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Theme 1: Mapping the distributions and abundance of species

Patterns in the modern decline of western Australia's vertebrate fauna: Causes and conservation implications

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Abstract

The conservation status of terrestrial vertebrates occurring on the mainland of Western Australia was assessed. Extinctions and declines are virtually confined to non-flying mammals with mean adult body weights between 35 g and 4200 g. Variation in patterns of attrition within this critical weight range (CWR) can be explained almost entirely by a combination of regional patterns in rainfall and, to a lesser extent, species' habitat and dietary preferences. Similar patterns of mammal attrition were recognisable throughout the continent, except that the CWR was 35 to 5500 g.

Environmental changes since European settlement have emulated an increase in aridity by reducing the environmental productivity available to vertebrates. These include the

diversion of environmental resources to humans and introduced species, and a reduction in vegetative cover by exotic herbivores and changed fire regimes. Our analyses support the view that the reduction in available productivity has caused CWR mammals to suffer the greatest attrition because of their limited mobility, but relatively high daily metabolic requirements. The direct elimination of confined populations of mammals by exotic predators has exacerbated this attrition. We derive priorities for the conservation of Australian mammals.



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