Wildlife conservation beyond the parks: the Strathbogie Ranges, Victoria

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ABSTRACT

In the light of the multiple functions that national parks are expected to fulfil, their capacity to serve as secure guardians of biodiversity is compromised. We note that non-reserved land may be able to significantly supplement and enhance the role of parks systems. We present a brief case-study of the Strathbogie Ranges, Victoria, which demonstrates that substantial abundance and diversity of mammals persist in an area in which there are no national parks but widespread forest remnants on both private and public land. We identify some of the factors which confer high conservation value on such areas as the Strathbogie Ranges.

Key words: wildlife conservation, national parks, private land, mammals, biodiversity, forest patches, Strathbogie Ranges.

National parks: Hardin revisited

In 1968, the American biologist Garret Hardin argued that national parks are an "instance of the working out of the tragedy of the commons. At present, they are open to all, without limit. The Parks themselves are limited in extent - there is only one Yosemite Valley - while population seems to grow without limit. The values that visitors seek in the Parks are steadily eroded. Plainly, we must soon cease to treat the Parks as commons or they will be of no value to anyone." It is notable that one of the key trends in parks management, in Yosemite and elsewhere, since Hardin wrote has been their "decommonisation", taking such forms as traffic controls, limits on accommodation and visitor numbers and strict regulation of visitor behaviour.

There are continuing threats to the effectiveness of national parks in assisting to maintain biodiversity (see reviews by Primack 1993; Burgman and Lindenmayer 1998; Terborgh 1999; New 2000). They include the facts that national parks are often established not because they are strongholds of biodiversity, but because they consist of land (e.g. desert or mountainous terrain) that is not wanted for any "productive" purpose; or because they contain attractive scenery such as gorges or waterfalls. Thus there are likely to be significant imbalances in the representation of different biomes in parks systems. In Victoria, for instance, some bioregions are comprehensively represented within national parks; whereas others are virtually absent (Parks Victoria 2000). In addition, there are increasing expectations that parks should cater to such uses as grazing, beekeeping, dog-walking, horse-riding, off-road recreational driving, camping and metal-prospecting; in all such cases the maintenance of biodiversity values is compromised (e.g. Environment Conservation Council 2001).

Hardin (1968) suggested that an admittedly distasteful solution to the tragedy of the commons in national parks might be to "sell them off as private property." We here consider less radical options: ways in which some of the functions of national parks may also be achieved on non-reserved land, including private property. The fact that two-thirds of the land area of Victoria is in private hands (a little under one-sixth is reserved in the parks system) emphasises the potential wildlife conservation value of private landholdings (Bennett *et al.* 1995). We emphasize that we are not in any sense arguing that national parks are not vitally important and irreplaceable; simply that their role can be supported and enhanced by conservation actions operating beyond their boundaries (Hale and Lamb 1997; Craig *et al.* 2000; Lindenmayer and Franklin 2002). We also note that various pressures (particularly economic ones) are likely to severely limit significant additions to the national parks system (Parks Victoria 2000), whereas the number of private properties with a role in biological conservation will undoubtedly continue to increase.

Conservation on private land

There is now widespread and substantial interest in the role of privately-owned land in biodiversity conservation (e.g. Bennett *et al.* 1995; Saunders *et al.* 1995; ANZECC 1997; Department of Natural Resources and Environment 1997; Hale and Lamb 1997; Binning 1998; Stoneham *et al.* 2000; Gibbons *et al.* 2002). Stoneham *et al.* (2000) should be consulted for a comprehensive review of conservation mechanisms pertaining to private land; we mention a few selected examples. Several "buying back the bush" organizations are active, as well as mechanisms which encourage and support motivated landowners. Examples of the former are the Australian Bush Heritage Fund, presently managing 13 purchased or donated properties

Pp 508 - 512 in the *Conservation of Australia's Forest Fauna* (second edition) 2004, edited by Daniel Lunney. Royal Zoological Society of New South Wales, Mosman, NSW, Australia.

totalling nearly 62,000 ha; the Australian Wildlife Conservancy (575,000 ha of freehold or leasehold land distributed among 10 properties); and Birds Australia (two reserves, Newhaven of 262,600 ha and Gluepot of 54,390 ha). Properties managed by these "institutional" schemes may be acquired with government assistance (e.g. the Natural Heritage Trust donated half the purchase price of Newhaven) and may serve many of the same functions as national parks. The major differences are that such properties are managed by organizations which are much more single-mindedly focused on conserving biodiversity; that management relies heavily on the involvement of subscribers/volunteers; and that donations are essential to the continued operation of the reserves.

The second category includes a number of initiatives intended to encourage individual landholders to enhance the conservation value of their properties. There are mechanisms through which landholders can apply for funds to protect native vegetation on their land, such as the Bush Tender, which has recently been piloted by the Department of Natural Resources and Environment in northeastern Victoria. Under this scheme landholders establish their own price for the management services they are prepared to offer to improve their native vegetation. This price forms the basis for their bid, which is compared with other bids from landholders. Successful bids will be those that offer the best value for money (*Land for Wildlife News* 2001). A fuller analysis of the role of economic incentives in fostering biodiversity conservation on private land is provided by Gibbons *et al.* (2002).

Another conservation-directed mechanism initiated by the Trust for Nature, Victoria, is a Revolving Fund which is used to purchase areas of native habitat (Trust for Nature n.d.). These are placed under a conservation covenant and sold to owners who commit themselves to maintaining the wildlife value of the properties. In addition, any landowners whose properties include areas of significant biodiversity value may apply to the Trust for Nature for their land to be placed under covenant. Covenants apply to the land title, not to the present owners, the intention being that the land is protected in perpetuity. Covenanted properties attract various advantages such as the availability of management advice, tax concessions, rate rebates and assistance with fencing.

The most widespread scheme in Victoria for encouraging the maintenance of biodiversity values on private land is Land for Wildlife, administered by the Department of Natural Resources and Environment in cooperation with a community organization, the Bird Observers Club of Australia (Platt and Ahern 1995a, b). Landholders apply for registration under the scheme; the property is then evaluated by a Land for Wildlife Extension Officer. Following approval the landholder receives an information package and a "Land for Wildlife" sign for display on the property. An aerial photograph of the property and advice on management can also be provided, and participants continue to receive information and advice through the newsletter *Land for Wildlife News* and a series of *Notes* offering technical and management guidelines.

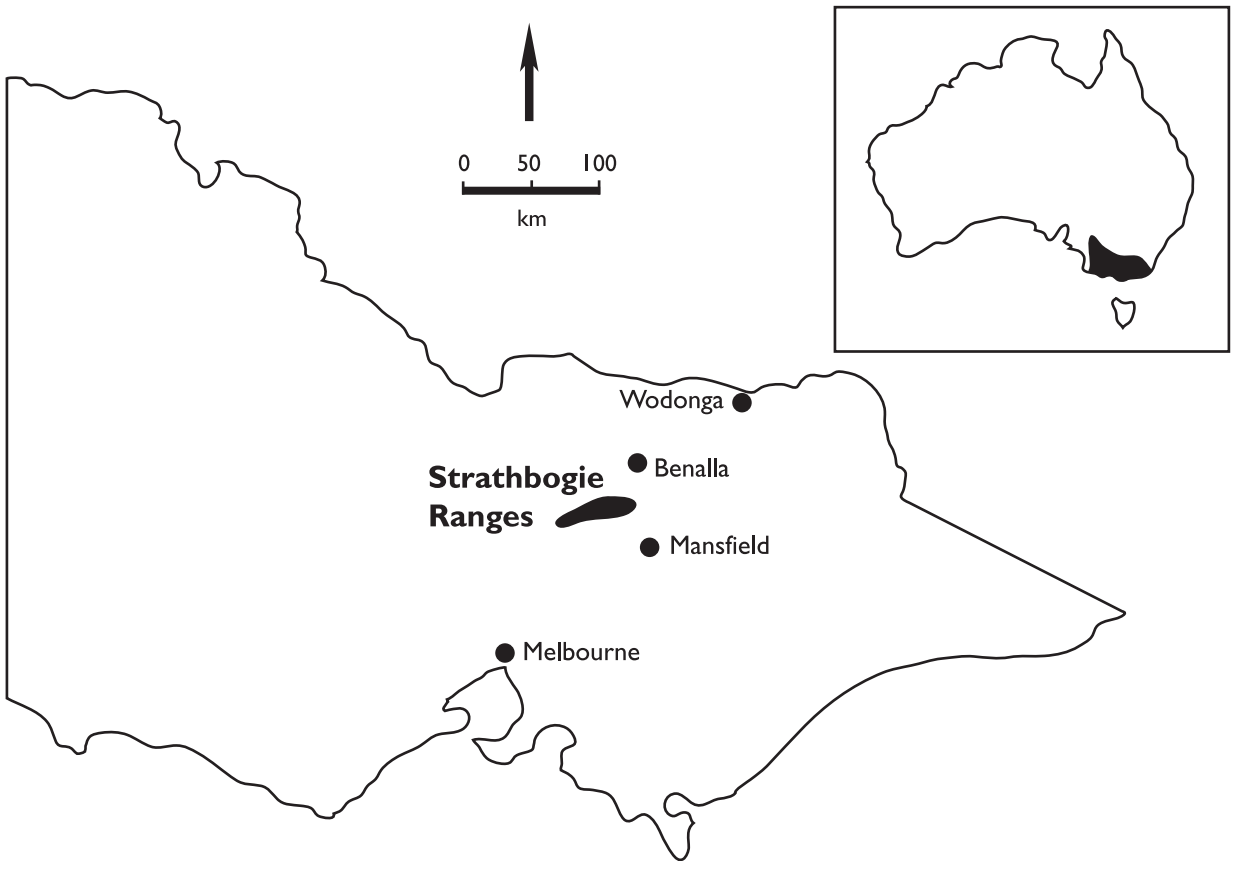

Figure 1. The position of the Strathbogie Ranges and nearby localities in Victoria. The inset shows the position of Victoria within Australia.

Figure 2. Typical Strathbogie Ranges landscape near Strathbogie, Victoria, with remnant forest patches as well as timbered creeks and roadlines.

Figure 3. A linear forest remnant along a road near Boho South, Strathbogie Ranges, Victoria. Appearances notwithstanding, the road reservation is only 32 m wide and the surrounding land is cleared pasture.

The scheme is entirely voluntary and if a landholder or subsequent purchaser does not wish to continue membership then the property can be deregistered.

Participation in Land for Wildlife has grown vigorously. From the scheme's beginning in 1981 the number of participating landholders grew to 2,321 in December 1994 and 5,831 in February 2003. The total area of Land for Wildlife properties in February 2003 was 566,395 ha, which included retained habitat of 133,141 ha (*Land for Wildlife News* 2003).

The Strathbogie Ranges

In this paper we present a brief analysis of the status of the mammal fauna of the Strathbogie Ranges in north-eastern Victoria (Fig. 1), a dissected plateau of Devonian granites and volcanics, much of it above 600 m. We define the area (183,611 ha) on the basis of topography and parish boundaries. The original vegetation included a number of Ecological Vegetation Classes, notably Herb-rich Foothill Forest, Swampy Riparian Woodland, Rocky Outcrop Shrubland and Grassy Woodland (Department of Natural Resources and Environment 2001). However the high rainfall of the area (about 1000 mm/year) and fertile soils led to much of the original vegetation being cleared for agriculture or softwood production; clearing was already under way in the 1850s (Wilson 1985). Present tree cover in the area is approximately 29% native vegetation, 5% pine plantation and 66% cleared (Department of Natural Resources and Environment unpublished). Much of the remaining forest is made up of small patches and linear strips along roads and creeks, resulting in a highly fragmented landscape (Fig 2).

Current land tenure in the Strathbogie Ranges is: private land 83%, state forest 7.5%, privately-owned plantations (mostly pine) 5.8%, state flora and fauna reserves and natural features reserves 2.5% and national parks 0% (Department of Natural Resources and Environment unpublished). The reserved land consists of small fragments and creeklines, with nearly one-third contained in the Mount Wombat-Garden Range Flora and Fauna Reserve (1332 ha). Much of the remaining native forest habitat in the Strathbogie Ranges is located on private land.

Although the Strathbogie Ranges are unrepresented in national parks and are mostly cleared, the studies of Downes *et al.* (1997), reviews by Mackay (1993) and Lobert (2001), and many unpublished observations (e.g. K. Handasyde pers. comm. 2002, R. Martin pers. comm. 2002) show that they sustain high mammalian diversity. While biodiversity cannot be assessed in terms of mammals alone, we regard them as a good indicator group, particularly since many of the arboreal species are dependent not just on forests, but on the presence of large (old) trees possessing hollows (J. Martin *et al.* in press; Gibbons and Lindenmayer 2002). Downes *et al.* (1997) carried out a large-scale and fully-replicated study of mammal diversity and abundance in the Strathbogie Ranges. Their study sites included forest patches (20-80 ha) and roadside linear remnants (14-32 m wide) (Fig. 3), some continuous with, and others at least 1500 m from, forest patches. They recorded a total of 14 species of mammal (7 ground-dwelling, 7 arboreal), with an average of 7-9 species in all three habitat types. Combined density

of mammals in forest patches reached a remarkable 36.4 individuals/ha in places, primarily due to the abundance of arboreal species. They also sampled adjoining pasture lands and found evidence of the presence of only four native mammal species; their conclusion was that forest patches and corridors provide important, indeed vital, habitat for most native mammals in the area.

The Strathbogie Ranges: Strengths and shortcomings

We ascribe the high mammalian diversity and, by implication, general biological diversity, in parts of the Strathbogie Ranges to a number of factors over and above the nature of the soils, climate and habitat: much of the landscape is steep and dissected, with abundant rocky outcrops, which rendered it unsuitable for agricultural development and resulted in less clearing than in many parts of Victoria; most roads are narrow and lightly used and are situated in wide, timbered reservations, frequently including trees of hollow-bearing age, as well as an extensive suite of ground cover, mid-storey and canopy species; and pressure from tourism is low because of the distance from large population centres and the lack of major tourist attractions. Hence the area is neither widely promoted nor well signposted. While not denying the potential benefits of ecotourism (e.g. Newsome *et al.* 2002), we believe that no tourism is even better.

Topography is undoubtedly the major factor that has led to the persistence of widespread forest remnants in the Strathbogie Ranges, but there is also an active conservation ethic in the area. In mid-2002 there were 87 properties registered under the Land for Wildlife scheme, totalling 10,687 ha, including 4,108 ha of retained habitat; and also a small number of properties covenanted by the Trust for Nature (Department of Natural Resources and Environment unpublished). In addition there are substantial forest patches that are neither registered nor covenanted, but which include sympathetically managed, high-quality forest habitat. It is likely that in recent years there has been active selection of the area by people seeking to purchase land for conservation purposes; one conservation-minded landowner that we spoke to had searched New South Wales, Tasmania and Victoria for his ideal small property before eventually deciding on the Strathbogie Ranges! In any event, the proportion of land in the Strathbogie Ranges registered under the Land for Wildlife Scheme is 5.82% (the overall proportion in Victoria is 2.43%).

Of course we are not suggesting that conservation initiatives on non-reserved land can or should replace state reserves such as national parks. We agree with Bennett (1995) that integration of the roles of reserved and non-reserved land, and of public and private tenure, is crucial to any serious conservation strategy. We recognize that the massive detractor from the conservation potential of such habitats as roadside corridors is that they lack long-term security. Such schemes as Land for Wildlife also suffer from severe inadequacies; among them are that few large, agricultural (or otherwise productive) properties are registered; the scheme attracts mostly conservation-minded owners of small properties (60% of registered properties are smaller than 20 ha; Stoneham *et al.* 2000); there can be little assurance of consistency of priorities and practices across properties; there is no mechanism for checking that properties, once registered, continue to be managed in ways that maintain or enhance their wildlife value; and long-term commitment of properties to conservation goals is not guaranteed.

On the other hand we strongly endorse the arguments of Platt and Ahern (1995b) that nature conservation on private land can be of particular significance to species or communities poorly represented in reserves; contribute to approaching conservation at a landscape level; provide a means for the community to support and participate in conservation; and potentially enhance the sustainability of agricultural and other rural enterprises.

In addition, we note that meeting the management costs of conservation programs on private land need not call on the public purse and need not depend on the whims of government policy. At best, moreover, the owners of a private property dedicated in whole or in part to conservation will be in a position to exert a high degree of control over land-use and also to avoid having to compromise their mission through being obliged to serve the needs of visitors.

Conservation beyond the parks

While we recognize that national parks no longer necessarily exemplify the tragedy of the commons in the stark way that Hardin (1968) implied, we regard the concept as still carrying a salutary message. It is in the very nature of parks that they attract people; they are "very important to the community for a wide range of social and recreational activities, which help maintain a healthy society" (Parks Victoria 2000). It is therefore generally true that they are subjected to more or less intense and continuous usage by people, and that they are expected to serve multiple functions. Of course the level and kinds of usage, particularly in popular parks, are controlled by regulations and by the presence of park staff. There is nevertheless an inherent contradiction in catering for large numbers of visitors and encouraging a variety of recreational uses in places which are expected to play a major role in biodiversity conservation. There is a strong parallel with some zoos, which may claim that their key function is wildlife conservation; but if this were really true their first action should be to lock their gates and exclude all visitors (see Hancocks 2001).

Our thesis is that areas of high-quality habitat which, for reasons of remoteness or obscurity or anything else, do not attract substantial attention or visitation, may well stand alongside national parks as custodians of biodiversity, without being reserved or accorded any special status. Again, habitat fragments in private ownership, even small and scattered ones, whose management is essentially focused on the single function of biodiversity conservation, and which make no concessions to visitors, may serve an invaluable role as complements to parks systems. We propose that the Strathbogie Ranges are a significant case in point, taking into account the forest remnants, the registered or covenanted properties, the well-vegetated roadside corridors, the absence of major tourist attractions, the distance from population centres, and the development and diffusion of a conservation ethic in the area.

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