

CONSERVING HIGH-ELEVATION grasslands

RED-WINGED FRANCOLIN IAN LITTLE

Grasslands are the second largest biome in South Africa, covering almost 340 000 square kilometres. They contain the country's economic heartland, with great mineral wealth as well as vital agricultural production. In addition to supporting some 20 million head of livestock, the grassland biome produces virtually all South Africa's maize and a large proportion of the other cereal crops. The grasslands also generate the bulk of the fresh water needed to sustain human life. And yet grasslands are among South Africa's most threatened biomes, with only 2.5 per cent formally conserved. Around two-thirds of the biome has already been transformed by agriculture, urbanisation and mining, and remaining areas are under tremendous development pressures. As a result, it is crucial that we understand how best to manage the remaining grassland areas to maximise their conservation value.

Research by former doctoral student Ian Little addressed this question in moist highland grasslands. This habitat is home to a diverse suite of specialist bird species, such as the endemic Yellow-breasted Pipit *Anthus chloris*, and is among the most threatened of South African grassland types. Livestock farming is considered to be the most conservation-friendly land-use type within production landscapes, but the value of

rangelands depends on the intensity of management. Ian's study, conducted in the Dullstroom area of Mpumalanga, assessed the importance of different burning and grazing regimes on bird and insect communities. In a paper published in *Biological Conservation* (2013, 158: 258–270), he and co-authors Phil Hockey and Ray Jansen compared the conservation value of commercial cattle farms with communally grazed areas and the Verloren Vallei Nature Reserve that has variable densities of indigenous grazers.

The main conclusion was that fire is generally more important than grazing intensity in structuring insect and bird communities in these highland areas. Historically, natural grassland systems would have burnt on average only every three to four years, but currently most farmers burn these areas every year. The study found that, contrary to conventional wisdom, such frequent fires degrade rangeland quality by reducing the abundance of palatable grasses. Conversely, protecting grassland from fire for too long also reduces diversity. The timing of burning is also important. Summer fires burn insects that have just emerged/hatched and destroy the nests of grassland birds. Cool fires in late winter are much better for the conservation of grassland species.

To conserve highland grasslands, rangeland farmers should aim to burn their land

only every second year, and to do so as early in the season as is safely possible. Of course, there is need for spatial diversity. Different organisms prefer different conditions, and to maximise diversity of species as well as functional guilds, we need a mosaic of different fire frequencies and grazing intensities, something that can be attained with the use of extensive fire breaks. Although all grassland species are affected by such management decisions, some are more easily disturbed than others, such as Red-winged Francolin *Scleroptila levaillantii*, Ground Woodpecker *Geocolaptes olivaceus* and especially the Yellow-breasted Pipit. This endemic and vulnerable pipit is particularly sensitive to both high stocking rates and annual burning and, as such, is a valuable indicator of intact habitats in high-altitude grasslands above 1 800 metres. Ian's work in these grasslands clearly indicated that those farms where these pipits occurred were dominated by healthy grasslands.

For more information, contact
The Director, Percy FitzPatrick
Institute of African Ornithology,
University of Cape Town,
Rondebosch, South Africa 7701.
E-mail fitz@uct.ac.za,
tel. +27 (0)21 650 3291 or
visit www.fitzpatrick.uct.ac.za

