

Adopting standard methods for assessing biodiversity impacts of invasive alien species

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Summary Invasive alien species (IAS) are considered the number one threat to vulnerable native species in Australia. In order to invest limited management resources wisely and demonstrate the effectiveness of threat mitigation, measuring the biodiversity impacts of IAS is of vital importance. However, IAS impact is a complex and highly context-dependent issue. Assessments have mostly relied on the use of surrogate measures or assumptions about potential risks from evidence elsewhere. Direct estimates of impact are rare and poorly generalisable. In response to this monitoring need, various impact assessment protocols have been developed that aim to synthesize evidence from a range of sources in a systematic, repeatable and comparable form. Among these, the IUCN Environmental Impact Classification for Alien Taxa (EICAT) standard for measuring the magnitude of IAS impacts is gaining widespread attention by researchers and policy makers alike. We adapted the EICAT method to conduct an IAS impact assessment for the purposes of the New South

Wales (NSW) Biodiversity Indicator Program. In this pilot study we assessed the current evidence of impact caused by 22 significant weed and pest animal species on 97 listed threatened species and ecological communities in NSW using a structured expert elicitation protocol. Results showed that many weeds currently cause significant biodiversity impacts, including local population extinctions of native species. We suggest that standardized impact assessment methods such as EICAT provide a consistent yet flexible framework for comparing IAS impacts across biological groups and spatial or temporal scales. When integrated with measures of uncertainty, they provide a valuable way for monitoring, evaluating and reporting impacts to support outcome-oriented IAS management in Australia.

Keywords Weeds, pest animals, invasive species, impact assessment, magnitude of impact, structured expert elicitation, monitoring, evaluation, reporting