Field Observations on *Varanus spinulosus*

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Since its original description by Mertens in 1941, *Varanus spinulosus* has remained one of the most poorly known varanids. It is known only from two museum specimens with precise locality data, the type specimen from San Jorge (Solomon Islands) NMW 23387, and another from Cape Torokina, Bougainville (PNG) USNM 120886. An additional five specimens with imprecise locality data from Isabel Island (SI) were imported to the United States in the early 1990s (Sprackland, 1993) bringing the total number up to seven known specimens. A published photograph credited to a Malaysian animal dealer (Bennett, 1995) and personal communications with reptile dealers in Indonesia (J Gorman, pers. comm.) suggest that there may be more specimens in captivity.

Recent observations on the hemipeneal morphology of *V. spinulosus* have demonstrated that it is not a member of the *V. indicus* complex, as previously thought and its taxonomic standing is not currently understood (Böhme and Ziegler, 2007). The distribution of *V. spinulosus* is also poorly understood. At the time of writing, it has only been formally documented from Bougainville, Isabel and San Jorge. The range map in Eidenmüller and Philippen (2007) which includes the Louisiade Archipelago is an error according to the author (Eidenmüller, pers. comm.) and a photo of a live animal taken at the Charapoana Resort on Charapoana Island (Danielova and Daniel, 2001) is not considered a valid record either (Böhme and Ziegler, 2007). During the Pleistocene, Bougainville, Choiseul, Isabel and Nggela (= Florida Islands) were all connected (Mayr and Diamond, 2001), so the presence of *V. spinulosus* on Choiseul would not be surprising. Their occurrence in Nggela is less likely because these islands are much less remote and have been extensively collected by reptile traders. (A. Fafale, pers. comm.)

Due to the fact that exports of *Corucia zebrata*, once the staple of the SI reptile trade, have been banned, and the worldwide trade in live birds is coming to a close as well, the wildlife trade in the Solomon Islands has waned considerably in recent years and it seems unlikely that animal traders will turn up more specimens of *V. spinulosus* accidentally.

In August of 2008, my wife Monica Perez, and I traveled to San Jorge and Isabel Island to search for and observe *V. spinulosus* in the wild. Due to logistical constraints, we were only able to explore the northwest and northeast coastline and interior of San Jorge Island. No specimens were observed despite extensive searching in different habitats such as mangroves, inland rainforest and cultivated areas. We did see monitor tracks on the northeastern beach of San Jorge along the Ortega Channel opposite Isabel. However, funnel traps which were set baited with fish did not turn up any lizards. When shown photos of both *V. indicus* and *V. spinulosus*, local people on San Jorge identified *V. spinulosus* as the monitor with which they were familiar. They refer to the monitors as “Saba.”

We observed the introduced toad *Rhinella marina*, (formerly *Bufo marinus*) to be very common on San Jorge and feared that *V. spinulosus* populations might have been negatively affected by the toad’s presence. Populations of *V. indicus* have been documented to be in serious decline in other areas where *R. marina* has been introduced such as Guam (Dryden, 1965) and Guadalcanal (McCoy, 2006).

We had much better luck observing *V. spinulosus* on the southwestern coast of Isabel Island where we saw six individuals in two days (ca. 10 field hours total). All of the lizards observed were in a coconut grove...
which, according to the locals, had been planted along the coast after a tsunami in the 1950s (Figure 1). The grove stretched along the beach from the outskirts of Kaevanga to Kapito River (the river delta area known as “Bottom River”), then inland to another village. On the other side of the river the terrain consisted of rainforest with wild betel nut palms and sago palms. The coconut palm plantation was approximately 200 m wide and 4 km long, bordered on the inland side by dense rainforest at sea level for 600 m before the elevation began to gradually increase. A fairly well-traveled (by foot) dirt road bisected the grove (Figures 1 & 2). The grove was maintained and did not have high ground cover. A number of the palms had arboreal termite nests which are possibly used by the monitors as egg-laying sites. Other reptiles observed in this grove were *Emoia nigra, E. atrocostata* and *Lamprolepis smaragdina*, the latter only along the rainforest edge.

Figure 1. *Varanus spinulosus* habitat near Kaevanga, Isabel Island.
Figures 2 & 3. *Varanus spinulosus* habitat near Kaevanga, Isabel Island.
Five of the six *V. spinulosus* observed were on the ground when first encountered and fled up the coconut palms upon being disturbed. Flight distance for two of the three adult lizards observed was approximately 15 m. Both adult lizards and the subadult paused after climbing 1-2 m, tongue-flicked and continued casually up into the crowns, edging around in an effort to keep the trunks between themselves and the observers. A juvenile (ca. 20 cm) and the third adult shot up into the crowns without a pause. A tractor that had just passed coming from the opposite direction a minute before us most likely startled one adult lizard that was already halfway up a palm before we saw it. The individual we captured ran about one and a half meters up a palm and focused its attention on Monica, who held the camera and was walking towards the palm to snap a photograph (Figure 4). The animal inched around the back of the palm, keeping a wary eye on Monica and did not see the author coming up behind to grab it. Upon capture, the lizard struggled, hissed, then quickly calmed down. It did not defecate or try to bite.

We also observed numerous sets of monitor tracks along Vale Beach in the intertidal zone parallel to the Kaevanga road, but saw no evidence of digging for crabs. Indeed, we did not see any crabs other than hermit crabs along this stretch of beach bordering the grove. One set of tracks appeared to have been from a lizard that was substantially larger than any of the *V. spinulosus* we subsequently saw, all of which were less than one meter in total length (TL). The adult male that was captured the following day and the observed subadult (ca. 60 cm TL) were both within 30 m of where the small juvenile had been seen the day before. All of the lizards were observed between 1000 and 1600 h in full sun, some quite close to human habitation and some within a few meters of the high tide line.

We did not see any *V. indicus* in this habitat which is interesting because coconut plantations in the Solomons are reported as *V. indicus* habitat (McCoy, 2005; Woods, 2007). *Rhinella marina* was abundant in this area as well, and this might account for the lack of *V. indicus*. McCoy (2006) reports *V. spinulosus* as inhabiting mangroves, which are also well documented as *V. indicus* habitat (Philipp, 1999). How these two species avoid competition is not clear if they are indeed sympatric as previously reported (Sprackland, 1993; Böhme and Ziegler, 2007). We are pleased to report that *V. spinulosus* appears capable of co-existing with *R. marina* in disturbed habitat and in close proximity to humans. The chief of Fanavi, a village approximately 20 km south of Kaevanga, informed us that they are common in Sago palm plantations as well. The monitors appear to not be molested by the local people, who seem indifferent to them. We did not see any domestic dogs or cats in either of the villages on Isabel. It is not clear if *V. spinulosus* feeds on *R. marina* and is unaffected by the skin toxin or whether they take no interest in the toads. Members of the *V. salvator* complex are known to feed on *R. marina* without ill effects (Gaulke, 1991). *Varanus salvator* and *V. spinulosus* may be related (Böhme and Ziegler, 2007).

**Observations on Diet**

According to San Jorge islanders, *V. spinulosus* feeds on megapode eggs and on fish, often emerging from the bush to scavenge the entrails of fish after they have been cleaned. One chicken farmer told us that his coops had been raided by the same large lizard on several occasions; “a mightywon” is how he put it. The adult male we captured on Isabel defecated the remains of a bird, possibly a lorikeet, which we often saw nesting in holes on the same palms where the lizards were observed.

The only published data available on the wild diet of *V. spinulosus* is the stomach contents of an adult male (USNM 120886) from Bougainville which contained five species of arthropods (Böhme and Ziegler, 2007). Sprackland (1993) reported that one of the three captives mentioned above fed only on fish, whereas the other two fed on rodents and insects as well. One of the lizards imported in the 1990s which ended up at the Baltimore Zoo fed only on cockroaches and small mice that had been dipped in egg (Baltimore Zoo staff, pers. comm.). Sprackland’s observations on diet were dismissed by Böhme and Ziegler (2007) as being irrelevant. Nevertheless, in our experience, recently collected animals will often
Figure 4. *V. spinulosus*, Kaevanga, Isabel Island.
only accept familiar foods at first. Therefore, we believe that due to information supplied by islanders and the tracks observed in the intertidal zone at low tide that it is quite possible that *V. spinulosus* actively search for dead fish.

**Description of Specimens Observed**

All of the lizards observed near Kaevanga were similar in color and pattern to the individual in Figure 4, with the exception of the juvenile which seemed to be darker. The sandpaper-like skin texture, unique among varanids, described by Böhme and Ziegler (2007) who published on a preserved individual, is very apparent when handling a live animal and is not the result of improper preservation. Also notable is the unusually baggy skin of the healthy, wild individuals. In a previously published photograph of three *V. spinulosus*, two clearly visible (Bennett, 1995), the bagginess of their skin is not apparent. However these lizards appear to have flattened themselves out to maximize surface area during basking. The claws of *V. spinulosus* are not as sharp as some other varanids, e.g., those of *V. indicus*. This suggests that *V.

![Image](image-url)
*spinulosus* might lead a more terrestrial lifestyle. We were surprised to see that the undersides of the front feet on the male captured on Isabel were orange.

We applied for and received permits to export 10 live *V. spinulosus* from the Solomon Islands to our facility in Costa Rica and plan to follow up this paper with a subsequent report on captive husbandry and reproduction.

**Literature Cited**


