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REVIVING RANGE MONITORING USING FIXED-POINT PHOTOGRAPHS AND FIELD MEASUREMENTS IN MARAKELE PARK, LIMPOPO PROVINCE, SOUTH AFRICA

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Range condition monitoring for decision making purposes has been an ideal of range ecologists that is rarely achieved in practice. Usually, specialist workers are required to conduct the surveys and institutional memory tends to be short, with projects fading as a senior researcher leaves or funding is cut. Often data is gathered but underutilised and poorly archived. Recently, range monitoring systems that can be used by non-specialists and that will provide the information that is directly relevant to managers for decision-making have been developed. Fixed-point photographic monitoring is a powerful and quantifiable tool that can be used by specialists and non-specialists alike to measure woody density, herbaceous cover and productivity, and proportion of perennial grasses. Historical photographs have proved a valuable resource for investigating bush encroachment and plant cover in areas with a shortage of field measurements. Marakele Park, a contract park of the Greater Marakele National Park in Limpopo Province, is a semi-arid savanna with a historical legacy of assessment and monitoring sites established for research purposes and largely discontinued. Several new fixed-point sites were established in the park, using existing grazing exclosures such as fenced campsites and bomas as reference points with which to compare unprotected veld. The new and historical field data collected by specialists was used to calibrate the photographs to provide reference photographs for non-specialists to use in future monitoring and decision-making. A project to encourage crowd-sourcing of historical landscape photographs from tourists, staff and previous farmers, with a web-based photo database, is proposed. The proposal includes procedures for managers to monitor, store, quantify and interpret fixed-point photograph data.

**Keywords:** veld monitoring; adaptive management; data management; historical data

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