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Intentionally introduced terrestrial invertebrates: patterns, risks, and options for management

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Our understanding and management of pathways of alien species introductions has improved significantly in the past few years. However, little attention has been paid in most parts of the world to the risks posed by the *intentional* introduction of alien terrestrial invertebrates which are not intended for use in biological control. We review the species and pathways involved in this intentional trade, and discuss key factors that mediate different aspects of risk. A total of 20 different intentions for the introduction of terrestrial invertebrates were identified. Uses and trade patterns have changed over time and further changes are likely in the future. In particular, invertebrates used in the pet trade, and as human food and animal feed are likely to increase in relevance. We assess priorities for future research and regulation based on the perceived “risk” of the uses including propagule pressure, security of captivity and ease of regulation. Regarding risk assessment, we examine three options: (a) using an existing generic protocol developed for a broad range of taxa; (b) developing a new protocol, possibly by adapting a protocol developed for other taxa; and (c) adopting the approach applied for biological control, i.e. structured experiments and observations. This review highlights the diversity of uses and associated threats of intentional terrestrial invertebrate introductions. It provides recommendations on how to tackle and prevent related issues and can therefore serve as a guideline for future work. We argue that the most suitable option for risk assessment might depend on the type or organism and the level of knowledge of the organism, as well as the intended use.