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A comparison of aquatic macroinvertebrate and large branchiopod community composition between temporary pans of a conservation area and surrounding communal area in South Africa

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A comparison of aquatic macroinvertebrate and large branchiopod community composition between temporary pans of a conservation area and surrounding communal area in South Africa

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Abstract

Although temporary wetlands are often biodiversity hotspots that deliver multiple ecosystem services, they are also threatened by human exploitation. We conducted a comparative field study to investigate the impact of reserve protection on the diversity and community structure of aquatic macroinvertebrates of temporary wetlands (pans) in South Africa. Specifically, we compared the diversity and community composition of macroinvertebrates with a special focus on large branchiopod crustaceans in pans of a protected nature reserve (Ndumo Game Reserve) with that of pans in the surrounding anthropogenically disturbed area (Ndumo Communal Area). Our results show that reserve protection has a significant positive effect on the diversity and community structure of the aquatic macroinvertebrates. The taxon diversity for macroinvertebrates in general and large branchiopods in particular was significantly higher in the Ndumo Game Reserve, compared with the Ndumo Communal Area. Overall, our results illustrate the need for continued protection of reserve areas and pans in this tropical region in South Africa for the conservation of macroinvertebrate species.

Keywords

Anthropogenic disturbance; Diversity; Floodplain; Ndumo Game Reserve; Wetlands