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MONITOR LIZARDS

Cuming's water monitor

Varanus cumingi

Varanus cumingi is a large, yellow and black water monitor from Mindanao and the nearest islands in the southern Philippines, formerly regarded as a subspecies of *Varanus salvator*. Much of its care is borrowed from related water monitors.

Family: Varanidae Former name: *Varanus salvator cumingi*

KEY FACTS

THE ANIMAL

Adult size	**100-150 cm** total length incl. tail
Lifespan	**15-20 years**
Active	**By day**
Lifestyle	**Arboreal, terrestrial and semi-aquatic**
Habitat	**Rainforest and wetland**
Difficulty	**Expert**

CARE

Min. enclosure	**300 × 150 × 150 cm** L × W × H for 1 adult
Temperature, day	**27-32 °C**
Basking spot	**52-60 °C**
Temperature, night	**21-24 °C**
Humidity	**60-70%**
Water	**Water section** depth 35-50 cm
UVB	**Essential** Ferguson zone 3
Diet	**Insects, vertebrates and worms/snails**
Kept	**Singly**

BREEDING

Reproduction	**Egg-laying**
Sexually mature	**24 months**
Clutch size	**5-10 eggs**
Clutches per year	**1-3**
Incubation	**187-220 days** at 27-31.5 °C

PROTECTION AND PAPERWORK

CITES	**Appendix II**
EU annex	**Annex B**
IUCN	**Least Concern (LC)**

About the species

Varanus cumingi is a large, powerfully built monitor in the *Varanus salvator* complex. It has more yellow than any of the other water monitors in the Philippines: an intense yellow pattern on head and body over a black ground colour. It also has enlarged scales around the parietal eye on top of the head, one of the features that separate the species from its closest relatives. Older animals can be darker than young ones.

The species was described in 1839 and was later regarded for many years as a subspecies of *V. salvator*. Since 2007 it has again been regarded as a separate species. The populations on Samar, Leyte and Bohol were described in 2010 as the subspecies *V. c. samarensis* and have since been raised to species level as *Varanus samarensis*. Several of the species in the group are genetically very young, and it has been suggested that they should rather be regarded as subspecies of *V. salvator*, so the name may change again.

The largest animals reach about 150 cm in total length with a snout-vent length of about 60 cm and weigh about 2.5 kg. The figures are uncertain, and related water monitors grow far larger. Newly hatched juveniles measure 28-32 cm in total length and weigh 26-42 g.

Have the species carefully identified when buying, because the yellow water monitors from the Philippines are easily confused with each other and with other species in the *V. salvator* group. Treat it as a large, diurnal and powerful monitor for experienced keepers. An adult requires a terrarium the size of a small room, a large water basin that must be changed often, and whole prey animals every week for many years. Lifespan is not known; 15-20 years is an estimate based on related water monitors.

The care described below is largely based on close relatives in the *V. salvator* group.

Distribution and habitat

Varanus cumingi is endemic to the Philippines. It lives on Mindanao, where the type locality lies, and on a few nearby islands, including Camiguin Sur. The populations on Samar, Leyte and Bohol, which were formerly included, now belong to *Varanus samarensis*.

The exact distribution is poorly known, because the species was only recently separated from *Varanus salvator*. Records outside the Philippines on the map do not belong to the natural range.

> **Native range:** Philippines.

HABITAT

The species is tied to water and lives in mangrove, humid forest and along banks, but it is also common in man-made habitats such as fish ponds and farmland. Related water monitors use the water both for hunting and for escaping.

The climate on Mindanao is tropical, warm and humid all year. Temperature and humidity in the species' habitats are not known, so the figures for the terrarium are borrowed from related water monitors from similar tropical regions. The diet is varied: many kinds of animals and carrion.

Read more: Humidity, misting and ventilation

Care

THE ENCLOSURE

An adult *Varanus cumingi* of about 150 cm needs a home-built terrarium or a whole room of at least 300 × 150 × 150 cm (length × width × height), and larger is better. The size is an estimate based on the rule of thumb for monitors: at least 5 × 2 × 2 times the snout-vent length (here about 60 cm), and extra height for climbing species. On top of the floor area comes a water section that the animal can get completely into. The enclosure should be large and varied, with several light and heat sources and a large water basin that keeps humidity up.

Juveniles can start in a terrarium of about 120 × 60 × 60 cm, but they grow quickly: from about 30 cm at hatching to 85-100 cm in a year. Expect to rebuild several times in the first year, and plan from the start for adult size.

Set up with a large, solid water basin that the animal can lie submerged in (see the section on water). For the land section use deep substrate to dig in, e.g. a moist mix of soil and coconut fibre or bark chips, and many hiding places and branches that can bear the animal's weight. Water monitors like to climb, so there must be stable climbing opportunities and several levels. Live plants rarely survive.

Doors must be sturdy and secured, so that the animal cannot lift or push them open. All heat sources must be shielded, because monitors easily burn themselves on lamps they can reach.

TEMPERATURE

Varanus cumingi needs a background temperature of 27-32 °C by day. The basking spot should have a surface temperature of 52-60 °C, measured with an IR thermometer on the basking spot itself, not in the air. At night the temperature may fall to 21-24 °C. There must be a large temperature gradient, so the animal can choose between warm and cool.

Use several different light and heat sources in the enclosure, so the animal can choose between several basking spots. For a large animal the basking spot must be so wide that the whole body becomes warm at once, e.g. with several spotlights side by side. Otherwise the animal can burn itself at the place nearest the lamp. A monitor that basks for a while, goes exploring and returns is doing well. If it lies under the lamp almost all the time, it is too cold; if it never basks, it is too hot. Control all heating with a thermostat.

Read more: Heat and temperature

HUMIDITY AND WATER

Humidity should be 60-70 %. A large water pool in itself keeps the humidity up, and a damp, deep substrate gives the animal somewhere to retreat.

Ventilation must be good, so the air does not become stagnant, and the floor must be able to dry out partly. Constantly wet conditions and stagnant, humid air cause skin infections and fungus.

WATER AND WATER QUALITY

The species is tied to water, so a large water section is not optional. It must be large enough for the whole animal to lie submerged and swim, and the depth should be 35-50 cm for an adult. The water section must have a solid edge or ramp, so that the animal can easily get out again.

Monitors often empty their bowels in the water, so it must be changed daily, unless there is a powerful filter. Make sure the filter intake is not so strong that the animal can be sucked against it and drown. The water must not be cold, but should have roughly the same temperature as the terrarium background.

LIGHTING AND UVB

The species is diurnal and basks, so strong light and UVB are necessary. Treat it as a species for Ferguson zone 3, like other diurnal monitors that bask a lot. Use powerful UVB lamps or mercury vapour lamps suited to a large, open installation, with no glass between lamp and animal, and place them so that the animal gets a suitable UV index at the basking spot. The exact requirement is not known.

Keep the light on for about 12 hours a day, preferably controlled by a timer. The lamps must be replaced according to the manufacturer's instructions, because UVB output declines long before the lamp stops shining.

Read more: Lighting and UVB

FEEDING

In the wild *Varanus cumingi* eats many kinds of animals and carrion.

Young live mostly on insects such as crickets, grasshoppers and cockroaches, preferably supplemented with small fish. They are fed every day or every other day in the first year. Gradually you switch to whole prey of suitable size: fish, chicks, eggs, large insects and rodents. Adults over two years are fed two to three times a week, adjusted to the animal's weight and condition.

Water monitors rarely say no to food and easily become too fat. Rodents as the only food cause obesity and fatty organs, so they should be only part of a varied diet. Feeder insects must be dusted with calcium and D3, while whole prey already contain most of what the animal needs.

Read more: Feeder animals: keeping and breeding Read more: Calcium, vitamins and supplements

BEHAVIOUR AND HANDLING

Varanus cumingi is large and powerful, and even a medium-sized monitor has sharp teeth, strong claws and a powerful tail that it can whip with. A bite can cause deep wounds, and the claws can tear the skin open. Large water monitors can cause serious injuries if they become frightened or stressed.

Juveniles are often nervous and quick to defend themselves. Taming takes time and short, calm and predictable moments. Approach from below and not from above, because a hand from above is perceived as a predator. It often helps to begin in shallow water, where water monitors feel more secure. Never use handling as punishment, and do not disturb the animal during feeding.

Monitors carry salmonella, so wash your hands thoroughly after all contact with animals, water and equipment. Keep the animal away from the kitchen and from small children. The species is best kept singly. Keep the males separate from the females outside mating, so that the females are not stressed.

Read more: Quarantine and hygiene

Breeding

SEXUAL MATURITY AND SEXING

The sex is hard to see in monitors, *Varanus cumingi* included. In *Varanus salvator* adult males are larger than the females with a heavier and broader snout, but reliable sexing requires ultrasound, X-ray or endoscopy by a vet with reptile experience. Even a whole group can turn out to consist only of males, so the sex should be established before you plan a pair. Females reach sexual maturity at a snout-vent length of about 50 cm and males at about 40 cm, at an age of about two years.

MATING

Varanus cumingi has been bred in captivity several times since the 1990s. Mating can take place both in mid-October and in April, and no cool period or other seasonal control is known. The animals must be put together under close supervision, because the male can be rough with the female, and there must always be a way to separate them quickly.

EGG-LAYING AND CLUTCHES

Varanus cumingi is oviparous. A clutch numbers 5-10 eggs depending on the female's size, and a female can lay up to three clutches a year. A laying box is necessary: the female must have a deep place with moist substrate to dig in. Related water monitors dig a hole and cover the eggs, often after several trial holes, and the same female can use the same spot time after time. Without a suitable egg-laying site the female can retain the eggs, and this is life-threatening.

INCUBATION

The eggs are taken out and placed in damp substrate, e.g. perlite or vermiculite, in an incubator. At 29-31.5 °C the eggs hatch after 187-192 days, and at lower temperatures, down to 27 °C, after up to 220 days. Move the eggs as little as possible, and do not turn them.

Read more: Incubating eggs

REARING THE YOUNG

Newly hatched juveniles measure 12-14 cm in snout-vent length and 28-32 cm in total length and weigh 26-42 g. Keep the juveniles singly in a terrarium with a moist substrate, hiding places and a water dish, and offer small insects from the first days. The juveniles grow very quickly: after 100 days they are about 38 cm long (16 cm from snout to vent), and after a year 85-100 cm. From the start make sure the juveniles get a home that can be used when they are adults.

Health and common mistakes

The common problems in water monitors in captivity also apply to *Varanus cumingi*:

- Parasites and stress in newly purchased animals. Wild-caught animals can be weakened, dehydrated and have intestinal worms. Keep them in quarantine for at least six weeks, and have a faecal sample examined by a vet with reptile experience.
- Metabolic bone disease from too little UVB and calcium. It shows as soft jaws, bent limbs and tremors.
- Obesity and fatty organs from rodents as the main food and too little exercise.
- Burns from unshielded lamps or basking spots that are too small, and snout injuries from bumping into the glass in terrariums that are too small.
- Skin infections and fungus if the water is dirty or the substrate is constantly wet.
- Salmonella can infect humans, so hygiene is important.

Captive-bred animals are rare in the trade, and most are probably wild-caught. Seek a vet if the animal loses weight, does not eat, is lethargic or has swellings.

Read more: Common diseases and signs of illness Read more: Buying animals: captive-bred, wild-caught and transport

Always ask someone who knows

This guide is a good place to start, but it cannot replace experience. Animals differ, and much of what matters most is learned from people who have kept the species for years. Talk to a breeder, an experienced keeper or a vet who knows reptiles and amphibians before you get the animal - and again if anything looks wrong.