MITCHELL’S WATER MONITOR
Varanus mitchelli

Description
Mitchell’s water monitor is a slender medium-sized (total length up to 70 cm) semi-aquatic monitor. It is dark brown to black on the back with small yellow spots and ocelli with black centres. The head and limbs are black above with scattered cream or yellow spots. The belly is cream-coloured leading up to a lemon-yellowish throat and neck marked with black spots and bars. The lower lip is cream-yellowish, speckled or barred with grey. The tail is long and strongly compressed laterally, and the last half bears a distinct median dorsal double keel. The tail is about double the length of the head and body.

Distribution
Mitchell’s water monitors are found across the Kimberley region of Western Australia and the Top End of the Northern Territory (NT), and there is an isolated population in North-Western Queensland. In the NT the distribution includes the catchments of all rivers flowing to the Timor Sea, Arafura Sea and the Gulf of Carpentaria. There are no records of the species from any Territory offshore islands (NT Fauna Atlas, D. Milne pers. comm.).

Conservation status
Australia: Not listed
Northern Territory: Vulnerable

Ecology
Mitchell's water monitor is semi-aquatic and arboreal and inhabits margins of watercourses, swamps and lagoons in Northern Australia. It rests and shelters in hollows and under bark on trees next to...
water. It basks on rocks and overhanging limbs and readily takes to the water when disturbed. It is a strong swimmer and feeds largely on aquatic insects, fish, small lizards and frogs.

Conservation assessment

Mitchell's water monitor inhabits all of the Territory's northern river systems (except the southern Gulf). The most important conservation issue it faces is its propensity to eat cane toads. Comparison of the size of the mouth and the toxin load per cane toad shows that these monitors are easily able to eat a cane toad large enough to kill them (Smith and Phillips 2006).

Counts of this species along transects at two sites in the Daly River catchment show substantial declines in the populations, attributable to the arrival of cane toads (Doody et al 2009). Surveys were carried out along 35 km-stretches of the Daly River, five time per year (Dry season only) from 2001 (Upper Daly) or 2003 (Lower Daly) till 2007, spanning pre- and post-arrival of cane toads in these areas. Prior to the arrival of toads, typical counts were of 35-40 Mitchell's water monitors per survey in the upper Daly and c. 25 in the Lower Daly; in 2006 and 2007, after the arrival of cane toads, counts were c. 10 and possibly one, respectively – declines of 71 percent (Upper Daly) and 97 percent (Lower Daly).

Prior to the arrival of cane toads, Mitchell's water monitors occupied c. 450,000 km² within the NT, approximately 70 percent of which is now occupied by cane toads (NT Fauna Atlas, D. Milne pers. comm.). Smith and Phillips (2006) estimate that 100 percent of the Australian range of the species will be encompassed by the predicted range of the cane toad. Only some marginal inland distribution areas (where population densities are naturally lower) are likely to retain historical monitor densities once the cane toad has reached its maximum extent within the NT. Mitchell's water monitors has not been recorded on any NT islands (NT Fauna Atlas, D. Milne pers. comm.) so there are no major areas within its NT range that will remain toad-free. If the decline of the Mitchell's water monitor population observed in the Daly River occurs across the NT distribution, the population reduction will be in excess of the International Union for the Conservation of Nature's threshold of >30 percent in ten years/three generations for criterion A4.

This species qualifies as Vulnerable in the NT (under criterion A2e), based on:

- an observed, estimated, inferred, projected or suspected population reduction (over ten years or three generations); and
- the time period includes both the past and the future, and the causes of reduction have not ceased, due to effects of an introduced taxon (cane toad).

Threatening processes

As described above, the presence of cane toads across the species' range in the NT presents the most acute threat facing this monitor. Monitors generally are highly susceptible to cane toad toxin and a Mitchell's water monitor can easily eat a cane toad large enough to kill it (Smith and Phillips 2006). Cane toads may also deplete areas of potential prey for monitors, especially foods eaten by juveniles. This will slow the recovery of populations following the initial crash.
Conservation objectives and management

The likelihood of stopping the spread of cane toads is very small. Given our inability to prevent localised population crashes once cane toads arrive, conservation and management effort is best aimed at trying to maintain surviving depleted populations in toad-invaded areas.

Complied by

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References
