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## Conservation and Ecosystem Services

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### **Rodents as indicators of the ecological impact of an open-cast iron ore mine in the Northern Cape, South Africa**

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Rodents have been proposed as an important ecological indicator in various environments. In general, it is expected that rodent community structure change with varying levels of succession and habitat disturbance. In this contribution we report on the results of the first seven years of a long-term biomonitoring study, using small rodents and vegetation to measure ecosystem change on an open-cast iron ore mine. A total of 43 transects on the mine and surrounding farms were stratified to be at various distances and along a potential impact gradient radiating from the core mining activities. Wind speed and direction, vegetation units, sensitive plant areas and conservation areas were also taken into account. All transects were sampled annually at the end of the main rodent breeding season. Clear changes in both the plant and rodent communities closer to the mine activities were observed, with some transects already showing significant changes within the first year or two after mining commenced. These included 1) a decrease in rodent and plant species richness, 2) a disappearance of "specialist" rodent and "decreaser" plant species (generally associated with higher habitat integrity), and 3) a decrease in both plant and rodent species diversity. Similar changes were less apparent on transects further away from the mining activities, but were not observed on the furthest, least influenced, transects. A strong relationship between veld (vegetation) condition scores and total herbaceous dry matter production, and rodent species richness, diversity and indicator species' presence/absence were found, demonstrating the potential value of small rodents as ecological indicators of ecosystem integrity.

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# Julius-Kühn-Archiv

Jens Jacob, Jana Eccard (Editors)

6<sup>th</sup> International Conference of Rodent  
Biology and Management  
and  
16<sup>th</sup> Rodens et Spatium

Potsdam, Germany, 3-7 September 2018

Book of Abstracts



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