

New locality record of the Bengal monitor, *Varanus bengalensis* (Daudin, 1802), from Afghanistan

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Afghanistan is, from a zoological point of view, one of the most interesting countries of the world, as it lies between two zoogeographical realms, the Palearctic and Oriental (or alternatively three; see Kreft and Jetz, 2010). As a result, the biota of Afghanistan has a wide array of biogeographic affinities, from species ranging from Africa and Europe to species of southeast Asian origin. The two monitor lizards occurring within Afghanistan are an example of this phenomenon. The desert monitor, *Varanus griseus* (Daudin, 1803), ranges from Central Asia up to Morocco/Western Sahara; the Bengal monitor, *V. bengalensis* (Daudin, 1802), ranges from Iran to Indonesia (Sindaco and Jeremcenko, 2008). The knowledge of the distribution of the herpetofauna in Afghanistan is relatively poor with most records made before 1970 (118 species in 21 families are currently known, but faunistic records are still lacking for many areas; Wagner et al., 2016) and each new record is important for improving our knowledge and establishing future national conservation priorities.

The Bengal monitor is an Oriental fauna element and was first recorded in Afghanistan in 1964 (Clark et al., 1969; Clark, 1990). Up to now, this species has had a very limited known range in the country, which forms the northern border of its distribution (Sindaco and Jeremcenko, 2008). Only nine field records and several voucher specimens are known from Afghanistan (see Wagner et al., 2016 for details; Fig. 2). All these records are reported roughly in the region between the Pakistani border (Federally administered tribal areas

= FATA) and Kabul City in the valley of the Kabul River. This species has mostly been found near water (terraced rice fields, steep earth banks) but also ranges into drier terrain (stony hills) or semi-deserts around rivers or streams up to 2600 m a.s.l. (Clark et al., 1969; Clark, 1990). Generally, this species is often observed in variety of habitats from dry forests to cultivated areas with dense vegetation, bordering marshes, and canals. It has also been observed near inhabited houses due to the ability of food (Masroor, 2012).

Here we present the first properly documented record of a population of the Bengal monitor from Forward Operating Base Salerno (33.367°N, 69.966°E, 1145 m a.s.l.; Fig. 2), located near Khost City in Khost Province, Afghanistan. Observations were made from August 2006 through March 2007. This region is a part of the Kaitu river valley influenced by a cold desert climate and it is separated from the rest of the species range in the country by the Spīn Ghar mountains. This is the first record in this region and province and is now the southernmost record of the species in the country, located approximately 120 km in a straight-line distance from the closest records near the city of Jalalabad in the Kabul river valley.

The lizards in the Base lived in burrows under man-made structures, mainly tents, in housing areas with raised wooden flooring of 60x120 cm plywood (Fig. 1A). Large deciduous trees were abundant in the area. Observations of arboreal behavior were limited to juveniles approximately 20 cm or less in overall length. More than ten adults of both sexes and several juveniles up to 50 cm of total length were observed. The monitors were seen moving or resting near shelters and remained alert. Careful unobscured observations could be made within 15m without alerting the animals; further approach resulted in them running away or taking refuge in the shelter (Fig. 1B-E).

The species is known to occur in an immediate vicinity of human settlements (Masroor, 2012), but this

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Figure 1. Habitat of *Varanus bengalensis* in the Forward Operating Base Salerno, Khost, Afghanistan (A), an adult lizard basking near its shelter (B), taking cover in the shelter (C), and a detail of the basking individual (D, E).

observation is interesting in the type of location (army base) and density of individuals. We hypothesize that the population density is larger than in the wild (see Clark et al., 1969) due to the number of shelters, absence of feral dogs and low number of feral cats. Also, this place provides enough shelter for many animals to live communally without provoking territorial disputes. Additionally, the preparation of large and frequent meals for military personnel created a trophic cascade

increasing local density of wildlife throughout the food web.

Although Clark et al. (1969; p. 311) mentioned that “One specimen was seen near the town of Khost, by cultivated fields, and ran up a small tree when chased” this record has not been cited in later literature (Clark, 1990; Wagner et al., 2016). However, the Bengal monitor is the most widely distributed species of *Varanus* in Pakistan (Khan, 2006; Masroor, 2012) and

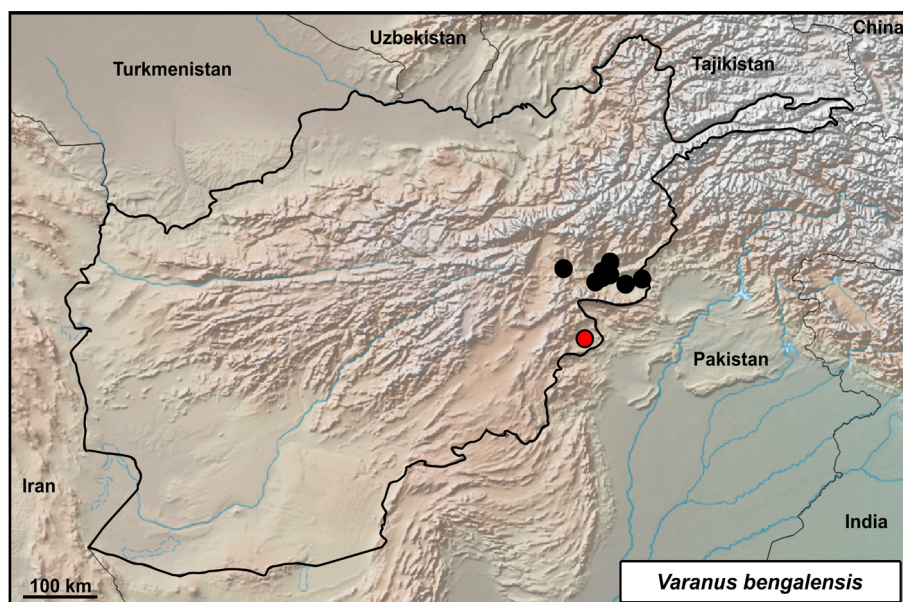


Figure 2. Distribution of *Varanus bengalensis* in Afghanistan – black dots are records presented by Wagner et al. (2016), red dot is the new locality reported herein.

our record, as well as previously reported localities in the Kabul river valley (Wagner et al., 2016), adjoin its Pakistani distribution. We assume that the range of the species in Afghanistan follows cross-border river valleys between Afghanistan and Pakistan. It is possible that the species will be found in southeastern or southern Afghanistan since several records are known from Pakistani Balochistan close to the Afghan border (Masroor, 2012), or in a more northwesterly direction. Interestingly, Minton (1966) hypothesized the possible presence of the species in extreme southeastern Uzbekistan. However, due to the dry desert climate of the region we do not consider these areas suitable for the Bengal monitor.

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References

- Clark, R.J., Clark, E.D., Anderson, S.C., Leviton, A.E. (1969): Report on a collection of amphibians and reptiles from Afghanistan. *Proceedings of the California Academy of Sciences* **36**: 279–316.
- Clark, R.J. (1990): A report on herpetological observations in Afghanistan. *British Herpetological Society Bulletin* **33**: 20–42.
- Khan, M.S. (2006): The amphibians and reptiles of Pakistan. Krieger Publishing Company. Malabar, Florida, USA.
- Kreft, H., Jetz, W. (2010): A framework for delineating biogeographical regions based on species distribution. *Journal of Biogeography* **37**: 2029–2053.
- Masroor, R. (2012): A contribution to the herpetology of northern Pakistan: The amphibians and reptiles of margalla hills National Park and surrounding regions. Edition Chimaira, Frankfurt am Main, Germany.
- Minton, S.A. (1966): A contribution to the herpetology of West Pakistan. *Bulletin of the American Museum of Natural History* **134**: 29–184.
- Sindaco, R., Jeremcenco, V.K. (2008): The reptiles of the western Palearctic. Vol. 1: Annotated checklist and distributional atlas of the turtles, crocodiles, amphisbaenians and lizards of Europe, North Africa, Middle East and Central Asia. Edizioni Belvedere, Latina, Italy.
- Wagner, P., Bauer, A.M., Leviton, A.E., Wilms, T.M., Böhme, W. (2016): A checklist of the amphibians and reptiles of Afghanistan exploring herpetodiversity using biodiversity archives. *Proceedings of the Californian Academy of Sciences* **63**: 457–565.

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