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Observation in the Wild of the Poorly-Known *Varanus yuwonoi*

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Abstract - New information on *Varanus yuwonoi* is presented based on an in situ observation. The known range on Halmahera is extended south to Weda and an incidence of nocturnal activity is documented.

Introduction

Varanus yuwonoi is a recently discovered monitor from the island of Halmahera, Indonesia (Harvey & Barker, 1998) that remains poorly known. This species is reported from only a few locations, all on the north-western arm of the island, specifically (1) its type locality near Jailolo and nearby Tanah Putih (between Matui and Jailolo) (Harvey & Barker, 1998), and (2) near the villages of Akesahu and Kao, on the western side of Kao Bay (Weijola, 2010; Fig. 1). The habitat of three specimens was described as primary and secondary lowland forest below 50 m asl (Weijola, 2010), and the holotype was found between 50 – 300 m asl (Harvey & Barker, 1998).

The conservation status of *V. yuwonoi* has yet to be assessed by the IUCN (IUCN, 2015), but is described as rare by Koch *et al*. (2013). This attractive multi-hued monitor is exported from Indonesia for the international pet trade (Koch *et al*., 2013) and is harvested by local hunters (Weijola, 2010), raising concerns about its vulnerability to overexploitation (Koch *et al*., 2013).

There is a great paucity of information about this species in general, and its natural history in particular. Some of its natural history has been described based on interviews with local people (Harvey & Barker, 1998; Weijola, 2010), and Weijola (2010) speculated on its ecology, hypothesizing a preference for ambush hunting based on a low encounter rate in the wild and information from local trappers indicating that the species can be snared around Megapode nests. We are unaware of any first-hand accounts of this species' behavior in the wild.

Here, we detail an observation of a wild *V. yuwonoi* on Halmahera. This observation is significant because it extends the species' known range, contributes information about its habitat, and to our knowledge, is the only first-hand description of its behavior in the wild.

Observation

We encountered a single *V. yuwonoi* on 25 January 2014 at approximately 2100 h. The weather was overcast (typical of the preceding four days) and approximately

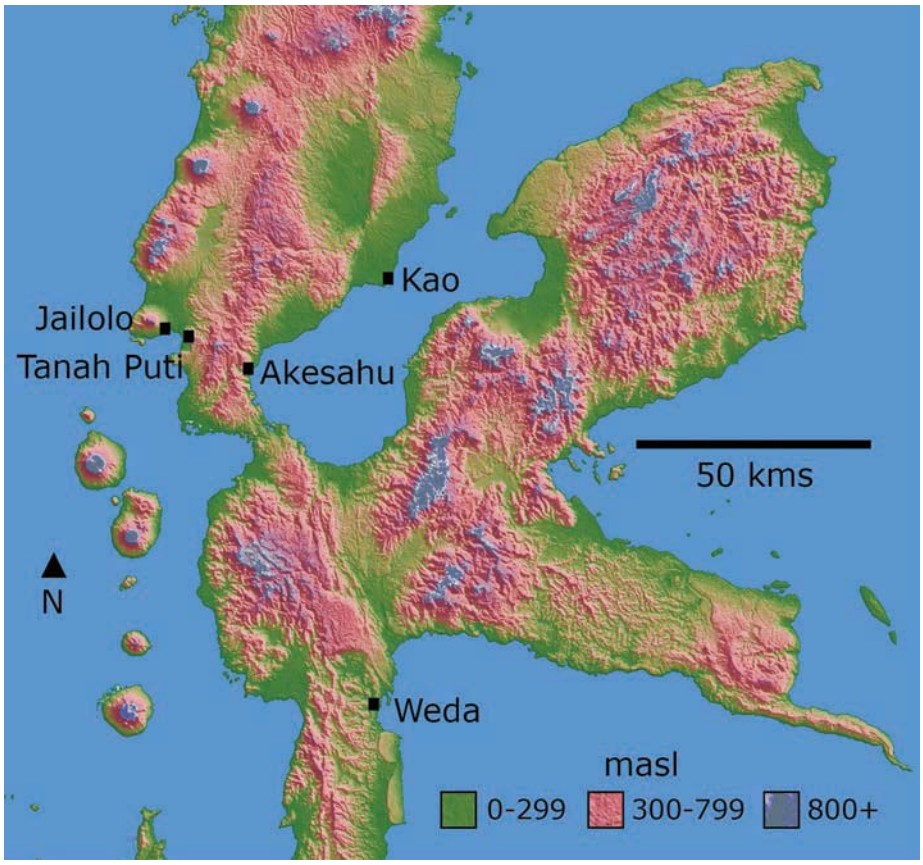

Fig. 1. Map of central Halmahera, showing documented locations of *Varanus yowonoi*.

26 ℃. The location was approximately 12 km north of Weda, on the north-eastern part of the southern arm of Halmahera (0°25′32.93″ N, 127°54′10.02″ E), approximately equidistant along a footpath between Weda Resort and Desa Kobe. On one side of the path the slope dropped a few meters into a low, extensive mangrove forest, and on the other side was a low ridge covered with secondary rainforest, rising and then descending to the coast within about 50 m. The monitor was detected by the sound of its movement and was observed for about five minutes as it walked along the ground from near the mangrove edge upslope through the rainforest towards the ridge top and coast. Its manner was consistent with typical foraging behavior of monitors during daylight, moving leisurely, seeming alert and unalarmed.

The size of the specimen was estimated at SV 450 mm and a number of photographs were taken (Figs. 2-4).

Discussion

The habitat recorded here is consistent with previous findings for *V. yuwonoi* (Weijola, 2010). Since tropical rainforest is the predominant vegetation cover of the island, it is reasonable to speculate that *V. yuwonoi* may be distributed across the entire island of Halmahera. However, until now, all specimens were known only from the north-western arm of Halmahera. Our finding extends the known range south toward the northern end of Weda Bay.

Although all members of the family Varanidae are primarily diurnal (Bennett, 1998), there are a number of reports of nocturnal activity amongst monitors (Irwin *et al*., 1996; Trembath, 2000; Cota *et al*., 2008; Rhind *et al*., 2013). In many cases these appear to document atypical behavior; however, some recent studies have revealed that monitors can incorporate nocturnal activity into their lifestyles (Uyeda *et al*., 2013; Rismiller *et al*., 2010). Two individuals of *V. salvator* on Tinjil Island, Indonesia actively foraged in the hours between 0128 and 0525 h, and this may be a mechanism imparting a foraging advantage over other individuals foraging only by day (Uyeda *et al*., 2013). Most interestingly, Rismiller *et al*. (2010), in their detailed examination of the reproductive biology of *V. rosenbergi*, found that 29 of the 30 females studied oviposited in the first four hours after nightfall. These studies and our observation suggest that some monitors have the ability, both at

Fig. 2. *Varanus yuwonoi*, near Weda, Halmahera, Indonesia. Photographed by **J. Lindley McKay**.

Fig. 3. Head and body of *Varanus yuwonoi,* near Weda, Halmahera, Indonesia. Photographed by **Olga Milenkaya**.

Fig. 4. Head of *Varanus yuwonoi,* near Weda, Halmahera, Indonesia. Photographed by **Olga Milenkaya**.

an individual and population level, to engage in some degree of nocturnal activity.

More research on the ecology and conservation of *V. yuwonoi* is needed. This and other species in the Moluccas are lacking baseline data on which sound conservation and management decisions can be made.

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