



Range extension for the Perentie, *Varanus giganteus* (Squamata: Varanidae)

S A Thompson¹, P C Withers²,
G G Thompson³ & D Robinson⁴

¹ ATA Environmental, Dilhorn House,
2 Bulwer St, WA, 6000

✉ scott.thompson@ataenvironmental.com.au

² Zoology, School of Animal Biology, M092, University of
Western Australia, Crawley, Western Australia, 6009

✉ pwithers@cyllene.uwa.edu.au

³ Edith Cowan University, Joondalup Drive,
Joondalup, WA, 6027;

✉ g.thompson@ecu.edu.au

⁴ Dept. of Agriculture, Baron-Hay Court,
South Perth, WA, 6151.

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Abstract. Three recent sightings of *Varanus giganteus* increase its recorded geographical distribution in a south-westerly direction. These sightings may represent previously unrecorded populations, indicate a range extension, or in one instance a translocation. If these are disjunct populations from the published distribution to the north-east, then there may be a strong case for affording special protection to their habitat to protect these populations.

Keywords: *Varanus giganteus*, Perentie, geographic range, Western Australia

Introduction

The habitat of the Perentie, *Varanus giganteus*, is described by Cogger (1992) as the 'arid interior of Australia from far western Queensland through central Australia to the coast of WA' (p 362), where it inhabits deep crevices and burrows in rocky outcrops, and forages widely on adjacent sandy desert areas. King *et al.* (1989) reported that most of the *V. giganteus* they observed on Barrow Island were on the beach. In the Cape Range National Park, where Perenties are relatively abundant, they inhabit the coastal dunes, sand plains and rocky inland range (Heger 2000). Pianka (1994) recorded *V. giganteus* in the red sand-ridges of the Great Victoria Desert in areas predominantly vegetated with spinifex far away from rock outcrops.

Distribution maps for *V. giganteus* typically include the sandy desert areas of central Western Australia stretching from the west coast to the eastern north-south South Australian and Northern Territory borders and into the western edge of Queensland (Storr *et al.* 1983; Cogger 1992; Wilson & Knowles 1992; Western Australian Museum *FaunaBase* <http://www.museum.wa.gov.au/faunabase/prod/index.htm>). We report here three recent sightings that are outside the published geographical distribution for this goanna. We also summarise other sightings that increase its published distribution.

Observations

On 3rd October 2001, about 1400 hr, we observed a Perentie foraging about 2 km north-west of the Aurora Range, Western Australia (30° 19'S, 119° 43'E) in a eucalypt woodland with a chenopod shrub understorey (Fig. 1). We estimated the specimen to be about 1.4 m in total length (it was not caught). Mr T. Trent of the Western Australian Department of Agriculture observed a Perentie on the road 10 km east of Kununoppin (31° 08'S, 117° 59'E) that was in the process of consuming an adult Western Bluetongue, *Tiliqua occipitalis*, on 17th October 2001, at 1408 hr. This Perentie was about 1.4 m in length. This specimen was probably living in a large adjacent nature reserve that was surrounded by farmland. Mr B. Eidenmüller reported (pers. comm.) sighting a *V. giganteus* (> 1.8 m total length) on 12th January 2001, at 1100 hr, about 2 km north of the bridge over the Murchison River on the North-West Coastal Highway (27° 48'S 114° 41'E). These three records are a considerable distance south and south-west of the published range for *V. giganteus* (Fig. 2).

In addition to the above observations, Pianka (1994) reported seeing two *V. giganteus* crossing the road between Menzies and Leonora (30° 01'S 121° 10'E; 46 km S of Leonora). Ray Hart (pers. comm.) found a dead Perentie on the same road in this vicinity in December 2000, and Dell *et al.* (1988) reported a *V. giganteus* on Goongarie station. Dell *et al.* (1985) reported sighting *V. giganteus* at Mt Jackson and Bungalbin Hill, indicating a range extension of approximately 100 km. Chapman and

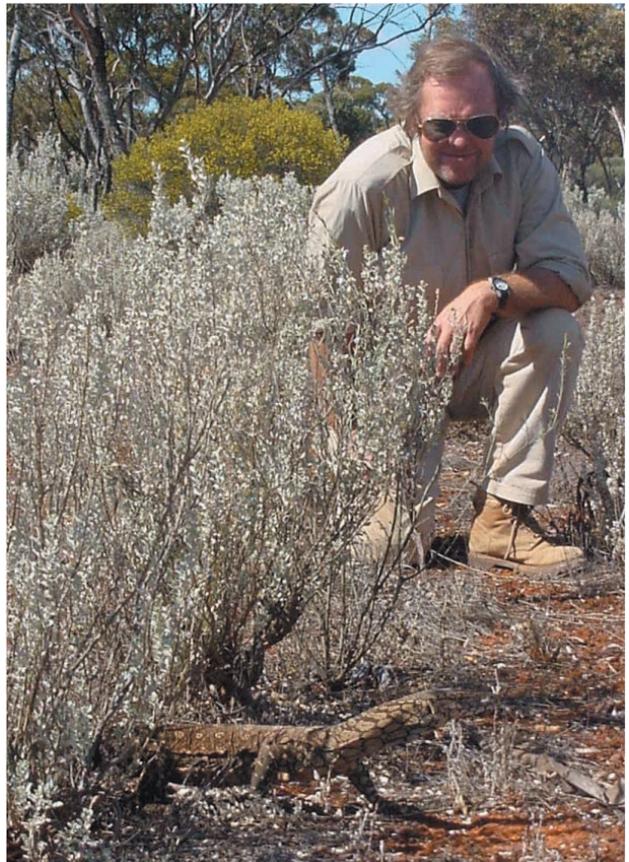


Figure 1. *Varanus giganteus* seen near the Aurora Range.

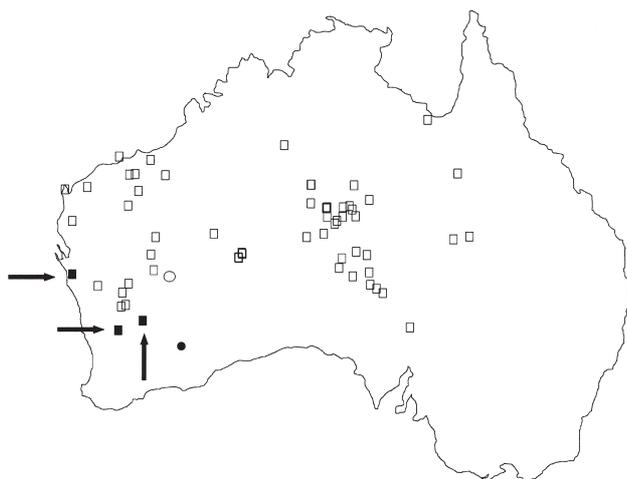


Figure 2. Distribution of *V. giganteus* based on specimens vouchered in Australian museums (□), Pianka's Red Sands study site (□), the 'Norseman' record (□) and the three range extensions (□) reported here.

Pronk (1997) subsequently reported seeing a *V. giganteus* in their fauna survey of the Helena and Aurora Ranges. Ecologia (2001) reported seeing *V. giganteus* on the southern end of the Aurora Range (Bungalbin Hill; 30° 24' S, 119° 38' E) and at Mt Jackson (30° 12' S, 119° 06' E) some 40 km to the west of our sighting. These geographic records for *V. giganteus* are not reflected in the Western Australian FaunaBase, and need to be incorporated into geographic distribution maps (e.g. Cogger 1992; Wilson & Knowles 1992).

Figure 2 indicates the recorded locations of *V. giganteus* in all Australian museum collections and the extension to its published distribution represented by these three specimens. The Australian Museum records an individual at Norseman (32° 12' S, 121° 47' E) which we believe is either a recording error or a relocation as extensive investigations in the general area have failed to sight another *V. giganteus*.

Discussion

Pianka (1994) reported an increase in abundance of *V. giganteus* around his 'Red Sands' study site (28° 12' S, 123° 35' E) in the Great Victoria Desert between 1966 and 1993. He speculated that the Perentie could be expanding its geographic range southwards and eastwards.

There is about 150 km between the Perentie population in the Menzies – Goongarrie area and those in the Mt Jackson – Aurora Range area. There is a substantial well vegetated sand plain to the north and east of the Aurora Range that would separate *V. giganteus* in this area from those reported in the Menzies – Goongarrie area. It is not known if the population in the Mt Jackson – Aurora Range area is disjunct from those around Goongarrie and further north, or whether they are present on the sand plain.

The sighting of a *V. giganteus* near Kununoppin is approximately 300 km south-west of those reported in the sand plain area in the Menzies – Goongarrie area. This individual is further south-west than any shown in

the distribution maps of Storr *et al.* (1983), Cogger (1992) and Wilson & Knowles (1992) for Western Australia. Smith *et al.* (1997) reported on the vertebrate fauna in nine remnants of native vegetation ranging between 10 and 1030 ha in the area between Kellerberrin and Trayning, which is approximately 40 km south-west of this sighting, without seeing a Perentie. Smith *et al.*'s (1997) extensive survey caught over 11,000 animals of 51 species during 65,000 trap-nights, suggesting that if *V. giganteus* were present they would have been seen or caught. Many of the small native vegetation reserves in the wheatbelt have been surveyed, and to our knowledge none is reported to contain *V. giganteus*. These data suggest that this individual represents either a significant extension to the species' published geographic range, in which case this large, wary and cryptic reptile has gone unrecorded in this area for many years, or the species has recently moved into the area or it has been a translocation.

The sighting of a *V. giganteus* about 2 km north of the bridge over the Murchison River on the North-West-Coastal Highway is approximately 200 km west of the nearest record for this species in the Western Australian Museum collection (closest is slightly south of Yalgoo). The Riverside station owner on the southern bank of the Murchison River, near where Eidenmüller saw the Perentie, indicated that he has seen large goannas on his property for a number of years (pers. comm.). This area is open woodland with a dense understorey in some areas. This information suggests there is a small population of *V. giganteus* in the area. The area between this small population and Yalgoo is mostly pastoral leases that are sparsely grazed by sheep. It is not known if there are other small populations of *V. giganteus* in the intermediate area.

Conservation implications

Being a large carnivorous lizard (up to 880 mm SVL; King & Green 1993) Perenties are mostly likely to occur in low population densities unless there is an unusually high abundance of prey (e.g. Barrow Island). It is probable then that the population of *V. giganteus* in the range extension areas where we have reported them is small. Small populations are vulnerable to extinction when habitats are disturbed. The Aurora Ranges is an area of increasing mining activity, farming surrounds the nature reserve east of Kununoppin, and there are grazing and tourist developments along the Murchison River to the east of the sighting by Eidenmüller. Small populations of *V. giganteus* might also exist in other small remnants of native vegetation between these three locations and the published distribution to the north and east.

It is not unusual to find isolated populations of a particular of reptile within its published geographical distribution as few species are evenly spread across their known range. However, our three records represent extensions to the published distribution and at least two are likely to be disjunct populations separated by agriculture from its known range to the north and east. If we adopted the precautionary principle, then there is a *prima facie* case for affording a level of special protection to these habitats, until more extensive surveys of the area between the published distribution and these three

sighting have been undertaken. If there are only a few habitats that support these disjunct populations of *V. giganteus*, then appropriate habitat protection strategies should be put in place.

References

- Chapman A & Pronk G 1997 Part 3 Vertebrate Fauna. In: A Biological Survey of the Helena and Aurora Range, Eastern Goldfields, Western Australia (eds M N Lyons & A Chapman). Unpublished Report, Department of Conservation and Land Management, Kalgoorlie, Western Australia.
- Cogger H G 1992 Reptiles and Amphibians of Australia. Reed, Sydney.
- Dell J & How R A 1985 IV Vertebrate fauna, which is part of The biological survey of the eastern goldfields of Western Australia, Pt 3, Jackson - Kalgoorlie study area. Records of the Western Australian Museum, Supplement 23:39-74.
- Dell J, How R, Milewski A V & Keighery GJ 1988 The biological survey of the eastern goldfields of Western Australia, Part 5 Edjudina - Menzies study area. Records of the Western Australian Museum, Supplement 31.
- Ecologia 2001 Koolyanobbing extension; Fauna Assessment. Unpublished report, Portman Ltd, Perth.
- Heger N A 2000 The impact of size on thermal efficiency: size related costs and benefits in *Varanus giganteus*. Unpublished PhD Thesis, University of Texas, Austin, Texas.
- King D & Green B. 1993 Dimensions of the Perentie (*Varanus giganteus*) and other large varanids. Western Australian Naturalist 19:195-200.
- King D, Green B & Butler H 1989 The activity pattern, temperature regulation and diet of *Varanus giganteus* on Barrow Island, Western Australia. Australian Wildlife Research 16:41-47.
- Pianka E R 1994 Comparative ecology of *Varanus* in the Great Victoria Desert. Australian Journal of Ecology, 19:395-408
- Smith G T, Leone J & Dickman C R 1997 Small terrestrial vertebrate communities in remnant vegetation in the central wheatbelt of Western Australia. Western Australian Naturalist 21:235-249.
- Storr G M, Smith L A & Johnstone R E 1983 Lizards of Western Australia II: Dragons and Monitors. Western Australian Museum, Perth.
- Wilson S K & Knowles D G 1992 Australia's Reptiles: A Photographic Reference to the Terrestrial Reptiles of Australia. Cornstalk, Sydney.