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Taxonomy and Introduction to Common Species

Bob Doneley

Taxonomy

Class Reptilia is one of the largest groups of vertebrates, with over 10,000 species. It is also the oldest, evolving some 310–320 million years ago during the Carboniferous period. They share several common characteristics: all are covered with scales or scutes and are ectothermic. Most lay amniotic eggs (oviparity), although some are live bearers (viviparity, including ovoviviparity). They may be carnivorous, omnivorous or herbivorous.

Class Reptilia is made up of four orders: Squamata, Testudines, Crocodylia and Rhynchocephalia (Table 1.1). Each order is further divided into sub-orders, families, genera and species.

Squamata

Squamates are characterized by their scaled skin, which is shed periodically (ecdysis), and a moveable quadrate bone that allows the maxilla to open wide relative to the rest of the skull. The order is divided into three sub-orders: Lacertilia (the lizards), Serpentes (the snakes) and Amphisbaenia (the worm lizards), although some classifications place Amphisbaenia within Lacertilia.

Lacertilia has five infraorders based mainly on morphological similarities between family groups. These are the Diploglossa (including the glass lizards and the American legless

lizards), Gekkota (the geckos, the blind lizards and the legless lizards), Iguania (including the agamids, chameleons, iguanas, anoles, collared lizards and the neotropical ground lizards), Platynota (varanids and Gila monsters) and Scincomorpha (including skinks, tegus, plated lizards and spiny-tail lizards). Most are omnivorous or carnivorous. They are primarily oviparous, although some are ovoviviparous.

Serpentes has two infraorders: Alethinophidia (including the boas, pythons, vipers, elapids, colubrids, file snakes and rattle snakes) and Scolecophidia (the blind snakes). All snakes are carnivorous. Most are oviparous, although some are ovoviviparous.

Amphisbaenia has five families found in the northern hemisphere, Africa and South America. They are largely legless squamates with rudimentary eyes capable of only detecting light (two species have rudimentary forelimbs). Their skin is loosely attached to the body, and appears to be their means of locomotion; the skin moves and 'drags' the body behind it. They are carnivorous, with strong jaws and interlocking teeth. Most species lay eggs, although some are known to be ovoviviparous.

Testudines

Testudines, sometimes known as Chelonia, are the turtles, tortoises and terrapins. They are characterized by a bony or cartilaginous

Table 1.1 Reptile orders.

Order and sub-order	Common name	Species (n)
Squamata	Squamates	9,671
Lacertilia	Lizards	5,987
Serpentes	Snakes	3,496
Amphisbaenia	Worm lizards	188
Testudines	Turtles, tortoises and terrapins	341
Crocodylia	Crocodiles, gharials, caimans and alligators	25
Rhynchocephalia	Tuatara	1

shell developed from their ribs. There is some confusion in the terminology. In North America, ‘turtle’ is used to describe the whole order, while in Europe and Australia it refers to freshwater and sea-dwelling chelonians, with ‘tortoise’ used to describe terrestrial, non-swimming species. ‘Terrapin’ is a term used to describe several small species of turtle living in fresh or brackish water. Terrapins do not form a taxonomic unit and are not closely related. There are two suborders of Testudines: the Pleurodirans (three families), also called the side-necked or long-necked turtles, have long necks that are folded sideways to align them with the shell; the Cryptodirans (eleven families), or short-neck turtles and tortoises, pull their neck straight back to conceal their head within the shell. Sea turtles are Cryptodirans, although they have lost the ability to retract their heads.

Crocodylia

Crocodylia, an order of large, predatory, semi-aquatic reptiles, is divided into three families: Crocodylidae (the true crocodiles), Alligatoridae (the alligators and caimans) and Gavialidae (the gharial and false gharial).

Rhynchocephalia

Rhynchocephalia is a primitive order of lizard-like reptiles that includes only one living species, the *Tuatara* (*Sphenodon punctatus*) of

New Zealand. There is debate as to whether *S. guntheri* is a separate species. They are slow-growing, reaching sexual maturity at 10–20 years, and breed until they are at least 60 years old. It takes the female between one to three years to develop eggs and up to seven months to form the shell. It then takes between 12 and 15 months from copulation to hatching. Thus, reproduction occurs at two- to five-yearly intervals, the longest of any reptile.

Tuatara lack external ears and possess a parietal eye (a light-sensitive spot located on the top of the animal’s head, thought to play a role in setting circadian rhythms). They are capable of autotomy and have only rudimentary hemipenes. *Tuatara* have unique dentition, namely two rows of acrodont teeth in the maxilla and one row in the mandible.

Commonly Kept Species

Key

The following abbreviations are used in this section:

d, days

G, gestation

I, incubation

m, months

O, oviparous

OV, ovoviviparous

PBT, preferred body temperature

y, years

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Figure 1.1 Bearded dragons (courtesy of Bob Doneley).



Figure 1.2 Blue-tongued skinks (courtesy of Bob Doneley).



Table 1.2 Lizards.

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Bearded dragon (Figure 1.1)	Australia	Most common: inland or central (<i>Pogona vitticeps</i>) eastern (<i>P. barbata</i>) blacksoil (<i>P. henrylawsoni</i>) dwarf (<i>P. minor</i>) Others include: western (<i>P. minima</i>) northwest (<i>P. mitchelli</i>) Nullarbor (<i>P. nullarbor</i>) Kimberley (<i>P. microleptoda</i>)	Terrestrial	Omnivorous, although the juveniles are initially insectivorous but will eat vegetables and flowers as they grow	9–24 m ^a	O	(I) 61–74 d at 30–31 °C (<i>P. vitticeps</i>)	28–40	35	25–40	10–15
Blue-tongued skink (Figure 1.2)	Australia	eastern (<i>Tiliqua scincoides</i>) pygmy (<i>T. adelaidensis</i>) centralian (<i>T. multifasciata</i>) blotched (<i>T. nigrolutea</i>) western (<i>T. occipitalis</i>)	Terrestrial	Omnivorous	18–36 m ^b	OV	(G) 3–5 m	28–32 (higher for inland species)	25–35	25–40	10–15
Shingleback	Australia	Also known as bobtail lizard (<i>T. rugosa</i>)	Terrestrial	Omnivorous	18–36 m ^c	OV	(I) 4–5 m	36–40	25–45	25–40	10–15
Friilled lizard	Australia	<i>Chilaryndosaurus kingii</i>	Primarily arboreal	Primarily insectivorous but will accept some vegetables	12–18 m (male) to 2–3 y (female)	O	(I) 60–90 d	32–37	28–38	50–70	10–15

^a Depending on species (small species mature younger than larger species).

^b Male matures earlier than female.

^c This species forms close pair bonding and should be paired before sexual maturity.

Table 1.3 Geckos.

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Leopard gecko	Pakistan, northern India and Asian desert regions	<i>Eublepharis macularius</i>	Terrestrial	Insectivorous	1 y	O	(I) 45–60 d	21–32	26	20–40	6–10 (large males can live up to 20)
Tokay gecko	North-east India, Nepal, Indonesia and the Philippines	Two species: <i>Gekko gekko</i> and <i>G. g. azhari</i>	Arboreal	Insectivorous	1–2 y	O	(I) 60–100 d	27–28	25–31	55–80	10–20
Knob-tailed gecko	Australia	9 species; most commonly kept: three-lined (<i>Nephrolepis levis</i>) central rough (<i>N. amyae</i>)	Terrestrial	Insectivorous	7–12 m	O	(I) 57–70 d 77–94 d (<i>N. amyae</i>)	20–30	26	Keep one end of the enclosure moist	7–8 (<i>N. levis</i>); 9–11 (<i>N. amyae</i>)
Crested gecko	New Caledonia	<i>Correlophus ciliatus</i> , also known as the New Caledonian crested gecko, Guichenot's giant gecko or eyelash gecko	Arboreal	Insectivorous	6–9 m (male) 12 m (female)	O	(I) 60–90 d ^a	21–29	Heat intolerant	50–70	15–20

^a At room temperature; up to 120 days at cooler temperatures.

Table 1.4 Chameleons.

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Veiled chameleon (Figure 1.3)	Saudi Arabia and Yemen	<i>(Chamaeleo calyptratus)</i> , also known as the Yemen chameleon	Arboreal	Insectivorous but will take some vegetables and fruit	1 y	O	120–270 d	24–35 by day	–	50–60	4–8
Panther chameleon	Madagascar	<i>Furcifer pardalis</i>	Arboreal	Insectivorous	7 m	O	240 d	24–35	–	50–70	5–7
Green iguana (Figure 1.4)	Mexico, Central America and the Caribbean	<i>Iguana iguana</i>	Arboreal	Herbivorous	18 m	O	70–105 d	26–35	35	65–75	15–20
Chinese water dragon	China and Indochina	<i>Physignathus cocincinus</i> , also known as Thai water dragon, green water dragon, and Asian water dragon	Arboreal	Insectivorous, although they will eat some vegetables	1–2 y	O	55–65 d	29–33	–	40–80	15–25
Varanids	Australia, Africa, Asia and Indonesia	Currently 78 species recognized ^a	Most terrestrial but some semi-arboreal and some semi-aquatic	Carnivorous	3–5 y	O	170–265 d	30–40	35–36	60–80	10–20

^a Some of the more common species include: Lace monitor (*Varanus varius*), Australia; Gould's monitor (also known as the sand monitor), Australia; Merton's water monitor (*V. mertensi*), Australia; Savannah monitor (*V. exanthematicus*, also known as Bosc's monitor), Africa; Nile monitor (*V. niloticus*), Africa; Black-throated monitor (*V. albigularis ionidesi*), Africa.

Table 1.5 Snakes.

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Carpet pythons	Australia	3 species, with 4 subspecies ^{ab}	Semi-arboreal	Carnivorous	18–24 m (male); 24–36 m (female)	O	55–65 d when incubated at 31°C	20–32	29–30	40–80 ^c	15–30
Green python (Figure 1.6)	Australia and Papua New Guinea	Also known as chondropython or green tree python (<i>M. viridis</i>)	Arboreal	Carnivorous	After 2.4 y (male); After 3.6 y (female)	O	50 d when incubated at 31°C	20–32	30–32	40–70 ^d	15–20
<i>Antaresia</i> spp.	Australia	Spotted python (<i>Antaresia maculosa</i>); Children's python (<i>A. childreui</i>), pygmy python (<i>A. perthensis</i>); Stimson python (<i>A. stimsoni</i>) – 2 subspecies; western (<i>A. s. stimsoni</i>) and eastern (<i>A. s. orientalis</i>)	Terrestrial	Carnivorous	2–3 y	O	55–60 d at 31°C	26–32	29–32	50–70	15–30
<i>Aspidites</i> spp.	Australia	Black-headed python (<i>Aspidites melanocephalus</i>) and the Woma python (<i>A. ramsayi</i>)	Terrestrial	Carnivorous	18–24 m	O	50–60 d at 31°C	28–36	28–32	40–50	15–25
Boa constrictor	Mexico, South America and the Caribbean	<i>Boa constrictor constrictor</i> , also known as the red-tailed boa	Semi-arboreal	Carnivorous	3–4 y	OV	100–120 d	27–33	–	50–70	20–30

(Continued)

Table 1.5 (Continued)

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Rainbow boa	South America	<i>Epicrateres cenchreria</i> , also known as the slender boa	Terrestrial	Carnivorous	2.5–4 y	OV	150 d	21–30	–	70–90	15–20
Ball python	Africa	<i>Python regius</i> , also known as the royal python	Terrestrial	Carnivorous	11–18 m (male), 20–36 m (female)	O	50–60 d	27–32	50–60	–	20–35
Corn snake	North America	<i>Pantherophis guttatus</i>	Terrestrial or semi-arboreal	Carnivorous	2 y	O	70 d	24–30	–	50–60	20–25

^a Centralian carpet python (*Morelia bredli*); South western carpet python (*M. ariegata*); Diamond python (*M. spilota spilota*); Jungle carpet python (*M. s. cheynei*; Figure 1.5); Coastal carpet python (*M. s. mcdowelli*); Murray/Darling carpet python (*M. s. metcalfei*); Darwin carpet python (*M. s. ariegata*).

^b In addition to these, there are four other *Morelia* species: the scrub python (*M. amethystina*), the rough-scaled python (*M. carinata*), the green python (*M. viridis*, see below) and the Oenpelli python (*M. oenpelliensis*).

^c Varies with species but in this range.

^d Avoid constant high humidity.

Table 1.6 Turtles.

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Eastern long-necked turtle	Australia	<i>Chelodina longicollis</i> , also known as the snake-necked turtle	Semi-aquatic	Carnivorous	7–8 y (male); 10–12 y (female)	O	90–150 d	Water 24–26 Air 22–26	–	–	30–40 (possibly longer)
Broad shelled turtle	Australia	<i>C. expansa</i>	Semi-aquatic	Carnivorous	9–11 y (male), 14–15 y (female)	O	In response to low temperatures, embryos enter a diapause, which enables them to survive over winter in nests, resulting in a year-long incubation period	Water 22–26	–	–	30–40 (or longer)
Short-necked turtles (<i>Emydura</i> spp; Figure 1.8)	Australia	The genus <i>Emydura</i> is still taxonomically controversial ^{a,b}	Semi-aquatic	Initially carnivorous but become omnivorous as they get older	5–6 y (male), 10–12 y (female) ^c	O	45–60 d	25–28	–	–	15–20
Saw-shelled turtle	Australia	<i>Myuchelys latisternum</i>	Semi-aquatic	Predominantly carnivorous but will take some vegetables	10 y (male), 20 y (female)	O	60 d at 30°C	Water 24–28	–	–	Over 40
Mary river turtle	Australia	<i>Elusor macrurus</i>	Semi-aquatic	Omnivorous	25 y (male), 30 y (female)	O	47–64 d at 28–29°C	Water 24–28	–	–	75–100

(Continued)

Table 1.6 (Continued)

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Pig-nosed turtle	Northern Australia and southern New Guinea	<i>Carettochelys insculpta</i> , also known as the pitted-shelled turtle or Fly river turtle	Semi-aquatic, verging on completely aquatic	Omnivorous	16 y (male), 18 y (female)	O	86–102 d	Water 26–30 Air 26–28	–	–	35–40
Red-eared slider	Southern United States and northern Mexico ^d	<i>Trachemys scripta elegans</i> or red-eared terrapin	Semi-aquatic, freshwater	Carnivorous as juveniles, becoming omnivorous as they get older	3–5 y	O	59–112 d, depending on temperature	Water 24–30 Air 24–32	–	–	30–50
Musk turtle	South-east Canada and eastern United States	<i>Sternotherus odoratus</i>	Semi-aquatic	Predominantly carnivorous but adults will eat some vegetable material	4 y (male), 10 y (female)	O	65–86 d	Water 20–23 Air 23–30	–	–	50
Painted turtle	Southern Canada, the United States and northern Mexico	<i>Chrysemys picta</i> with 4 subspecies: eastern (<i>C. p. picta</i>), western (<i>C. p. bellii</i>), southern (<i>C. p. dorsalis</i>), Midland (<i>C. p. marginata</i>)	Semi-aquatic	Omnivorous	2–4 y (male); 6–10 y (female)	O	72–80 d	Water 24–27 Air 27–32	17–23	–	25–30

^a Accepted species are currently: Macquarie turtle (*E. macquarii*); Murray river turtle (*E. m. macquarii*); Krefft's turtle (*E. m. kreffti*); – Fraser island short-neck turtle (*E. m. nigra*); Cooper creek turtle (*E. m. emmotti*); Red-bellied short-necked turtle or Jardine river turtle (*E. subglobosa*); Red-bellied short-necked turtle (*E. s. subglobosa*); Worrell's short-necked turtle (*E. s. worrelli*); Northern yellow-faced turtle (*E. tanybaraga*); Victoria river red-faced turtle (*E. victoriana*).

^b As well as the genus *Emydira*, other short-neck turtles include the Mary River turtle (*Elusor macrurus*) and the saw shell turtle (*Myuchelys latisternum*); see individual entries.

^c Some species may have delayed onset of sexual maturity.

^d This is an invasive species and has become established in the wild elsewhere in the world.

Table 1.7 Tortoises.

Reptile	Origin	Species	Habitat	Diet	Sexual maturity	Mode of reprod.	Incubation or Gestation	Thermal gradient (°C)	PBT (°C)	Relative humidity (%)	Longevity (years)
Mediterranean tortoises	North Africa, western Asia and Europe	Currently 5 species accepted. Likely that some will be reclassified based on DNA differences ^a	Terrestrial	Herbivorous	9–12 y	O	55–100 d, depending on species	21–32	–	30–50	30–100
Sulcata	Northern Africa and southern edge of the Sahara desert	<i>Centrochelys sulcata</i> , also known as the African spurred tortoise	Terrestrial; burrows into the ground to escape the heat	Herbivorous	5–8 y	O	90–120 d	29–40	–	Low	50–150
Leopard tortoise	Eastern and Southern Africa, from Sudan to the southern Cape	<i>Stigmochelys pardalis</i>	Terrestrial	Herbivorous	6–15 y	O	150–400 d at 28–32 °C, often following a cooling period of 30 d at 18–24 °C	24–38	–	Low	80–100
Box turtle	United States and Mexico	Genus <i>Terrapene</i> are terrestrial members of the American pond turtle family (Emydidae). Currently, 4 species are classified within the genus and 12 taxa are distinguished ^b	Terrestrial	Omnivorous	7–10 y	O	56–75 d at 29 °C	24–32	–	60–80	50–100
Star tortoise (Figure 1.10)	India and Sri Lanka	<i>Geochelone elegans</i> , also known as the Indian star tortoise	Terrestrial	Herbivorous	6–8 y (male), 10–12 y (female)	O	90–170 d	24–32	–	<40	30–80
Red-footed tortoise	Northern South America	<i>Chelonoidis carbonaria</i> , also classified as <i>Geochelone carbonaria</i>	Terrestrial	Omnivorous	6–8 y (male), 8–12 y (female)	O	105–202 d	21–30	–	50–70	20–30

^a Russian tortoise (*Testudo horsfieldii*), also known as Horsfield's tortoise; Hermann's tortoise (*T. hermanni*); Spur-thighed or Greek tortoise (*T. graeca*; Figure 1.9); Kleinmann's tortoise (*T. kleinmanni*), also known as the Egyptian tortoise; Marginated tortoise (*T. marginata*).

^b Common box turtle (*T. carolina*); Florida box turtle (*T. c. bauri*); Eastern box turtle (*T. c. carolina*); Gulf coast box turtle (*T. c. major*); Mexican box turtle (*T. c. mexicana*); Three-toed box turtle (*T. c. triunguis*); Yucatan box turtle (*T. c. yucatanica*); Coahuilan box turtle (*T. coahuilana*); Spotted box turtle (*T. nelsoni*); Northern spotted box turtle (*T. n. klauberi*); Southern spotted box turtle (*T. n. nelsoni*); Ornate box turtle (*T. ornata*), also known as the Western box turtle; Desert box turtle (*T. o. luteola*).



Figure 1.3 Veiled chameleon (courtesy of Brendan Carmel).



Figure 1.4 Green iguana (courtesy of Bob Doneley).



Figure 1.5 Jungle carpet python (*Morelia spilota cheynei*; courtesy of Bob Doneley).

Figure 1.6 Green python (courtesy of Bob Doneley).



Figure 1.7 Corn snake (courtesy of Robert Johnson).



Figure 1.8 Short-necked turtle (*Emydura* spp; courtesy of Bob Doneley).





Figure 1.9 Spur-thighed or Greek tortoise (*Testudo graeca*; courtesy of John Chitty).



Figure 1.10 Star tortoise (courtesy of Bob Doneley).