

# Global hotspots in the Arabian Peninsula

David P. Mallon

**Abstract.** The Hotspot concept was formulated to highlight areas of the world that contain concentrations of endemic species. The effectiveness of this approach applied to the two sectors of global hotspots located in the Arabian Peninsula is examined in the context of overall strategies to conserve the biodiversity of the region. Rates of vertebrate endemism in the region range from 6%-75%. Over 58% of Arabian Peninsula endemic vertebrates have distributions restricted to The Arabian Hotspot Area, compared to a global figure of 42%, and over 77% of these endemics species occur there. These figures highlight the importance of the Arabian Hotspot Area for this aspect of biodiversity conservation, but it excludes large areas of the Arabian Peninsula containing characteristic habitats and species, including Arabian Oryx and Houbara Bustard. Additional approaches are needed to provide a fully representative and comprehensive conservation strategy.

**Key words.** Hotspot, Arabian Peninsula, vertebrate endemism, conservation strategy.

## Introduction

The 'hotspot' concept was first developed by MYERS (1988) who identified 10 tropical forests containing exceptionally high levels of species diversity. The hotspot approach was later adopted by Conservation International (CI) as its central strategy. Its aim was to identify areas containing concentrations of endemism and that were under threat, and that would allow conservation efforts to be targeted at areas where a disproportionate amount of global biodiversity was concentrated.

A hotspot was defined as an area containing at least 1500 endemic species of vascular plants (i.e. >0.5% of the global total) and that had also lost 70% or more of its original cover (MITTERMEIER et al. 1999). An initial analysis identified 25 global Hotspots, subsequently revised and the total increased to 34 (MITTERMEIER et al. 1999, 2004; MYERS et al. 2000). These 34 global hotspots include within them 50% of the world's plant species and 42% of vertebrates yet cover only 15.7% of the global land surface. When the intact areas alone are considered, the total area amounts to only 2.3%, representing a remarkably high concentration of life forms (MITTERMEIER et al. 2004).

Individual hotspots vary widely in size: three exceed 2 million km<sup>2</sup> while the smallest covers only 18,972 km<sup>2</sup>. The original analysis, though based on plant diversity and habitat loss, was supported by an analysis of vertebrate groups (mammals, birds, reptiles, amphibians and fish), though these groups were not used to define hotspots. Invertebrates were not included in the analysis because of the lack of adequate global datasets at that time.

Two of the 34 global hotspots, the Horn of Africa and the Eastern Afrotropical include parts of the Arabian Peninsula. The Horn of Africa Hotspot covers the arid and semi-arid zones of Ethiopia, Eritrea, Somalia, Djibouti, north-eastern Kenya, south-east Sudan, and south-west Arabia. The Arabian sector comprises the lower mountains and coasts of Saudi