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Varanus salvator (Laurenti, 1768) in Rathgama Lagoon in Galle District, Sri Lanka

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Abstract - *Varanus salvator* is very common in Sri Lanka, and is a frequent scavenger in anthropogenic environments. This short observation provides some ecological and biological data on the *V. salvator* of Rathgama lagoon in Galle District. Several individuals were found trapped in fishing nets with their axillas damaged.

Introduction

The monitor lizard diversity of Sri Lanka is limited to two species, namely *Varanus salvator* and *V. bengalensis*, with neither being endemic to the island (Das and de Silva, 2005; Deraniyagala, 1953). *Varanus salvator* is an enormous species, associated with wetlands such as mangrove swamps, but is also known to occur at elevations up to 1100 m, and is widespread around human-modified areas as well as in evergreen forests (Das and de Silva, 2005).

Materials and Methods

Observations were made on 19th June 2007 on an isolated island in Rathgama lagoon (Fig. 1), located in Rathgama, Galle District in the Southern Province of Sri Lanka. The study area is located at 06°01'N; 80°14'E and approximately 15 km from Galle city. The study site is a monastery and the habitat was quite disturbed by fishermen with minimal other human activities. The main vegetation included mangroves (Fig. 2) and poorly-maintained home gardens. The undergrowth was moderately cleared and there was an abundance of wet leaf litter on the ground. The soil was hard, saline, and sandy. The study was done from 1300 to 1500 hr on 19 June 2007. During this day, the weather was cloudy.

Air temperatures were measured using a digital thermometer and the humidity was taken with a digital hygrometer. A 100 x 100 m area of the island was used a sampling site to determine the abundance and population dynamics of *V. salvator*. Ten observers were used to survey and each person covered 1000 m^2. Some monitors were captured randomly for measurements, and then released. All morphological measurements were taken to the nearest 1 mm using a 1 m measuring tape.

Fig. 1. Rathgama lagoon, Galle District, Sri Lanka.

Scale counts: **SUP**, Supralabials were counted from the first [posterior scale of Rostral, to angle of gape, not including the median scale (when present); **INF**, infralabials were counted from the first posterior scale of mental, to angle of gape. *External measurements (in mm):* **SVL**, snout–vent length (distance between tip of snout and anterior margin of vent); **HW**, head width (maximum width of head); **DHL**, dorsal head length (distance between posterior edge of cephalic bone and tip of snout); **SL**, snout length (distance between anterior-most point of snout and middle of nostril); **NFE**, nostril – anterior eye length (distance between anterior- most point of orbit and middle of nostril); **NBE**, nostril – posterior eye length (distance between posterior-most point of orbit and middle of nostril); **IN**, inter-nasal width (least distance between the upper margins of nostrils); **UAL**, upper-arm length (distance between axilla and angle of elbow); **LAL**, lower-arm length (distance from elbow to wrist with both upper arm and palm flexed); **FL**, finger length (distance between tip of claw and the nearest fork); **FEL**, femur length (distance between groin and knee); **TBL**, tibia length (distance between knee and heel, with both tibia and tarsus flexed); **TL**, toe length (distance between tip of claw and nearest fork); **AG**, axilla–groin length (distance between axilla and groin); **TAL**, tail length (measured from anterior margin of vent to tail tip); **TBW**, width of tail base (greatest width of the tail base); **TD**, Tympanum diameter (least distance between the inner margins of tympanum); **FET**, front eye–tympanum (distance between anterior-most point of orbit and anterior most point of tympanum); **BET**, back eye–tympanum (distance between posterior-most point of orbit and anterior-most point of tympanum); **IOW**, inter orbital width (least distance between the upper margins of orbits).

Results and Discussion

During a two hour period, 27 individuals were recorded within the 10000 m^2 area. Three were captured (Fig. 3) for complete measurements (Table 1); for others, only SVL measurements were taken before they were released. Among the recorded individuals, 19 were adults and 8 were juveniles. According to the average SVL and the abundance of monitors in the area, we can conclude the *V. salvator* population inhabiting Rathgama lagoon is very healthy and stable. The livelihood of the people inhabiting the area around Rathgama lagoon has relied on fishing for ages. We observed many fish as well as body parts of fish dumped into the lagoon as waste; sometimes, fresh fish are also thrown into the lagoon when there is a surplus. For this reason, since *V. salvator* is an opportunistic scavenger, this population is likely increasing. As a result of the surplus of food resources, many individuals are obese. The absence of a predator for adult *V. salvator* may be another other reason for a likely increase in population size. On one occasion, we observed three monitors scavenging on the carcass of another *V. salvator*.

Fig. 2. Mangrove vegetation at study site.

Among the 27 individuals, two were found trapped in fishing nets and were in critical condition, with the posterior end of the jaw (Fig. 4) and the axilla damaged. Unfortunately, we couldn't keep those animals for treatments due to the rules and regulations of the department of Wildlife Conservation of Sri Lanka; and the monitors were released soon after (Fig. 5). In addition, we recorded two individuals that were missing the posterior half of their tails.

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Fig. 3. Adult *Varanus salvator*.

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Fig. 4. Adult *V. salvator* found trapped in a fishing net, with an injury to its jaw.

Fig. 5. *Varanus salvator* after release from fishing net.

Table 1. Morphometric data of randomly selected three adult *V. salvator* in mm.

	Male	Male	Female
SVL	800	720	650
FL I	40	40	36
FL II	60	50	45
FL III	75	60	54
FL IV	90	65	58
FL V	60	55	49
FEL	200	130	117
TBL	150	120	108
TL I	40	40	36
TL II	65	50	43
TL III	85	55	50
TL IV	85	65	55
TL V	55	65	58
AG	350	300	270
TAL	1450	1330	1200
TBW	390	230	207
TD	15	11	9
FET	70	49	44
BET	47	36	32
IOW	23	19	17
SUP	33	30	31
INF	33	30	31

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