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A RETROSPECTIVE ON THE ENVIROMENTAL AND SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH REGULATED INVASIVE MAMMAL SPECIES IN SOUTH AFRICA

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On a global scale, invasive alien species (IAS) pose major negative threats to biodiversity and human socio-economic affairs. The degree of invasiveness and associated impacts vary significantly between species. Legal regulations relating to the management of IAS require evidence-based scientific research regarding their impacts. Therefore, the assessment of the IAS impact is a critical component of their effective management. In this study, the Generic Impact Scoring System (GISS) was used to assess the Environmental and Socioeconomic impacts of regulated mammal taxa of South Africa. In total, 45 regulated invasive mammal taxa were identified and 34 were assessed for both environmental and socio-economic impacts. The species scoring the highest environmental impact was the Red deer (*Cervus elaphus*) , followed by the Axis deer (*Axis axis*) , while the species scoring the highest socio-economic impacts was the Sika deer (*Cervus Nippon*). There was no statistically significant difference between overall environmental and socio-economic impact scores ($V = 17$, $P = 0.173$). Order Artiodactyla had the overall highest environmental impact score, followed by Rodentia. There was a significant difference between the levels of mechanisms for both environmental and socio-economic impact categories ($P < 0.05$). Our findings reaffirm the significant impacts associated with invasive mammal species. The outcomes of this study contribute to the management, particularly the regulation and the listing processes, of regulated alien mammal species. Due to competing interests for limited resources and a large number of IAS, biodiversity managers require process and evidence-based analytical tools to manage and mitigate the impacts of invasive species. We, therefore, call for a frequent assessment of the regulated species.

Keywords: biodiversity management, invasive alien species, mammal species, management prioritization, policy and regulation
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