"Words matter." A response to Jørgensen's treatment of historic range and definitions of reintroduction.

RUNNING TITLE: Historic range and definitions of reintroduction

KEYWORDS: guidance documents; historic distribution; indigenous distribution; indigenous range; IUCN; translocation.

Manuscript submission category: RESPONSE ARTICLE

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Abstract

According to Jørgensen (2011), the definition of reintroductions is crucial to their proper implementation and she highlights a number of ambiguities in existing definitions, particularly associated with the concept of historic range. We could not agree more and have incorporated her suggested term of 'indigenous range' rather than 'historic range' into the current revision of the IUCN Guidelines for Reintroductions and other Conservation Translocations (in preparation by IUCN Species Survival Commission Reintroduction and Invasive Species Specialist Groups). We also agree with Jørgensen's interpretation that reintroductions are not always necessitated by humans causing the extirpation of species. However, we disagree with other aspects of Jørgensen's argument such as the critique of Seddon (2010), the interpretation of previous IUCN guidance documents (IUCN 1987; 1998), and the recommendation that the conservation community 'rethink the basic definition of reintroduction' rather than moving towards other translocation-based interventions. With regards to the latter point, we emphasise that reintroductions are part of a spectrum of translocations and to focus on reintroductions alone would overlook the fact that introductions beyond a species' indigenous range are being attempted. The new revision of the IUCN guidelines incorporates the whole conservation translocation spectrum and aims to avoid the ambiguities of previous definitions highlighted by Jørgensen.

Seddon (2010) refined previous definitions of reintroduction which he describes as the "Intentional movement of an organism into part of its native range from which it has disappeared or become extirpated in historic times". He also outlined a spectrum of alternative conservation translocations which differ from reintroductions in scope and in their dependence upon reliable historic information of species distribution. In response, Jørgensen (2011) recommends that as a conservation community, we should focus on defining reintroductions precisely instead of moving towards interventions of other names which she feels Seddon (2010) advocates. Jørgensen also raises potential problems associated with the term 'historic'. Finally she recommends that scientists should read guidance documents and laws pertaining to reintroduction, so that they can represent these to the news media.

As members of the IUCN Task Force charged with revising and expanding the 1998 Reintroduction Guidelines, we have similar preoccupations and concerns with terminology of reintroduction and related interventions. We welcome some of the suggestions made and indeed, these have already informed our current deliberations. Nevertheless we feel it is imperative to point out that some key arguments are flawed and apparent contradictions that underline the main thesis of Jørgensen's paper risk creating confusion among reintroduction practitioners, policy makers, and the general public. In this response, we hope to bring further clarity to the discourse on defining interventions associated with population restoration whilst consolidating Jørgensen's opening statement that 'words matter.'

Reintroductions are just one of several conservation translocation tools

We disagree with Jørgensen's interpretation that Seddon (2010) recommends a 'move away' from reintroductions; instead he calls for the adoption of firm definitions for interventions that are already being implemented. We feel that to focus on reintroductions to the exclusion of other translocation-based interventions is to ignore the fact that potentially irresponsible conservation introductions are or could be undertaken without the benefit of scientific consensus on when such interventions are appropriate; examples of this are the concepts of 'Rewilding North America' with large African predators (Donlan 2005) or moving elephants to Australia (Bowman 2012). The starting point of coming to a consensus is agreeing a common

language by which we refer to the interventions we are concerned with. To this end, the establishment of a set of definitions by which reintroductions are clearly distinguishable from other translocations is a fundamental part of progressing the debate and Seddon (2010) was timely in his treatment of the subject.

'Indigenous' Preferable Over 'Historic'

Another criticism levelled at Seddon (2010) is in the context of 'historic' conditions which are incorporated into the definition of reintroduction; Jørgensen says that the definition given is "not as definitive as he would have readers believe". However, regarding the context of historic or historical, Seddon (2010) actually dedicates two paragraphs to the challenges associated with practically defining this due to: "unreliable historical records, arbitrary reference points, and accelerating habitat change."

One of the core arguments used by Jørgensen is that the word 'historic' (used in the IUCN Position Statement of 1987) implies a time limitation that subsequently affects decisions on whether to undertake reintroductions: "'Historic times' is used to denote the era for which we have written records in contrast to 'prehistoric times' when only archaeological remains are available." But in the later IUCN Re-introduction Guidelines (IUCN 1998), the addition of the suffix 'al' is interpreted as a significant change to the definition: "Since history is all time before the present, a 'historical range' implies that the species could have lived in the area at any time in the past, both the historic and prehistoric eras." The distinction between these two interpretations is implied to be the result of a reformulation of the definition of reintroduction; whilst the definition did change slightly between the Position Statement on Translocation (IUCN 1987) and the Guidelines for Re-Introductions (IUCN 1998), no attempt was made to define historic or historical in either document and the rewording makes no practical difference to the implementation of reintroductions. Jørgensen states that a '"historical range" is not the same thing as a "native range ... in historic times"' but we think that this distinction is more obvious to Jørgensen given her background as an environmental historian, than it would be to most conservation practitioners.

We agree that 'historic range' is not a useful concept if Jørgensen or others interpret 'historic' to imply only pertaining to written records. This would be particularly problematic in countries which have very diverse flora and fauna and the target species may be absent from records and where written documentation of species distribution is a relatively recent activity. Moreover, we would expect that most aboriginal communities around the world would certainly argue that history is not defined by written records, but rather by oral tradition. Jørgensen quotes from the 1987 IUCN position statement, "Re-introduction is the release of a species of animal or plant into an area in which *it was indigenou*s…" We believe that the term 'indigenous' is indeed less problem-laden than the term 'historic' and we have incorporated it into the imminent revision of the IUCN Guidelines. However, reverting to the term 'indigenous' does not change any practicalities of determining where the indigenous range was, when it was occupied, or whether it is still suitable for the species.

Definition does not provide justification

Jørgensen states: "Rather than moving away from reintroductions toward interventions of other names, I encourage scientists to use a broad definition of reintroduction presented by the IUCN to open up reintroduction as a viable label for bringing a species back to an area regardless of when it was previously there or why it became extinct." The implication of this is that by defining reintroductions in this way, practitioners and policymakers do not need to consider other types of translocation. However, the decision to employ any type of translocation should be based on a comprehensive and balanced assessment of need, risk and feasibility, and we urge practitioners not to confuse the definition of reintroduction with the justification for reintroduction. Suitable habitat must exist before a reintroduction is attempted and this makes the likelihood of reintroductions in areas from which the species was long gone an unlikely prospect. Although we use the definition of reintroduction to talk about restoration to former range, the range as defined by present and past occupancy may not coincide with the current spatial distribution of the ecological niche. Whilst we do not advocate reintroductions over assisted colonisation or vice versa, we cannot ignore the fact that the fundamental niche of any species is not going to be accurately represented by its past or even present

distribution (Osborne & Seddon 2012). Indeed, the reliance on former range to guide reintroduction attempts may be the reason why some reintroductions are unsuccessful (Dalrymple et al. 2011).

Previous Presence Does Not Necessitate Reintroduction

We feel it is necessary to be absolutely clear: just because an organism used to be present, does not imply or necessitate that it *must* be restored. Unfortunately, reintroductions are sometimes motivated by reasons other than the conservation of species or the restoration of ecological function (Moehrenschlager et al. in press). The issue hence arises whether a species *should* be restored and pertinent questions are not only: 'Where was it?' and 'Have extirpation factors been mitigated or removed?' but also 'Is suitable habitat still available?' and 'What are the risks/benefits of reintroduction to the target species, to the ecosystem, and to affected ecosystem services?'. The imminent revised IUCN Guidelines for Reintroductions and Other Conservation Translocations, deal heavily with such considerations and should be consulted.

Human 'Fault' Does Not Necessitate Reintroduction

Jørgensen states that reintroduction applies when 'a species has been extirpated or become extinct', and she surmises that extirpation implies human cause whereas becoming extinct does not. She goes on to present an example where the media used the suggestion that humans had caused the extirpation of lynx from Britain (Hetherington et al. 2006), and an apparent misinterpretation of the European Habitats Directive, to push for reintroduction. We agree with Jørgensen's interpretation that reintroductions are not obligated by humans causing the extirpation of species. Indeed, past and present IUCN guidelines do not advocate for reintroductions at all – they simply outline considerations to responsibly evaluate if reintroductions could be done and, if so, how they would be conducted.

Definitions Do Not Guide Policy – Values Do

Following the context of the British lynx example, Jørgensen advocates that scientists should read reintroduction-relevant guidance documents and laws to interpret these to the media. It is worth mentioning

however, that Hetherington et al. (2006) apparently presented accurate information which the media simply misinterpreted; this is a common problem in all aspects of conservation and indeed news coverage generally. Of course we do encourage scientists to read the imminent IUCN Guidelines regarding reintroductions and other conservation translocations, and engage policy-makers to implement sound reintroduction practice. However, we caution against scientists interpreting laws to the media as scientists are generally ill suited to do so.

Reintroductions are one valuable type of conservation translocation that has been increasing drastically in frequency, can be profoundly successful, and can capture the enthusiasm of the general public. However, reintroductions are also often difficult, expensive, or controversial, particularly if alternative conservation approaches are preferable, animal welfare is compromised, or human livelihood is affected negatively (Moehrenschlager et al. in press). The degree to which jurisdictions engage in reintroductions is not primarily driven by interpretations of definitions – instead it depends on what people value, and what is feasible. Potential policies requiring the consideration of reintroductions for extirpated species might be desirable in regions of Europe or North America, but such expectations should not be placed upon economically poorer nations in developing regions.

In conclusion, we welcome the adoption of *indigenous* to replace historic but reject the recommendation to return to the IUCN (1998) reintroduction definition as quoted by Jørgensen. We wholeheartedly agree that definitions are key to communicating coherently and implementing conservation policy effectively. For this reason we recommend that authors take great care when suggesting alternatives to existing and established definitions; to do otherwise can cause further confusion. We will endeavour to follow our own advice thereby producing principles for reintroductions which can supplant cultural and ecological ambiguities.

Implications for practice:

- The merit of a proposed reintroduction or other type of conservation translocation should be assessed based on the risk posed to the species and communities that would be affected by the translocation, balanced with the risk that we may lose a species altogether as a result of inaction.
- Suitable habitat is an essential prerequisite to any translocation but historic or indigenous range can no longer be used as a proxy for this when selecting suitable recipient sites.
- The most recent version of the IUCN guidelines should be consulted prior to planning and implementing any conservation translocation.

Acknowledgements

AM was supported by the Husky Energy Endangered Species Program and the Canadian Wildlife Federation. The authors wish to thank Dr Mark Stanley Price for comments on an earlier version of this manuscript.

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