

Links between birds and plants

Birds which live in arid and semi-arid regions have many adaptations for life in harsh environments, such as the South African Karoo. Likewise, the plants in this region, on which many birds depend for food, shelter, nest sites and nest material, are themselves adapted to survive and reproduce in extreme climatic conditions.

Studies in the Karoo by FitzPatrick researchers Richard and Sue Dean have shown that some plants use the nest-building habits of birds to disperse their seeds. The seeds of at least two Karoo plants, *Galium tomentosum* (voëltjenes) and species of *Eriocephalus* (kapok, or wild rosemary) are commonly used in either the nest framework or nest lining of several Karoo bird species. In time, the nests fall apart, depositing seeds in places where they have a good chance of germination and survival. Thus, the birds are dependent on the plants for nest material and the plants are dependent on the birds to move their seeds to good germination sites.

Close links between birds and plants have implications for the protection of birds and the Karoo (and other) habitats. When established patterns are disrupted, for example by birds using sheep's wool rather than fluffy seeds to line their nests, the plants which rely on birds for seed dispersal may become increasingly rare or even become locally extinct.

Links between birds and plants are particularly tight in arid environments. Desert grassland species such as Stark's Lark *Eremalauda starki* and Grey-backed Finchlark *Eremopterix verticalis*



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Several Karoo bird species, including Sclater's Lark *Spizocorys sclateri*, make extensive use of *Stipagrostis* seeds as nest lining and are important dispersal agents for these seeds.



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The ready availability of sheep's wool for nest lining, as illustrated here by the Black-headed Canary *Serinus alario*, could lead to local plant extinctions because the birds are no longer acting as seed dispersal agents.

~ NEW DIRECTOR FOR THE FITZPATRICK INSTITUTE ~

On 1 September 1996, Professor Morné du Plessis took up the post of FitzPatrick Institute Director. Professor du Plessis obtained his PhD from the FitzPatrick Institute in 1989 and is a world authority on the ecology of cooperatively breeding birds. He was the first zoologist in South Africa to receive the prestigious President's Award from the Foundation for Research Development. The staff and students of the FitzPatrick Institute wish him well in his new post.

are heavily dependent on the seeds of Bushman grass *Stipagrostis ciliata* for both food and nest material, as well as to provide shade and shelter for the nest site. The highly localized endemic Red Lark *Certhilauda burra* also depends on Bushman grass and another large-seeded species, *Brachiaria glomerata*. When the grasses disappear, so does the lark.

It is not only the plant species in a bird's habitat that are important, but also the structure of their habitat. Recent studies have shown that large trees in arid savannas are more important to birds than small trees of the same species. Removal of large trees from these habitats can lead to the loss of several bird species, such as large raptors, which are dependent on large trees for nest sites.

The types of changes that will occur when plant communities are disrupted can be predicted theoretically and modelled mathematically. However, the accuracy of these predictions can only be tested in the field. Future field work on the birds of the Karoo and the arid savannas will continue to investigate the close links between birds and plants and, hopefully, will solve some of the mysteries that still surround these interactions. □

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