# Towards best practice in management of road reserves

by **Karen J. Esler** and **Sue J. Milton**, Department of Conservation Ecology and Entomology and Centre for Invasion Biology; University of Stellenbosch

AN INEVITABLE consequence of population pressure and a growing economy is that landscapes increasingly become converted to those where production and transport are primary concerns. The biodiversity-rich southern African landscapes are no exception to this global trend with our linear transport corridors (roads, power lines, railways) causing fragmentation of habitats. However, they can also be seen as essential linking corridors between habitat fragments where adjacent agricultural or urban activity has eliminated biodiversity.

In South Africa, all new roads, road upgrades and clearing of natural vegetation greater than 3 ha now require authorisation in terms of Environmental Impact Assessment regulations. However, on-going management of existing road verges and some servitudes appears not to be subject to environmental management planning, implementation or monitoring. This subject has been hotly debated in previous issues of *Veld & Flora*.

As a result of public concern relating to invasive alien plants, the Centre for Invasion Biology at the University of Stellenbosch organized a workshop on ecological management of habitat corridors managed for public service. This aimed to discuss the perceived poor management and find solutions.

ABOVE: The combined area of road, rail and power-line servitudes represents a significant portion of the land surface of South Africa.

**Why are road servitudes important?**

Linear landscape corridors connect fragmented landscapes, and often represent a large portion of all that is left of certain threatened habitats, often harbouring threatened species. The genetic diversity (rare species, varieties, populations) retained in such corridors and the 'ecosystem services' (seed banks, pollinators, soil conservation, small mammals and birds that disperser seeds) are vital for the restoration of neighbouring degraded habitats. For example, where rangeland has been changed by grazing to domination by poisonous plants, or where plant species have been lost through ploughing, the natural road verges can be used to see what the vegetation might have been like before the damage took place.

Many animals, including antelope, tortoises, foxes, lizards and even some birds, do not move through crop land or are unable to cross fences; and corridors adjacent to roads could provide an insurance policy for biodiversity in the context of global climate change because they may allow organisms to shift their ranges across temperature and rainfall zones to escape the potentially lethal effects of climate change.

Road verges also have important aesthetic, educational and tourism values, as they are sometimes the only pieces of natural vegetation visible and accessible. Assuming that the road verges on either side of national roads are 25 m wide, then South Africa's 7 200 kilometres of national roads have a combined verge area of approximately 36 000 ha. This figure could be trebled if provincial and municipal roads are included in the estimate. The combined area of road, rail and power-line servitudes therefore represents a significant portion of the land surface of South Africa.

**What makes the management of corridors so challenging?**

Not intended as biodiversity corridors (road verge management, for example, is to maintain visibility for safety) it is understandable that management mandates can influence how remnant biodiversity is managed. Many different interest groups may be concerned. For example, road verges are the concern of formal management authorities like ESKOM, TELKOM, regional government, business, contractors, unskilled labour, roads engineers, adjacent landowners, and interest groups concerned with the conservation of plants and animals in roadside habitat, including nature protection authorities and non-governmental organisations like BotSoc, and the general public concerned about safety, aesthetics or conservation issues (to name but a few).

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# Follow-up

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National job creation initiatives recently magnified these sometimes conflicting management mandates. The Expanded Public Works Programme (EPWP) is a national initiative to reduce poverty and unemployment by using labour to carry out maintenance and construction work on public land. The maintenance of the verges of national and provincial roads is one of the largest EPWP projects. With a mandate to maintain visibility, reduce fire hazards and to protect road surfaces from invading roots, the teams remove all vegetation within 2 m of the road surface and clear debris and tall vegetation from the rest of the verge. The removal of invasive alien plant species from road verges by EPWP teams could improve their conservation status and reduce the chances of such plants spreading, but on the other hand, vegetation clearing and disturbance not only damages plants and animals, but creates gaps easily occupied by invasive alien plants and weeds. In some cases, over zealous clearing and poor training, appears to be damaging roadside vegetation and promoting weeds without necessarily improving road safety.

**Towards a solution**

With this in mind, the Centre for Invasion Biology-funded workshop set out to explore these problems, and to consider which habitat types are most vulnerable to damage or weed invasion, and what type of clearing is most damaging. We needed to formulate best-practice guidelines that will minimize habitat impact along corridors without endangering or compromising safety and service quality.

A variety of academic, government, non-government, public and private institutions were invited to participate. Landowners and interested and affected public from the Darling community were also invited, since this community has had considerable experience and success in negotiating with the Provincial roads department in formulating solutions to their roadside biodiversity conflict.

The solutions worked out are habitat specific* and it was agreed that a local programme of action that incorporates ecological considerations into the decision making process would be the one most likely to succeed. This requires education, awareness and dedicated champions at the local level.

*If you would like to request a copy of some tables that suggest ecologically sensitive management actions for several general scenarios, please contact the editor at Voget@kingsley.co.za.

**Further reading**

Esler, K.J. & Milton, S.J. 2006. Towards best practice in management of road, powerline and rail reserves. C.I.B *Occasional Paper* No.1. Centre for Invasion Biology, Stellenbosch University.

A more detailed report on the findings of the workshop can be found on the C.I.B website - www.sun.ac.za/cib.

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