatica*. However, it is not *C. enigmatica* but *Heosemys grandis* (see *Cyclemys enigmatica* in the Reptile Database: <http://reptile-database.reptarium.cz>). *Cyclemys enigmatica* has not been recorded from Thailand (van DIJK ET AL., 2014).

Gekkonidae

Cyrtodactylus

Recently, a lot of species of *Cyrtodactylus* have been described. Sixteen species were included in the book. One of them, *C. pulchelus*, has been divided into several species (GRISMER ET AL., 2014b, SUMONTHA ET AL., 2012a), among which four species, *C. astrum*, *C. bintangtinggi*, *C. lekaguli*, and *C. puketensis*, occur in Thailand. *Cyrtodactylus pulchelus* is distributed only in Peninsular Malaysia but not in Thailand.

Thirteen species have been newly added as follows: *Cyrtodactylus auribalteatus* (SUMONTHA ET AL., 2010), *Cyrtodactylus doisuthep* (KUNYA ET AL., 2014), *Cyrtodactylus dumnuii* (BAUER ET AL., 2010), *Cyrtodactylus erythrops* (BAUER ET AL., 2009), *Cyrtodactylus inthanon* (KUNYA ET AL., 2015), *Cyrtodactylus khelangensis* (PAUWELS ET AL., 2014a), *Cyrtodactylus kunyai* (PAUWELS ET AL., 2014b), *Cyrtodactylus ranongensis* (SUMONTHA ET AL., 2015), *Cyrtodactylus saiyok* (PANITVONG ET AL., 2014), *Cyrtodactylus samroiyo* (OLIVIER ET AL., 2014), *Cyrtodactylus sanook* (PAUWELS ET AL., 2013), *Cyrtodactylus surin* (CHAN-ARD AND MAKCHAI, 2011), and *Cyrtodactylus wangkulangkulae* (SUMONTHA ET AL., 2014).

Cnemaspis

GRISMER ET AL. (2010) revised *Cnemaspis siamensis* and described seven new species. GRISMER ET AL. (2014c) completed a revision of the genus *Cnemaspis*. Seven species of *Cnemaspis* were included in the book. Among them *C. flavolineata* is confined to Peninsular Malaysia (GRISMER ET AL., 2008) and *C. kandiana* is an endemic species of Sri Lanka (WICKRAMASINGHE & MUNINDRADASA, 2007). These two species should be removed and six other species should be added to Thai fauna as follows: *Cnemaspis chanardi*, *Cnemaspis huaseesom*, *Cnemaspis kamolnorrathai*, *Cnemaspis niyomwanae*, *Cnemaspis punctatonuchalis*, and *Cnemaspis vandeventeri* (GRISMER ET AL., 2010).

Hemiphyllodactylus

Hemiphyllodactylus Chiangmaiensis was described from northeastern Thailand by GRISMER ET AL. (2014a).

Gekko

Five species of *Gekko* were included in the Thai herpetofauna. Two species are added as follows: *Gekko lauhachindai* (PANITVONG ET AL., 2010) and *Gekko nutaphandi* (BAUER ET AL., 2008). *Gekko taylori* Ota & Nabhitabhata, 1991 was included as a species of *Gekko* in Reptile Database, but it is a junior synonym of *G. siamensis* GROSSMANN & ULBER, 1990 (KLUGE, 2001).

Ptychozoon

Ptychozoon kaengkrachanense was described from western Thailand by SUMONTHA ET AL. (2012b).

Agamidae

Draco

Nine species of *Draco* were included in the book. Two additional species, *D. formosus* and *D. maximus*, have been recorded in southern Thailand (GRISMER, 2011).

Acanthosaura

Acanthosaura cardamomensis was described from eastern Thailand and Cambodia by WOOD ET AL. (2010). *Acanthosaura phuketensis* was described from southwestern Thailand (PAWELS ET AL. 2015).

Gonocephalus

Gonocephalus borneensis has been reported only once near the border of Surat Thani and Nakhon Si Thammarat (TAYLOR, 1963).

Bronchocela

Bronchocela jubata has been recorded from Thailand based on museum specimens (HALLERMANN, 2005).

Pseudocalotes

Pseudocalotes kakhienensis is distributed in Thailand (MAHONY, 2010). *Pseudocalotes khaonanensis* was described from peninsular Thailand by CHAN-ARD ET AL. (2008).

Leiolepis

Leiolepis rubritaeniata was separated from *L. belliana* as a distinct species, distributed in Thailand, Laos, Cambodia and Vietnam (HARTMANN ET AL., 2012).

Scincidae

Plestiodon

The book reports that some 35 species are known worldwide, but now at least 47 species are known from East Asia and North America. Juveniles have blue tails and four or five light stripes on black dorsal. Females guard their eggs.

Jarujinia

Jarujinia bipedalis was described from central Thailand by CHAN-ARD ET AL. (2011b).

Lipinia

Lipinia quadrivittata was recorded from southern Thailand (TAYLOR, 1963)

Tropidophorus

DAS (2010) included northeastern Thailand to the localities of *Tropidophorus cocincinensis*.

Lygosoma

Lygosoma angeli was recorded from Thailand by COTA ET AL. (2011).

Davewakeum

SILER ET AL. (2011) included *Davewakeum miriamae* in the genus *Brachymeles*. Hence, the species name is changed to *Brachymeles miriamae*.

Anguidae

Ophisaurus

The East and Southeast Asian group of *Ophisaurus* was moved to *Dopasia* by CONRAD *ET AL.* (2010). The genus *Dopasia* in the Indochina region was reviewed by NGUYEN *ET AL.* (2011) who stated that *Dopasia gracilis* should be used for *Ophisaurus gracilis*.

Typhlopidae

PYRON & WALLACH (2014) revised the taxonomy of blindsnakes based on molecular and morphological data. According to their study, Thai species belong to two families, Gerrhopilidae and Typhlopidae. The Gerrhopilidae include *Gerrhopilus floweri* (formerly, *Typlops floweri*). Other species of typhlop snakes belong to three genera, *Ramphotyphlops*, *Indotyphlops* and *Argyrophis* of Asiatyphlopinae, which include following Thai species: *Ramphotyphlops lineatus*, *Indotyphlops albiceps*, *I. braminus*, *I. khoratensis*, *I. ozakiae*, *I. porrectus*, *Argyrophis diardii*, *A. muelleri*, *A. roxanae*, *A. siamensis*, and *A. trangensis*.

Pythonidae

Python

Python reticulatus was moved to the genus *Malayopython*, which includes two species, *Malayopython reticulatus* and *M. timorensis* (REYNOLDS *ET AL.*, 2014). The genus name *Broghammerus* proposed by HOSER (2004) is invalid as it resulted initially from a non-peer reviewed writing that included no formal data or analyses (KAISER *ET AL.*, 2013; REYNOLDS *ET AL.*, 2014).

Python molurus had been divided to two subspecies, *P. m. molurus* and *P. m. bivittatus*. Recent literature regards them as two distinct species, of which *Python bivittatus* is distributed in Thailand (WALLACH *ET AL.*, 2014).

Colubridae

Pareas

Pareas macularius THEOBALD, 1868 was synonymized with *Pareas margaritophorus* (JAN, 1866) based on morphological data by HUANG (2004). It is necessary to confirm its taxonomic status.

Gonyosoma

Gonyosoma prasina should be changed to *Gonyosoma prasinum*, since the gender of *Gonyosoma* is neuter. *Gonyosoma floweri* was synonymized with *Gonyosoma oxycephalum* by DAVID *ET AL.* (2004).

Gongylosoma

Gongylosoma longicauda should be changed to *Gongylosoma longicaudum* since its gender is neuter.

Oligodon

Oligodon pseudotaeniatus was described from central Thailand by DAVID *ET AL.* (2008).

Oligodon dorsalis was recorded from northern Thailand (WALLOCH *ET AL.*, 2014).

Dendrelaphis

Dendrelaphis nigroserratus was described from Thailand by VOGEL *ET AL.* (2012).

Dendrelaphis formosus and *Dendrelaphis subocularis* were recorded from Thailand (WALLACH *ET AL.*, 2014).

Lycodon

Lycodon ophiophagus was described from southern Thailand by VOGEL *ET AL.* (2009).

Sinonatrix

Sinonatrix yunnanensis has been recorded from northern Thailand (PAUWELS *ET AL.*, 2009).

Parahelicops

DAVID *ET AL.* (2015) erected a new genus *Isanophis* for *Parahelicops boonsongi* based on morphological comparisons among related genera. Hence, *Parahelicops boonongi* becomes *Isanophis boonsongi*.

Opisthotropis

Opisthotropis maculosa should be changed to *Opisthotropis maculosus*, since the gender of *Opisthotropis* is masculine. *Opisthotropis praemaxillaris* was moved to the genus *Paratapinophis*, and became *Paratapinophis praemaxillaris* (MURPHY *ET AL.*, 2008).

Amphiesma

GUO *ET AL.* (2014) revised the genus *Amphiesma* and separated two genera from *Amphiesma sensu stricto*. All Thai members belong to *Hebius* except for *Amphiesma stolatum*, as *Hebius bitaeniatus*, *H. deschauenseei*, *H. groundwateri*, *H. inas* and *H. hasiensis*.

Enhydris

MURPHY & VORIS (2014) revised the homalopsid snakes. *Enhydris plumbea* was changed to *Hypsicopus plumbea* and *Enhydris bocourti* to *Subsessor bocourti*. The other four Thai species remain in *Enhydris*.

Homalopsis

Homalopsis mereljcoxi was separated from *H. buccata* and described by MURPHY *ET AL.* (2012). The former species is distributed in Thailand, Cambodia and Vietnam, and the latter in extreme southern peninsular Thailand, Sumatra, Java, and Borneo (MURPHY & VORIS, 2014).

Cerberus

MURPHY *ET AL.* (2014) revised the nomenclature of the genus *Cerberus* and recognized five species. They divided *Cerberus rynchops* into two species and concluded that *C. rynchops* is distributed in South Asia, while *C. schneiderii* occurs in Southeast Asia (including Thailand) and the Philippines.

Elapidae

SANDERS *ET AL.* (2013) studied the phylogeny of viviparous sea snakes (Hydrophiini), and revealed that a core *Hydrophis* group showed recent rapid radiations. *Aipysurus* and *Microcephalus* are early-diverging lineages, but most genera, including the *Hydrophis* group, evolved more rapidly. Therefore, they recommended a single genus *Hydrophis* for the core group including most genera (*Acalyptophis*, *Astrotia*, *Kerilia*, *Chitulia*, *Disteira*, *Lapemis*,

Enhydrina, *Pelamis*, *Polydontognatus*, *Praesuctata*, and *Thalassophina*). On the other hand, *Hydrophis gracilis* and *H. cantoris* belong to the genus *Microcephalophis*. *Kolpophis* and *Thalassophis* have not been genetically examined yet.

Hydrophis inornatus (*Chitulia inornata*) is distributed in northern Australia and Arabia (WALLACH ET AL., 2014). Since *H. inornatus* is most similar to *H. ornatus*, the specimens of *H. ornatus* in museums might have been identified as *H. inornatus*. (RASMUSSEN, 1989).

Crotalidae

Pit vipers are usually treated as the subfamily Crotalinae in the family Viperidae (e.g. WALLACH ET AL., 2014).

Cryptelytrops cardamomensis was described from Cambodia and southeastern Thailand by MALHOTRA ET AL. (2011). *Trimeresurus* (*Popeia*) *phuketensis* was described from Phuket Island, Thailand, by SUMONTHA ET AL., (2011). Some authors have reported *T. erythrurus* from Thailand (e.g. PAUWELS ET AL., 2000).

MALHOTRA & THORPE (2004) revised the taxonomy of Asian pit vipers, and suggested the subdivision of *Trimeresurus* sensu stricto, and separated six genera from *Trimeresurus*: *Cryptelytrops*, *Himalayophis*, *Parias*, *Peltopelorus*, *Popeia*, and *Viridovipera*. On the other hand, DAVID & DUBOIS (2011) relegated these genera to subgenera of *Trimeresurus*. The taxonomy of Thai species proposed by the latter authors is given below. Since the type species of *Trimeresurus* is *T. insularis*, the subgenus of *T. insularis* should also be (*Trimeresurus*), although MALHOTRA & THORPE (2004) wrongly regarded it as *Cryptelytrops insularis*.

Trimeresurus (*Trimeresurus*) *albolabris*
Trimeresurus (*Trimeresurus*) *cardamomensis*
Trimeresurus (*Trimeresurus*) *erythrurus*
Trimeresurus (*Trimeresurus*) *kanburiensis*
Trimeresurus (*Trimeresurus*) *macrops*
Trimeresurus (*Trimeresurus*) *purpureomaculatus*
Trimeresurus (*Trimeresurus*) *venustus*
Trimeresurus (*Craspedocephalus*) *wiroti*
Trimeresurus (*Parias*) *hageni*
Trimeresurus (*Parias*) *sumatranus*
Trimeresurus (*Popeia*) *fucatus*
Trimeresurus (*Popeia*) *nebularis*
Trimeresurus (*Popeia*) *phuketensis*
Trimeresurus (*Popeia*) *popeiorum*
Trimeresurus (*Trimeresurus*) *venustus*
Trimeresurus (*Viridovipera*) *gumprechtii*
Trimeresurus (*Viridovipera*) *vogeli*

Introduced reptiles:

Several alien reptiles have been introduced from abroad for pets or food in Thailand and have sometimes been released. Now we can see such introduced reptiles as *Pelodiscus sinensis* and *Trachemys scripta elegans* in fields. A field guide should include introduced species because they will be occasionally encountered.

Errata:

Several trivial mistakes were found in the book under review, as follows.

P. vi, p.110 “Tailed Skink Genus *Plestiodon*” should be corrected to “Blue-tailed Skink Genus *Plestiodon*.”

P. xxii Glossary, Procoelian: “A single vertebra” should be changed to “A vertebra with the anterior end of centrum concave and the posterior convex.”

P. xxvii, in the figure of “ead of *Mabuya multifasciata*” should be changed to “Head of *Eutropis multifasciata*.” “Fronto-nasal” and “Fronto-parietal” are usually spelled as Frontonasal and Frontoparietal, respectively. In the lateral view, postnasal (PN) is not drawn.

P. xxviii In the dorsal view, “dorsal (keeled)” should be corrected to “dorsal.”

P. xxix In the figure of scales of anal region, “undivided” should be corrected to “undivided subcaudal.”

P. 24, 308 “*Eretmochelys imbricate*” should be changed to “*Eretmochelys imbricata*.”

P. 101, 307 “*Aphaniotis fuscus*” should be changed to “*Aphaniotis fusca*.”

P. 122 “*S. tarsus*” should be changed to “*S. tersus*.”

P. 140 “*V. bengalensis*” should be changed to “*V. nebulosus*.”

P. 158 “*A. malacannus*” should be changed to “*A. malaccanus*.”

P. 173, 308 “*G. longicauda*” should be changed to “*G. longicaudum*.”

P. 200, 308 “*Dinodon septentrionalis*” should be changed to “*Dinodon septentrionale*.”

P. 235, 309 “*Macrophistodon*” should be changed to “*Macropisthodon*,”
“*Macrophistodon rhodomelas*” should be changed to “*Macropisthodon rhodomelas*.”

P. 236 “*Macrophistodon flaviceps*” should be changed to “*Macropisthodon flaviceps*.”

P. 255 “*C. s. gracilis*” should be changed to “*C. gracilis*.”

P. 307 “*Inornata*” should be changed to “*inornata*.”

P. 307 “*Chrysopelea ornate*” should be changed to “*Chryosopela ornata*.”

P. 309 “*Gonyosoma prasina*” should be changed to “*Gonyosoma prasinum*.”

P. 309 “*Popeia fucatus*” should be changed to “*Popeia fucata*.”

Species illustrations:

Most illustrations are excellent, except for two (*Xenodermus javanicus* and *Aplopeltura boa*), probably because good photos or live specimens were not available. The color pattern of juvenile *Plestiodon quadrilineatus* is quite different from that of adults. It is beautiful and easy to distinguish from other skinks. I hope the authors will add a picture of the juvenile in the future.

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