

= Varanus salvadorii =

Varanus salvadorii is a monitor lizard found in New Guinea . It is also known by the common names crocodile monitor , Papua (n) monitor , Salvadori 's monitor and artellia . The largest monitor lizard in New Guinea , it is believed to be one of the longest lizards in the world , verified at up to 244 cm (8 ft) , and in rare cases it may rival or exceed the length of the world 's largest lizard , the Komodo dragon . It is the sole member of the subgenus *Papusauros* . *V. salvadorii* is an arboreal lizard with a dark green body and yellowish bands , a blunt snout and a very long tail . It lives in mangrove swamps and coastal rainforests in the southeastern part of the island , where it feeds on birds , small mammals , eggs , and carrion in the wild , using teeth better adapted than those of most monitors for seizing fast @-@ moving prey . Like all monitors , it has anatomical features that enable it to breathe more easily when running than other lizards can , and *V. salvadorii* may have greater stamina than most monitors . Little is known of its reproduction and development , as the species is very difficult to breed in captivity .

V. salvadorii is threatened by deforestation and poaching , and is protected by the CITES agreement . The lizard is hunted and skinned alive by tribesmen to make drums , who describe the monitor as an evil spirit that " climbs trees , walks upright , breathes fire , and kills men " ; yet the tribesmen maintain that the monitor gives warnings if there are crocodiles nearby .

= = Taxonomy and etymology = =

V. salvadorii was first described as *Monitor salvadorii* by Wilhelm Peters and Giacomo Doria in 1878 from a female specimen with a snout @-@ to @-@ vent length of 48 cm (19 in) long and a tail measuring 114 cm (45 in) in length .

The generic name *Varanus* is derived from the Arabic *waral* (???) , meaning " lizard " . The term " monitor " is thought to have come about from confusion between *waral* and the German *warnen* , meaning " warning " . The term " goanna " came about as a corruption of the name " iguana " . The specific name is derived from a Latinization of Tommaso Salvadori , an Italian ornithologist who worked in New Guinea . Later , in 1885 , it was renamed *Varanus salvadorii* by George Albert Boulenger . The Papua monitor is occasionally confused for the Asian water monitor (*V. salvator*) because of their similar scientific names .

= = = Evolutionary development = = =

The evolutionary development of *V. salvadorii* started with the genus *Varanus* , which originated in Asia about 40 million years ago and migrated to Australia . Around 15 million years ago , a collision between Australia and Southeast Asia allowed the varanids to move into what is now the Indonesian archipelago .

V. salvadorii has been placed cladistically as part of a species cluster with the lace monitor (*V. varius*) and the Komodo dragon (*V. komodoensis*) . This study was based upon mitochondrial DNA and microcomplement fixation analysis . A theory has been put forth that the species diverged from a common ancestor , as the Torres Strait separating New Guinea from Australia is less than 90 km (56 mi) long , a distance that could have been covered fairly easily with island hopping . However , the similarities between *V. salvadorii* and *V. varius* may simply be an example of convergent evolution . Another clade postulated by Eric Pianka places *V. salvadorii* in a larger " Australian " clade of large monitors , along with other species as the Komodo dragon , the lace monitor , the perentie (*V. giganteus*) , the Argus monitor (*V. panoptes*) , and the sand goanna (*V. gouldii*) .

= = Distribution = =

The largest of the seven species of monitors found on the island of New Guinea , *V. salvadorii* occurs in both the state Papua New Guinea and the Indonesian region of West Papua . It inhabits

the high and low canopies of the lowland rainforests and coastal mangrove swamps , sometimes venturing out of these areas during floods in the rainy seasons . No detailed field investigation data are available for *V. salvadorii* , so the full extent of its range is unknown . Its remote and generally inaccessible habitat is the main factor in preventing detailed study of this animal in its natural habitat .

= = Biology and morphology = =

The most characteristic feature of this monitor is its blunt , bulbous snout , which makes this species look different from every other monitor on New Guinea , and lends to its common name of tree crocodile . The body of the lizard is dark green with rings of yellow spots . The tail is banded yellow and black and is extremely long , being more than twice as long as the snout @-@ to @-@ vent length . It has long , straight teeth and prominent , curved claws . There is no external sexual dimorphism .

Unique among living varanid species , the animal 's tail is two @-@ thirds longer than the snout @-@ to @-@ vent length in both juveniles and adults . Herpetologist Robert Sprackland gives the proportion as the tail being 210 % of the animal 's body length . At hatching , *V. salvadorii* is about 45 cm (18 in) long , while a sexually mature female may grow to 150 cm (4 @. @ 9 ft) . This is possibly the longest living species of lizards , although it is considerably less massive and heavy than the Komodo dragon . Specimens are known to reach at least 244 cm (8 @. @ 01 ft) in length. but it may grow longer . A specimen reportedly measuring 323 cm (10 @. @ 60 ft) was caught in Konedobu by Dr. F. Barker . Several reported specimens have been claimed to exceed 350 cm (11 @. @ 5 ft) , some even to 610 cm (20 @. @ 0 ft) , but most of these were second @-@ hand reports and no museum specimens in this size range are known . Weight in the species has been reported to be up to 90 kg (200 lb) , but this is an unverified and possibly dubious report , this species is much more slender even in large specimens than comparable length Komodo dragons . The average size of this species is under 200 cm (6 @. @ 6 ft) and average body mass is reportedly about 20 kg (44 lb) . However 10 adult specimens were found to weigh only 5 to 6 @. @ 38 kg (11 @. @ 0 to 14 @. @ 1 lb) at a length of 1 @. @ 16 to 2 @. @ 25 m (3 @. @ 8 to 7 @. @ 4 ft) so even the aforementioned weigh is fairly optimistic for this species . The average size of *V. salvadorii* caught in one study were 99 @. @ 2 cm (39 @. @ 1 in) with a weight of 2 @. @ 02 kg (4 @. @ 5 lb) but presumably consisted of largely or entirely young specimens .

Varanus salvadorii has mammal @-@ like aerobic abilities ; this is accomplished by means of a positive pressure gular pump in the animal 's throat to assist lung ventilation . The majority of lizards cannot run and breathe at the same time due to Carrier 's constraint , but monitor lizards are exceptions to this rule . The development of this ventilatory pump is analogous to the evolution of the diaphragm in mammals , which ventilates the lung independently of locomotion ; scientists place *V. salvadorii* as the species with the highest endurance in this regard . This would suggest the lizard is at an evolutionary midpoint , relying on both forms of breathing .

= = Behavior = =

As an arboreal lizard , it can hang onto branches with its rear legs and occasionally use its tail as a prehensile grip . The primary use of the tail , however , is to counterbalance its weight when leaping from one branch to another . The tail may also be used for defense , as captive specimens have attempted to whip their keepers with their tails . This species is occasionally seen in the pet trade , but has earned a reputation of being aggressive and unpredictable . Although they are known to rest and bask in trees , they sleep on the ground or submerged in water .

These monitors will rise up on their hind legs to check their surroundings , a behavior that has also been documented in Gould 's monitors (*V. gouldii*) . They are known to exhibit a warning posture , in which they carry their tails rolled up behind them . According to native belief , they will give a warning call if they see crocodiles . In general *V. salvadorii* avoids human contact , but its bite is capable of causing infection , like the Komodo dragon 's . One fatality was reported from a bite in

1983 when a Papuan woman was bitten and later died from an infection .

= = = Diet = = =

The teeth of *V. salvadorii* do not resemble those of other monitor species , which are typically blunt , peglike , and face slightly rearward . Their upper teeth are long and fang @-@ like , standing vertical from the jawbone , designed to hook into fast @-@ moving or feathered prey such as birds , bats , and rodents . Their lower teeth are housed in a fleshy sheath . In the wild , *V. salvadorii* is the top predator in New Guinea , feeding on birds , eggs , small mammals , and carrion . Natives have reported it may take down pigs , deer , and hunting dogs , and hauls its prey into the canopy to consume it . Its only competition is the New Guinea singing dog , a type of dingo . Captive specimens have been known to eat fish , frogs , rodents , chickens , and dog food .

This species has been observed hunting prey in a unique fashion for monitor lizards . Rather than following its prey to ambush it from behind , *V. salvadorii* will stalk its prey and anticipate where it will run , meeting it headlong .

= = = Reproduction = = =

Reproduction has only been observed in captivity , so nothing is known about its reproduction in the wild . The egg clutches , comprising four to 12 eggs , are deposited around October to January , with the eggs showing a remarkable difference in dimensions , a phenomenon for which no explanation is known . Dimensions may vary from 7 @.@ 5 cm × 3 @.@ 4 cm to 10 cm × 4 @.@ 5 cm (3 @.@ 0 in × 1 @.@ 3 in to 3 @.@ 9 in × 1 @.@ 8 in) , while weight may vary from 43 @.@ 3 to 60 @.@ 8 g (1 @.@ 53 to 2 @.@ 14 oz) . Most clutches laid in captivity have been infertile , and only four successful breedings have been documented thus far . Hatchlings are about 18 inches (46 cm) long and weigh around 56 g (2 @.@ 0 oz) . Like those of many other monitors , the hatchlings of *V. salvadorii* are more colorful than adults , and feed primarily on insects and small reptiles .

= = Conservation status = =

Varanus salvadorii is currently protected under the CITES Appendix II , which requires an exportation permit for international trade . It is not listed on the IUCN Red List or the Endangered Species Act . It faces threats from deforestation and poaching , as it is hunted and skinned alive by native peoples to make drums , who consider the monitor an evil spirit that " climbs trees , walks upright , breathes fire , and kills men " . In 2008 , a total of 52 individuals were maintained at 17 zoological parks in the United States , with an unknown number in private collections .