Guidelines to Facilitate Human-Wildlife Interactions in Conservation Translocations

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Species reintroductions and translocations are widely used management interventions to restore locally extinct or augment severely depleted species. In such projects, the human dimension issues that influence the success of these conservation interventions are encountered at five different stages of the project life cycle: (1) planning, (2) initiation, (3) implementation, (4) ending stage, and (5) post-exit. Overlooking or failing to consider the human dimension in any of these phases could jeopardise the conservation translocation project's success. When the human dimensions are included there is greater possibility of community involvement, peers' acceptance and support from various interest groups and avoidance of conflict situations. The Human-Wildlife Interactions Working Group (HWIWG) was formed in 2018 by members of the IUCN Conservation Translocation Specialist Group (CTSG). HWIWG has facilitated online discussions and workshops with practitioners, researchers and academics from across the globe, on a range of aspects of human-wildlife interactions in conservation translocations, as well as leading discussion sessions during international research conferences. These events have provided a rich source of material from which to draw a series of recommendations. In this paper we discuss findings from the HWIWG that illustrate how, in each of the five stages of the project life cycle, human-dimensions influenced conservation translocation projects. Our aim is to provide useful and multidimensional insights for those working in species' reintroductions and translocations.

Keywords: human dimensions, reintroduction, human-wildlife conflict, biodiversity conservation, wildlife conservation

INTRODUCTION

Characterising the Issues

Conservation Translocation

Conservation translocations, defined as the intentional movement of wildlife for conservation purposes (IUCN, 2013), involve the long-term re-establishment of endangered wildlife to their former range. Sound and comprehensive bio-ecological knowledge, although essential to a project, is insufficient if an understanding of human context in which the translocation is to take place is

misunderstood or ignored. In an era of accelerated biodiversity loss and climate change, the use of conservation translocations and assisted colonisation (to move populations of organisms to areas outside their range) to maintain ecosystem function and protect species from extinction is predicted to increase (Bubac et al., 2019; Brodie et al., 2021). Reintroductions are part of rewilding projects [to regenerate degraded (defaunated?) landscapes, Butler et al., 2021]. Such projects often feature large herbivores and carnivores, landscape engineers and keystone species (Drouilly and O'Riain, 2021). Extinction risks are greatly impacted by anthropogenic causes such as climate change, destruction and disturbance of habitats, introduction of invasive species and pathogens, and over-exploitation. Reintroduction is a useful conservation strategy, but it is rarely conducted in spaces that are totally devoid of people. Therefore, a strategy relating to and including people directly and/or indirectly affected by a reintroduction should be in place.

The Human-Wildlife Interactions Working Group (HWIWG) brings together practitioners, researchers and academics worldwide to discuss key issues and share solutions with the wider community. In February 2018, some members of the IUCN/SSC Conservation Translocation Specialist Group (CTSG) gathered to discuss human-wildlife interactions in the context of reintroductions. This initial event highlighted the need for a forum to promote further discussion, and for the development of a set of principles concerning human-wildlife interactions (HWIs) that could enhance the existing Guidelines for Reintroductions (IUCN, 2013). These Guidelines recognise the necessity of considering socio-economic and cultural aspects in conservation translocations. Nevertheless, it is outside their scope to explore human dimensions in depth, so a need for further guidance remains. A review of HWIs related issues in the IUCN Global conservation translocation perspectives (Soorae, 2021) projects has highlighted some common HWIs issues. Multi-agency collaboration, preventing and addressing human-wildlife conflict; creating long-term benefits and long-term planning, and funding were reported in 39 out of 69 case studies across the phylogenetic spectrum, in all geographic regions. Despite commonalities, human dimensions were seldom addressed consistently throughout projects and often took planners by surprise, becoming a barrier to the success of the reintroduction. These findings reinforce the need for guidance to help project planners make consistent considerations for HWIs at all stages of a project.

Human-Wildlife Interactions in the Context of Conservation Translocations

HWIs are receiving increasing attention from a conservation perspective, possibly as a result of biodiversity decline and changing attitudes and values towards wildlife (Echeverri et al., 2018; Watkins et al., 2021). HWIs can be both positive and negative, can be influenced by context and by previous experience, trends in society and individual processes (Johansson et al., 2016; see Frank and Glikman, 2019 for a review). HWI studies require the integration of several disciplines and knowledge systems as they occupy a position at the intersection of social and natural sciences, psychology and humanities,

indigenous and globalised knowledge, and governance. While diverse perspectives enrich the discussion of HWIs role in conservation, differences in epistemology, research paradigms and methodologies may create barriers for conservation research and practise to incorporate HWI studies into projects (Johansson et al., 2016; Echeverri et al., 2018). The present paper aims to facilitate this process, providing a tool for practitioners to consider HWIs at every stage of a conservation translocation project, supported by evidence from literature, discussions and examples from field work.

As there is a shift from focusing on single species towards restoring ecosystem functions, more species that provoke high degrees of environmental change will be the focus of conservation translocations (Seddon and Armstrong, 2016). Keystone species and ecosystem engineers changing the physical landscape and regulating the abundance of other species, are more likely to affect the livelihoods of local people who may have become unaccustomed to their presence. Seddon and Armstrong (2016, p. 21) suggest that "more challenging reintroductions will require resetting "public expectations" of nature through promoting a close relationship between them and local restoration projects, to change attitudes and gain support."

The relationship between people and wildlife may have both material (based on ecosystem services and income generation) and non-material (based on cultural, psychological, artistic, wellbeing and spiritual factors) dimensions. Non-material HWIs in particular may be context dependent, socially constructed and vary according to culture and worldviews, changing over time (Echeverri et al., 2018). These are highly relevant to conservation as they influence decision making, from government policy to local support for focal species. Furthermore, attitudes and behaviours of community members towards a reintroduction project may differ with socio-demographic variables such as age, gender, race and ethnicity, education and income levels (Mogomotsi et al., 2020). While our understanding of species biology and ecosystem dynamics informs reintroduction planning, it must go beyond that to encompass the understanding of the role people play both at the root of conservation problems and at the root of their solutions.

The Conservation Network in Translocations

Translocation projects function within a network of stakeholders (the Conservation Network; **Figure 1**), each of which have different demands and expectations about the outcome of the project. The conservation network includes actors involved with the *in* and *ex situ* populations, the local community, public, supervisory bodies or agencies, team members, and donors (Swaisgood and Ruiz-Miranda, 2019). This network embeddedness is an important aspect because it relates to the direct and indirect effects of the project in question and any ramifications that may affect the execution of other current or future projects (for example see Swaisgood and Ruiz-Miranda, 2019). Project stewards need to be aware how the translocation project affects and is affected by the conservation network as it advances through its phases.

The impacts of the translocation project can be social, cultural or economic, positive, or negative. Negative effects are the most
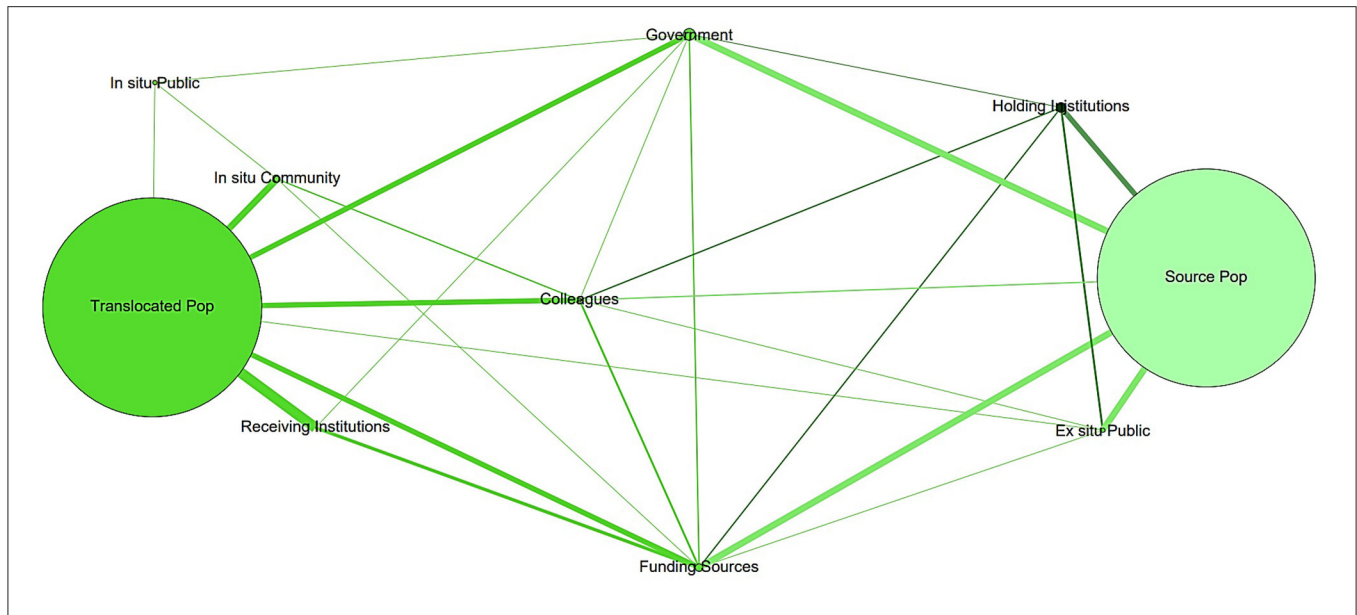
FIGURE 1 | A simplified conservation network for a reintroduction project. Some of the stakeholder nodes represent multiple actors or a smaller network. The *source population* is in a *holding institution* which could be a breeding facility or a network of zoos. The *ex-situ public* are the visitors or public that may have an opinion about or interest in the translocation and influence (via indirect and direct fundraising) the long-term support of the holding institution, the source population and even the *in-situ* work. *Government* is all of the regulatory and permit granting agencies that grant the necessary authorizations for breeding and movement of species. *Funding sources* are institutions or individual donors that provide financial resources either to the translocation project or to the *holding institution* for *ex-situ* and *in situ* work. The *colleagues* node is the network of project participants, collaborators and reviewers that influence the project's evaluation and assessment of goals and outcomes. The *receiving institution* is the organisation or group that will manage or steward the *in-situ* component of the project. *In situ public* refers to the general audience with their perceptions and multitude of opinions about the specific translocation, translocations in general or even wildlife conservation. The *in-situ community* is the part of the population that will interact directly with the translocation project, the landowners or citizens whose daily life may be affected by the released animals or the presence of project staff.

salient and recorded and are discussed in IUCN guidelines (IUCN, 2013). The release of animals can have negative consequences for economic or health reasons. The animals could damage crops, prey on livestock, even harm people (they can introduce diseases that could affect domestic animals or people). The strategic plan must include a communication strategy that informs stakeholders of these potential dangers, mitigation steps, and aim to seek long-term support for the project.

Translocation of animals could also be beneficial by establishing ecological services, creating direct jobs, opening opportunities for ecotourism, by engaging the local community in something that appeals to their sense of aesthetics, pride, or cultural significance. Even when effects are positive, planners must inform stakeholders about potential benefits. Transparency and sharing of information can work towards establishing the project as a "trusted messenger" (Vance-Borland and Holley, 2011; Treves et al., 2021) and consequently allow the project to foster its network towards the conservation goals.

One crucial component of the conservation network is the local community around the translocation site. These are the stakeholders who will reap the benefits and also bear the (ecological and economic) costs of translocation. Ignoring the considerations that the local community may have about a translocation can result in loss of opportunities or even project rejection (Jachowski et al., 2016). Project managers should also be aware of possible secondary consequences. For

example, releasing species targeted by the illegal wildlife trade into habitat on private lands may result in increased poaching in that area; the local community bearing the brunt of the negative consequences of unwanted intruders. An engaged local community can also benefit the project. Local expertise about a species natural history can translate into better habitat selection or monitoring techniques; collaborative locals can be the basis for a participatory monitoring program lowering costs of long-term monitoring post-release. Public opinion can be accessed to identify solutions to potential human-wildlife conflict, as in the case of beaver reintroductions in the United Kingdom (Auster et al., 2020) and sea-eagles in Ireland (O'Rourke, 2014). Robust conservation networks, those with positive interactions and free idea exchanges, are probably more resilient and will support the project longer term. For these reasons translocation projects should make strong efforts to carry out an analysis of the social viability of the project.

How Positive and Negative HWIs Affect the Success of Conservation Translocations

Different cultures have different relations with wildlife species. In some rural Indian cultures, large predators like tigers and lions are venerated and seen as religious symbols. As a result, high cultural tolerance for these species is reported (Kolipaka et al., 2015). In other cultures, the same species are seen as pests and communities violently retaliate towards them and those

promoting their conservation. HWIs in wildlife conservation often focuses on negative interactions that lead to human-wildlife conflict (HWC), rather than building on positive interactions to foster coexistence. Acknowledging and exploring a whole range of interactions may build a better understanding of the human dimensions of a reintroduction, towards conservation success (Frank and Glikman, 2019).

Many negative interactions between people and wildlife are deeply rooted in wider societal issues of power imbalances, governance and historical inequalities and conflicts, as well as individuals' psychological needs and identity (Madden and McQuinn, 2014; Baynham-Herd et al., 2018). Among these, many would be better characterised as people-people conflicts, or conflicts between conservation and other competing human interests (Redpath et al., 2015). Conflict often results from clashes between interest groups over conservation objectives, when diverse interests concerning land and resource use, political affiliation, animal welfare values and others are reflected by strongly held positions (Baynham-Herd et al., 2018). Conflict prevention and resolution, however, are determined by human "thoughts and actions" (Manfredo and Dayer, 2004, p. 317).

Coexistence between people and reintroduced wildlife is influenced by historical, cultural and political context, therefore conservation translocations benefit from combining applied and place-based knowledge to achieve it (König et al., 2021).

The 5 Stages of the Cycle Framework
- Planning stage: before initiating contact with community and various interest groups.
- Initiation stage: initiating contact with community and other interested parties.
- Implementation stage.
- End stage and exiting the project.
- Post-exit stage.

After Schaefer et al. (2020).

GUIDANCE FOR DIFFERENT STAGES OF A PROJECT

In this section we discuss the many issues raised during HWIWG discussions, as they relate to each stage of a conservation translocation project. Often these issues may need to be incorporated from an early planning stage and must be continuously re-evaluated and addressed later on. These may be mentioned in an earlier stage but not repeatedly subsequently. Although this paper does not aim to provide an exhaustive discussion on the human dimensions of conservation translocations, it aims to expand the space for the discussion and consideration of such issues during the planning stages of a project by focusing on key issues, sometimes illustrated by field examples (**Supplementary Material**: **Appendix 1**) and recommendations of actions to address them (**Supplementary Material**: **Appendix 2**).

Conservation translocations are commonly faced with a snapshot in time of positive and negative HWIs, limited to the immediate context of the project. Thus, the management of

HWIs tends to focus on changing "human behaviours," including behaviours that threaten wildlife by attempting interventions that Baynham-Herd et al. (2018, p. 181) categorise as "technical" (reducing negative human-wildlife interactions and promoting positive ones), "cognitive" (disseminating information, education and awareness campaigns), and "structural" (regulation creation and enforcement, mitigating losses).

Interventions that focus on participation of diverse interest groups throughout all stages of the project, on the other hand, contribute to targeting structural and long-term social dimensions of HWIs that may make a perennial contribution to the success of the project (Baynham-Herd et al., 2018). These include several forms of participatory planning, knowledge sharing, and consultations, as well as conflict resolution and devolution of decision-making power to local people. Each intervention must be considered at each stage of the project to promote prevention of HWC, rather than the need to address these, and to promote positive HWIs (Madden and McQuinn, 2014; Redpath et al., 2017; Baynham-Herd et al., 2018).

Due to the nature and relevance of HWIs, collaboration between biological and social scientists connecting research and practise is necessary to increase success of conservation translocations in all phases of a project.

Planning Stage of the Project-Before Initiating Contact With Community and Various Interest Groups
Deciding How Involved Local People Should Be in the Project Planning Stage
Projects led by state agencies may decide not to involve local communities or inform them of reintroductions due to the belief that they will not be affected (Waters et al., 2021) [e.g., Persian leopard and Asiatic wild ass (onager) in Iran, MF; saltwater crocodile, gaur and tiger in India]. There is no acceptable justification to exclude all interested parties and local people should always be informed. Informing communities is critical whether the project is international or locally owned and managed (e.g., golden lion tamarin, Brazil). The state is often the entity which designates areas for the protection of reintroduced species. However, a species conservation project is better received when local people have a forum in which they can voice their concerns and such a forum can promote public support for the project. Failure to inform the community may result in negative attitudes and actions that pose barriers towards the programme/species/future conservation programmes.

Recommendation: Developing communication channels and mechanisms with local communities, government and NGOs from an early stage, which include a forum where local people may voice their concerns about project plans.

Choosing Conservation Approaches
There are questions about the most effective approaches to protect contentious reintroduced species, such as large carnivores and ecosystem engineers, from negative HWIs. When reintroductions occur and introduced populations are very low, impacts on local people are likely to be minimal and

strict protection may be favoured. However, this situation may change as the species recovers and the impact of wild populations increases. Coercive "top-down" approaches based on command and control policies may raise issues of political legitimacy and result in non-compliance and retaliation, while local governments may not have the capacity to enforce and monitor such policies (Redpath et al., 2017). Legislation concerning command and control and collaborative practises vary from country to country, however collaborative approaches are embedded in the Convention on Biological Diversity.

Recommendation: Developing collaborative and trans-disciplinary approaches to build trust and lead to long term coexistence solutions that withstand changes in the population size of reintroduced species; combining collaborative approaches and law enforcement to protect reintroduced populations, while objecting to militarised conservation.

Identifying and Integrating Interest Groups in a Participation Process

Involving local people creates unmissable opportunities. When Communities are presented with a ready-made plan that excludes participation, they may react negatively. Alternatively, when communities are involved in the early planning stages, able to discuss their concerns and "what ought to be done" to address both eco-biological and socio-economic issues, project leaders and interest groups may then move into the next stage together, to decide what "can be done." This creates a participatory process (HWIWG, 2020b). From bio-ecological features to socio-cultural elements, local context is specific to each project. Participation process is context dependent and not easy to extrapolate, therefore it requires an evidence-based approach so that cost-effective, efficient strategies of community participation may be developed (Reppucci, 2013). While decision making is generally complex, interest groups are heterogenous and focused approaches such as information campaigns and workshops may limit involvement. The effectiveness of diverse management approaches can however be tested and monitored (Luyet et al., 2012; Madden and McQuinn, 2014; Redpath et al., 2017).

Recommendations: Developing a participatory process that creates opportunities for local people to discuss their concerns, addressing both eco-biological and socio-economic issues. This allows project leaders and interest groups to move into the next stage of decision-making together.

The early identification and integration of all current and potential interest groups is necessary to avoid later bias as well as the exclusion of relevant groups that may impact the project later on (see Luyet et al., 2012 for a comprehensive review of "stakeholder identification" and "stakeholder characterisation" techniques; Copsey, 2016). Interest groups and the intensity of their involvement may change along the course of the project, and subject to review. One way of dealing with increasing complexity is to ascribe different degrees of participation to each interest group. Luyet et al. (2012) suggest the creation of a core group that includes the project leader, a few stakeholders, experts and locals who can inform on local context. Degrees of participation, from lower to higher, may include

information about the project; consultation; collaboration; co-decision; and empowerment, where decision-making is delegated to the interest group (Luyet et al., 2012). Whatever the level of participation, it is important that none of the groups feel marginalised or under-represented.

Recommendation: Building evaluation mechanisms into the process to allow for groups to identify their desired degree of involvement and how satisfied they are with their involvement, and to avoid conflicts and mistrust amongst interest groups and with project management.

Recommendations: These mechanisms should address residents' concerns effectively, consistently and transparently; Ensuring such processes are known to local people and diverse interest groups (Watkins et al., 2021).

Women and girls are often more exposed to interactions and risks related to reintroduced wildlife. The use and collection of natural resources are often women's duties in patriarchal societies, and livestock losses may affect women's dowries, incurring long term psychological and social costs (e.g., tiger reintroduction to the Sariska Reserve in Rajasthan, India, in Doubleday and Rubino, 2021). In spite of their unique perspectives, women are often excluded from decision making in conservation translocations, as they may also be excluded from resource management roles in their communities. However, the inclusion of women will help inform the most effect ways of reducing risks, reducing HWC, and protecting habitat and focal species, while promoting gender equity.

Recommendation: Listening to and including women from local communities and in management roles in conversations about reintroduction plans, and the decision making process through all stages of the project. Women bring in unique, proximate HWIs perspectives that may be excluded in patriarchal societies, and are often at the centre of HWC.

Ethical Obligations to People Living Around the Reintroduction Area

These are particularly important when the project plans to reintroduce potentially harmful and/or dangerous species. These may include potential livestock predators, crop foragers, disease vectors, or species that are affected by the illegal trade as well as any species that may potentially cause physical or economic harm to people because of the translocation. Although many reintroductions take place in protected areas, reintroduced populations may expand and disperse in the larger landscapes and eventually interact with people (e.g., Vasile, 2018; Jacobsen et al., 2021).

Recommendation: Practitioners planning to work with local communities need an ethics protocol and/or ethics approval from their institutions, and this should be factored in from the early stages of the project (Brittain et al., 2020). For ethics protocol see Johansson et al. (2012, 2017).

Developing a Culturally Appropriate Communications Strategy

Failing to communicate with local people may allow for the spread of fear and other negative emotions (Johansson et al., 2012, 2017). Fear has been a powerful motivator for people to

oppose reintroductions of animals that may have an impact on health/safety/livelihood (e.g., predators, potential crop foragers, venomous animals, Vasile, 2018; Jacobsen et al., 2021).

Recommendation: The foundations of people's concerns about the potential danger of having certain animal species in the landscape must be identified and addressed by the project.

Storytelling

The power of storytelling to emote and inspire people is widely recognised. Expertly devised reintroduction stories can inspire people to care. These may have local appeal when focused on local species, their cultural links to the community, including local traditional and indigenous knowledge, encouraging local pride. Stories and storytelling may also be used as the bases for other engagement activities (e.g. children connecting with local landscape through map creation). Stories may be devised to increase connexion with reintroductions globally, promoting an understanding of impacts caused by the loss of species.

Understanding and Considering the Values of Different Interest Groups

Listening to local people involves learning about their values and expectations in relation to the project. A lot of reintroduction planning concerns animal management, while insubstantial attention may be given to the socio-cultural environment in which the reintroduction will take place. Project planning must consider local people's worldviews, beliefs and values concerning the target species. According to Stoskopf (2012) "The biology is easy. The human issues are hard." Culturally formed attitudes could be hard to address and change. This is because they are deep rooted, passed on through the generations.

Knowing the History

Insights from past coexistence may inform future coexistence. Interdisciplinary research may provide insights into HWIs between diverse groups and the key species, to inform of potential socio-economic consequences of the reintroduction (Echeverri et al., 2018). Knowing how ecological interactions (such as predation or competition) established by the reintroduced species are expected to affect local interests, can inform management decisions. Some effects may be positive (attract ecotourism) while others are negative (reduce populations of financially significant species). Moreover, knowing about the past history related to HWC may shed light on deeply entrenched positions and negative views towards certain groups, focal species or conservation projects (Madden and McQuinn, 2014).

Recommendations: Talking to local people to understand the positive and negative dimensions of coexisting with the focal species; learning from successful mitigation stories. For example, talking with key informants of each of the stakeholder groups to learn of past HWIs.

Decision making about a project by foreign managers/scientists may have "colonialist" connotations (e.g., Chatty, 2002). There have been ethical issues around evicting local people from traditional lands specifically for wildlife reintroduction (e.g., Arabian oryx in the Middle East, Chatty, 2002).

Recommendation: Researching and confronting the effects of colonial history and its continuing influence on the places involved in the translocation.

Managing Culturally Important Species

Freitas et al. (2020, p. 76) suggest that focus on the recovery of culturally important species "can be an effective socio-ecological tool to reconcile biodiversity conservation with local people's quality of life". Such species may play highly significant roles in people's cultural identity, spiritual values and livelihoods. In countries where the local economy relies heavily on income generated by wildlife, improving HWIs and promoting wildlife conservation and restoration over generations are complementary (see Freitas et al., 2020 for case studies in Brazil, and Mogomotsi et al., 2020 for Botswana). Failure to improve HWIs and holistic restoration efforts (for example, see the 4 Returns Framework at www.commonland.com) threatens both livelihoods and biodiversity.

Nevertheless, HWIs cannot be reduced only to monetary costs and benefits of conservation. Communities living alongside wildlife are often not granted recognition for their role in producing ecosystem goods, especially in developing countries, and may experience less tangible psychological and wellbeing gains and losses (Mogomotsi et al., 2020). Research suggests that the local community's rights to sustainable use and their need to access resources' rights, must be built into the co-management of the project, to secure long term collaboration (Freitas et al., 2020; Mogomotsi et al., 2020). If local people benefit from the conservation initiative, they are more likely to show a strong commitment, model positive behaviour norms in the shape of moral obligation and peer pressure and provide local surveillance to support the long-term protection of species and habitat. However, it is important to note that "cultures are dynamic and adaptive" therefore the relevance of a species may vary between groups that are in contact with it, and may change over time (Freitas et al., 2020, p. 75).

Recommendations: Work with local community members and trusted individuals to clearly assess the positive and negative consequences of local cultural attitudes towards reintroduced species to recognise the cultural foundations of local community attitudes and understand the basis for any resistance to species restoration; use this information to work towards changing negative opinions by addressing specific concerns and experiences and integrate positive attitudes into the restoration plan design to highlight its holistic benefits.

Building Trusted Relationships Between Interest Groups

Developing a Trusted Relationship Between Local/Indigenous and Non-local/Indigenous Researchers, Practitioners and Relevant Members of the Community

Developing conservation translocation programmes that are open to diverse knowledge systems and worldviews may help counteract information deficits and biases towards power of influence, associated with scientific knowledge in research and funding priorities. It contributes to fair and just decision-making. As suggested by Wheeler and Root-Bernstein (2020, p. 1634)

in creating and strengthening partnerships between Indigenous and local knowledge holders and scientists "it may be possible to address biological conservation issues alongside ensuring sustainable livelihoods and use of resources, culture, governance and economic development".

Recommendation: Ensuring the involvement of indigenous and local knowledge holders in all stages of the project, from inception to reporting, to promote trust and equitability; considering how knowledge features in the project and making sure that diverse knowledge systems are considered fairly and equally (Rayne et al., 2020; Wheeler and Root-Bernstein, 2020).

Racial Diversity Awareness and Self-Reflection

Confirmation bias may be a side effect of the passionate motivation of professionals working with conservation, creating a sense of "incontestable authority" that precludes acceptance of diverse input into decision-making regarding the project.

Practitioners may be faced with the need to address colonial views, white privilege issues and biases that may come both from project personnel but also from different factions of the public (Waters et al., 2021). In this scenario, affluent white members of a group may not represent the interests of culturally diverse groups that require more representation within the reintroduction. Quantitative questionnaire research is useful for understanding the socioeconomic status of a community. Pairing this with lengthier, semi-structured interviews will provide more nuanced information. Participant observation will then allow for triangulation of interview and behavioural data from individuals of diverse groups.

Recommendations: Fostering self-reflection about ourselves as social actors, evaluating our own actions, values, and preferences and perhaps revising them (Montana, 2020); promoting opportunities to listen and learn from underrepresented groups.

Recommendation: Combining quantitative and qualitative data collection can contribute to a richer understanding of the full picture and a better understanding of relevant interest groups.

Recommendation: Considering the local cultural context and particularities of the relationships between people and the focal species when attempting to transpose methodologies. One solution does not fit all contexts.

Political and Jurisdictional Issues

Expressions such as *"Your wild animals predate on my domestic sheep"* are commonly used by local communities. These are especially pronounced when people resist carnivore restoration efforts by wildlife agencies. Laws and rules vary for each country and many times within the country (states/ provinces). The obligations to restore a species and the rights of those who may suffer losses as a result of such restoration may lack clarity.

It is essential to understand and approach political and jurisdictional issues. Kolipaka (2012) and Stoskopf (2012) suggests that, in democratic nations, policy and law makers apportion greater consideration to public opinion. This means that expert scientific opinions on reintroductions may be overlooked. And, a few active opponents can exert

a disproportionate impact on public acceptance of the restoration effort.

For example, in the tiger reintroduction program at Panna Tiger Reserve in India. Protected Area laws prevented mining within the tiger reserve area. When tigers became extinct in the mineral rich area (e.g. diamonds, limestone, sandstone, granite) local groups saw an opportunity to explore other economic possibilities. Reintroduction threatened these interests. So local groups with strong self interest instigated local rural community members to oppose tiger reintroduction. People's resistance quickly caught the attention of local and regional politicians and they in turn assured communities that "*people are more important than tigers*" "*if you want we can stop the tiger restoration efforts*". Successful cooperation with key active opponents, rather than on the ability to court many individuals who could not sway influence at the political level, improved matters at Panna and restoration work could be successfully carried out (Kolipaka, 2012).

People vs. Government Conflicts

Conservation measures to protect the reintroduced species may criminalise practises that were previously legal and acceptable. Lack of public support may result in retaliation against the government, destroying project infrastructure (Waters et al., 2021) and even using violence against the reintroduced animals/present and future conservation initiatives. Reintroduction may become a symbol of state authority (people vs. government).

Recommendation: Developing an understanding of political and jurisdictional issues; ensuring that the planning stage includes representatives of all groups who may be affected by the planned translocation; developing culturally appropriate communications between these groups and the wider public.

Costs and Benefits for Local Community and Project

Wildlife conservation projects often factor ways to promote the wellbeing of local communities when managing and sharing associated costs and benefits. However, the perception and experience of costs and benefits of a reintroduction may differ according to the interest group, and are not limited to material goods (see Thondhalana et al., 2020 for a comprehensive overview of "social approach to wellbeing"). Managing or compensating a wide scope of visible and hidden costs may prevent feelings that the interests, lifestyles, beliefs and values of some groups are being prioritised over others, which could result in negative attitudes and fuel conflict.

Although the assessment of costs and benefits often focus on visible, direct material losses and gains, there are other socially and culturally meaningful elements to consider: hidden costs may include the working hours people may have to dedicate to guarding crops and livestock from the focal species, and non-material costs may relate to cultural identity issues or traumatic experiences involving fear, loss and anxiety associated with the focal species; on the other hand, the restoration of the focal species may promote hidden and non-material benefits that are social, cultural, spiritual and/or psychological (Thondhalana et al., 2020).

Socio-Economic Feasibility Study

Investigating potential costs/risks and benefits (for example ecotourism, engagement with nature, pest control) of coexistence with the focal species may provide an overview of areas to address and to develop through a management plan, in the context of the reintroduction (see Stringer et al., 2015 for a feasibility study of pine marten reintroduction in England). Research on human-wildlife relations can also contribute to building a richer picture of these interrelations, and help identify ways to increase positive and reduce negative behaviours.

Recommendation: Developing measures of wellbeing together with the local community allows for meaningful and relevant assessment of the costs and benefits of the project; building trust and informing management decisions on the most effective material and non-material trade-offs of conservation objectives, in line with local social values and cultural identity (Thondhalana et al., 2020).

Evaluating Positive and Negative Outcomes: A Case Study

Key potential economic factors that have both positive and negative implications of restoration programs have to be evaluated. Such factors include both direct and indirect returns. Direct returns include tourism revenues, increase in real estate values and jobs can be readily estimated.

When tigers became extinct in Panna Tiger Reserve, India, the local Ken River Lodge owner experienced a more than 50% decline in his wildlife tourism revenues between 2008 and 2012. The loss of tigers also destroyed the tourist-fueled local economy and livelihoods around the reserve. For instance, 30 out of the 38 park guides lost their jobs and some were forced to pursue illegal wood collection from the reserve to survive (Pers comm: Shyamender Singh, Owner Ken River Lodge).

After tigers were successfully restored, domestic tourists and revenue flows to the tourist related local economy increased again. Domestic tourists' needs and buying patterns differed from foreign tourists encouraging new businesses (cell phone shops), increasing jobs in property development for local people. These increases exemplify indirect returns of restoration but are seldom included when assessing the economic benefits of restoration.

Costs of Conservation Translocations on Local Communities

Potential economic costs of conservation translocations to local communities should be evaluated. For example, plans to reintroduce the cheetah to Madhya Pradesh, India conflict with the local grazing practises (children accompanying animals and poor corral constructions) making goats and sheep very vulnerable to predation. Changing the age-old practises over a large landscape will need resources and teamwork. Likewise, in areas where large carnivores like tigers or crocodiles or primates are restored, significant changes in livestock management practises, fishing and farming practises are required by community members to minimise losses to local residents. These issues should be understood and addressed pre and post releases, as new conflicts are illuminated.

Recommendation: Assessing both positive and negative economic impacts on the local communities; teasing out solutions that are both politically and culturally acceptable, while optimising gains that are most beneficial to the local economy (Stoskopf, 2012; Kolipaka et al., 2015; Kolipaka, 2018).

Additional Financial Resources

Some species like the tiger and the vulture have large home ranges and move great distances. This means that a larger landscape radiating out from the reintroduction site may become part of the species' future range. In projects that involve large species, resources are necessary to reach local people across large areas to raise awareness and to make changes in local practises (e.g., tigers reintroduced in Panna Tiger Reserve, India travelled tens and tens of kilometres and through villages and towns). Animals are often introduced in poverty prone areas so there are also economic costs to restoration (Kolipaka, 2018).

Recommendation: Considering the foreseeable needs of animals with large home ranges, as planning must take the larger scale into account; factoring financial, NGO and professional support to work on such a large scale.

Impact of Domestic and Feral Dogs Within Reintroduction Sites

Feral and domestic dogs are a human-dimension issue in conservation translocations. Globally they affect the survival of reintroduced wildlife, are under human patronage, and their proposed removal may often meet local resistance. See **Supplementary Material**: **Appendix 1** for full case study.

Initiation Stage: Beginning Contact With Community and Other Interested Parties
Building Trusted Relationships Through Inclusion

Once the management plan has been established it should be carried out with consistency and transparency to inspire trust and confidence amongst interest groups, but project staff should demonstrate flexibility in their planning approach if their subsequent engagement with communities illuminates areas of disagreement or doubt.

The importance of meaningfully including people who may be affected by the reintroduction in the decision-making process is highlighted in diverse aspects of this phase. Research suggests that inclusion promotes dialogue and increases acceptance of conservation proposals (Luyet et al., 2012; Niemiec et al., 2020). Based on case studies in Africa and the USA, Madden and McQuinn (2014, p. 99) associate successful efforts to secure and maintain the commitment of local communities to the implementation of conservation solutions and prevent HWC (such as the use of fencing), with the amount of time spent "asking questions of and listening to the community members, building trusting relationships, supporting creative and positive identity-building events within the community, and not only regularly engaging with communities, but empowering them in a leadership role during the decision-making and implementation process." Solutions based on understanding positive interactions and addressing the social-psychological drivers of negative interactions are more likely to result in a greater sense of ownership, motivation and commitment to uphold support.

Working Together With Local and Indigenous Communities

As suggested by Wheeler and Root-Bernstein (2020), in this phase collaboration with local, traditional and indigenous communities promotes the development of good relationships between diverse interest groups, to build local capacity and reduce inequalities. It also creates opportunities to reduce and address conflict over conservation decisions. Programme staff must use this process to learn from local people's previous and long-term experiences in addressing HWC problems.

Recommendation: Collaborating closely with local and indigenous groups to seek ways to avoid and reduce conflict and identify how the project can benefit them.

The importance of empowering local knowledge is also evident in this case study of beaver reintroductions to the Scottish Highlands.

A study by Coz and Young (2020) identified that negative HWIs depended on the process of reintroduction (planned, accidental/illegal release) on relationships between different interest groups and on their views of "nature" and "right place" for beavers. Members of the local communities considered that the "right/natural place" for release were the most remote "where beavers were not likely to interfere with any existing land use" (p. 415) rather than places with optimal conditions where animals may thrive. Local people's perceptions of landscape, their role in nature, and potential feelings of lack of control and uncertainty over the impact of beaver reintroductions on their land were the most important predictors of support.

The study also highlighted the importance of creating discussion spaces where local knowledge sits side by side with "conservationist elites", and where preconception of the Highlands as "depopulated wilderness" could be challenged.

Listening and Giving People a Voice

Involving different groups of people in a reintroduction project enriches the decision-making process by bringing in new perspectives and new ideas. However, many people who have not been offered an opportunity to express their views before may be suspicious when approached by a research team. Finding the best way to listen and learn from local people may pose challenges but is an essential part of the process to build a relationship of trust and inclusion. Initial contact with local groups may need to navigate pre-conceptions, issues with trust towards the messenger, and people vs people conflicts.

Recommendations: Listening and learning before introducing information; finding out what people already know before introducing the project to them; identifying the gaps in knowledge and the areas that must be targeted for change through communication and education (HWIWG, 2020b).

Cross-Disciplinary Research Collaboration to Support This Process

Working with social scientists/human dimensions research and an applied approach may benefit reintroduction projects by promoting an understanding of the attitudes, beliefs, knowledge and behavioural intentions of interest groups towards animals and management decisions of the project. This collaboration helps to identify which beliefs influence attitudes the most, to help plan message content and to help reach common ground in participatory decision making.

The use of interviews and questionnaires requires extensive consideration about question design, selection of respondents, cultural and ethical issues concerning data collection and use (consult the Ethics Committee of the research body and region for protocols). The focal species means different things to different people and everyone should have a say. However, research may influence but not dictate policy, and it is important to maintain transparency about data collection and its use in understanding the wider picture and in giving people a voice in decision-making (HWIWG, 2020a).

Recommendation: Communicating the message that researchers are there to listen and document people's views; assuring that the concerns and viewpoints of interest groups are respected and incorporated into decision-making; but making clear that research may or may not inform or dictate policy.

Building Strong Relationships to Mitigate Any Potential Conflicts

Credibility of the project and those leading it is built over time, through the development of long-term relationships with interest groups and local people. Both positive and negative HWIs are to be expected to coexist in a translocation program. Therefore, mechanisms to promote positive cultural and emotional bonds and the benefits local people associate with the focal species must exist together with mechanisms to prevent and to mitigate fear and conflict. e.g. Underlying conflict around Hawaiian monk seal (*Neomonachus schauinslandi*) conservation revolves around distrust of the state, distrust of restrictions on resource use, issues of moving or translocating seals and how stakeholders' narratives and social constructions affect how they engage with seal recovery efforts (Sprague and Draheim, 2015).

Dynamics between love for a species, willingness to coexist, and fear, differ across nations and even across regions of the same country. Rather than relying on expectations formed by previous experience, information on people's perceptions of wildlife and its conservation should be collected to build an understanding of the local picture, in the same way data is collected locally to understand ecological interactions.

Recommendations: Trying to understand the motivations behind negative attitudes and/or illegal activities is a first step towards finding solutions; not relying on knowledge gathered from previous experiences but collecting context specific data.

Recommendations: Focusing on coexistence and on bringing people together to find solutions, rather than focusing on conflict; promoting the perception that there is some common ground to strive for; listening to solutions proposed by various interest groups; valuing local solutions as they can be better for the context than solutions devised from the outside.

Education and Engagement

Freitas et al. (2020, p. 75) highlight the importance of education and outreach campaigns for the conservation of culturally important species and advocate that "initiatives worldwide should consider the relevance of formal recognition as a way to stimulate local engagement and peer pressure, since it reinforces

the wide collective perception that the scheme is beneficial and therefore morally and ethically defensible".

Engaging the Public to Build Support

Engaging the public to build relationships, develop common visions for the future, in education and communication programmes, and other key activities are often deployed to work in tandem with translocation projects. These may use diverse ways of engaging the public to build support towards the reintroduction project:

- Focus on individual animals.
- Focus on populations and species.

People may find it easier to care for individual animals (focus on welfare). However, promoting too much care for individual animals may interfere with the reintroduction project's longevity and success (Niemiec et al., 2020). Too much interest in reintroduced animals may put them at risk from people approaching them and potentially bring the perception that the animal is more important than humans. A difficult balance must be achieved between using charismatic species to attract and engage the public with conservation and promoting an understanding that species must be prioritised over individual animals. The scale at which people need to be made aware and involved depends on the reintroduced species and goals of the project (using SWAT analysis may be useful to guide decisions about communication/awareness/education programmes).

The interests and expectations of people in relation to the reintroduction may vary according to their affiliations and to their proximity to release areas. There may be social structures already in place that can help develop a positive relationship between local people and newly introduced animals.

Recommendation: Building a relationship with local leaders; developing an understanding of how attitudes towards individual animals and the focal species may support the project goals; investigating associations between attitudes towards the focal species and people's affiliations, and to their proximity to release sites.

Role of Accredited Zoos and Aquariums

Zoos and Aquariums accredited by national and international organisations (e.g., World Association of Zoos and Aquariums (WAZA), Association of Zoos and Aquariums (AZA), etc.) work at the interface between wildlife and members of the community. As part of the accreditation process, both conservation and education "must be a key component of the institution's mission and messaging," and organisations must plan for and report on their actions towards these areas (Association of Zoos Aquariums., 2021). Ex-situ collections have historically contributed to many reintroduction projects (Gilbert et al., 2017; Consorte-McCrea et al., 2019). Moreover, zoological organisations have long been integral partners in conservation translocation programs, including notable ongoing successes like the California condor, golden lion tamarin, black footed ferrets, and Przewalski's horse. However, the engagement of zoos in these programs has often been limited to breeding and pre-release care of individuals.

Zoos and aquariums can have a larger role in supporting the human dimensions of reintroduction projects in many ways, including:

- Making use of people's innate connexion with nature (see Biophilia hypothesis).
- Using information about the species and their role in the health of ecosystem dynamics.
- Using storytelling and interpretive methods both *ex situ* and *in situ* to promote connexions between people, place, and focal species.
- Combining the opportunity for social interactions with peers and family, with emotional experiences provided by animal encounters and clear messages about how to support their conservation.
- Utilise the experience, knowledge, and expertise in community engagement, Diversity Equity Inclusion Justice and Accessibility (DEIJA), facilitating nature connexions, and wildlife to support positive interactions between practitioners, local people, and released wildlife.

Recommendation: Developing partnerships with local zoos, aquarium and botanical parks to promote positive attitudes towards the focal species, and support towards the project.

Identifying and Changing Behaviours and Attitudes

The public perception of the focal species can change over time from "goods with commercial value" to "local pride" to "disease vector" (e.g., golden lion tamarin). Gaining and retaining public support towards reintroduction and conservation may require targeting misinformation (using environmental education, media and official channels) and promoting behaviour change.

It is necessary to be realistic and clearly identify public behaviours that may negatively impact programme success and the societal levels at which behaviour interventions should be attempted. Harnessing the power of storytelling can be instrumental to align conservation goals with local people's narratives, converting concerns and conflict into positive stories for change (Schaefer et al., 2020).

Recommendations: Developing cooperation between natural, social or behavioural scientists and management to embed people's behaviours and practises that favour reintroduced species, and to select and target human behaviour change that could increase negative HWIs.

Studies suggest that it is more difficult to change attitudes once people have rationalised such costs and benefits themselves, without information. On the other hand, information provided by the media may influence awareness and perception of risk towards HWIs.

Recommendation: Developing information based on well-informed assessments of the ecological, social and personal costs and benefits associated with the reintroduction and ensure it is available early on in the planning phase (Hiroyasu et al., 2019).

Addressing issues related to feral and domestic dogs, dog owners, and impacts on translocation programs (see **Supplementary Material**: **Appendix 1**).

Implementation Stage

In a study of success and failure in conservation translocations Bubac et al. (2019) recommends that "programs develop appropriate strategies and feasibility plans to ensure enough resources are secured for managing and monitoring the translocation for a minimum of the first four years." While environmental and ecological feasibility studies are commonly undertaken, social-cultural feasibility studies should also inform the implementation of a project.

Translocation projects often work with international stakeholders. During the implementation stage projects may be faced with difficulties related to working with partners that have diverse styles, time schedules, and funding expectations. Relationships between different groups in management roles also affect reintroduced species. These may range from changes in personnel, and associated lack of expertise and experience of new people, to the demand for animals from successful reintroduction programmes to found new reintroduction programmes in neighbouring areas.

Recommendations: Budgeting adequate resources to plan, execute, and monitor relevant socio-cultural aspects of your project, and allow for rapid adjustments as the programme, it's members, and their relationships may change throughout the duration.

Trust and Public Perception of Risk Over Time

As defined by Watkins et al., (2021:2) "Trust reflects individuals' willingness to make themselves vulnerable to another and their perceptions of sharing similar values, while confidence is based on a history of successful past experiences that lead individuals to believe that future events will go as expected". Investments in building a trusting relationship between local people and project agents involve effectiveness in responding to crisis situations, such as dealing with disturbance caused by reintroduced animals, as well as fair decision-making, which may include participative processes, and technical competency. Demonstrating willingness to cooperate with local people instils confidence overtime and prompts the establishment of a relationship of mutual support and cooperation.

Watkins et al. (2021) suggest that opposition towards reintroduction projects can be a result of public perceptions of risk (such as potential threat to people, pets, livestock, damage to property, crops, spread of parasites and disease, and environmental change) and lack of trust and confidence in the people and agencies responsible for managing threats associated with the focal species. Research suggests that any level of perceived risk amongst interest groups must be addressed by the reintroduction project, as these may escalate negative attitudes and result in retaliation (Mogomotsi et al., 2020; Watkins et al., 2021). Nonetheless, although they may never completely disappear, risk perceptions can be mediated by the development of long-term relationships of trust, the buildup of confidence over time, and benefits associated with the project.

Local people who are affected by HWC may suffer a decline in physical and psychological wellbeing, reduced food security and income as they share habitat with the focal species. Unaddressed and unmitigated, such costs may lead to resentment and threaten conservation goals (Mogomotsi et al., 2020).

As populations of the reintroduced species become more established they may grow and spread, increasing the chance of encounters and HWIs. During the Implementation stage the attitudes of different interest groups must be monitored as increasing encounters may increase perception of risk. Research suggests that trust and confidence in agencies, on the other hand, may reduce the perception of risk and improve attitudes towards the project, increasing its potential for success (see case study of elk restoration in East Tennessee, USA, Watkins et al., 2021). Changes in the population of the focal species and in their management, as well as education campaigns and other changes in circumstances may affect attitudes. Consistency, transparency, and patience are important when building a relationship of mutual support and cooperation and efforts can be easily undermined by a breakdown in trust, which may result in covert or overt resistance to the initiative.

Recommendations: Developing longitudinal studies of human dimensions to be undertaken at key stages of the project to provide a picture of changes of attitudes over time, in a way that mirrors the monitoring of wildlife populations.

Recommendation: Developing structures and processes to maintain good communication and transparency with local people and stakeholders throughout the project cycle.

Understanding How Local People Perceive the Focal Species and Reintroduction Project

In a situation where a species is being restored after a period of absence, local people may have lost the behaviours required to successfully coexist with the animals. This is particularly relevant in the reintroduction of large mammals such as carnivores, which pose a threat to both people and livestock.

For example, a qualitative study of villagers around Sariska Tiger Reserve, India revealed that local communities did not show adaptive behaviours (e.g., vigilance, ...) that would enable them to avoid a confrontation with a tiger within the ∼19 years since the species was extirpated from the area (Doubleday, 2018).

A community's previous exposure to conservation activities particularly if it curtailed their access to resources may also result in distrust and resentment which can quickly lead to outright conflict. Researching and understanding the environmental history of the proposed reintroduction site where this may be the case should encourage practitioners to include and inform communities about their activities to build trust. Methods of communicating controversial information, i.e., where local and scientific knowledge conflict, should be done respectfully and, possibly indirectly, enabling the communities to save face and avoid threatening their cultural identity.

Recommendations:

- Obtaining a deep nuanced understanding of local people's behaviours towards- and perceptions of the species proposed for reintroduction, and of how these may change over time.
- Informing communities continually throughout the process in locally and culturally relevant methods, even when the project is locally owned and managed, as projects can be seen as an intrusion (e.g., the golden lion tamarin reintroduction project has been locally managed for 35 years but issues around communication remain).

Levels of Knowledge and Misconceptions

Differences in the public's knowledge levels about wildlife may also play a part in their level of support for a project. A study to assess people's support for grizzly bear (*Ursus arctos horribilis*) reintroduction in California found that half the respondents supporting the species' reintroduction believed the species was still present while respondents who knew the bears had been extirpated were less supportive. This lack of support may have been due to knowledge about the potential negative consequences of reintroduction (Hiroyasu et al., 2019). Given this relationship between awareness and lack of support for reintroduction, the authors caution managers not to assume that the provision of information alone will result in public support for reintroduction proposals (Hiroyasu et al., 2019). Related to this is the fact that wildlife is often a source of gossip, rumour, and "fake news" if communities are not included in the project, or insufficiently informed about it, or if they do not trust the information provided (e.g., rumours that environmentalists colluded with the state to release wolves which were actually expanding their range naturally in northern Europe, Campion-Vincent, 2005; Skogen and Mauz, 2006).

Recommendations: Developing clear and consistent communication between the project and diverse local groups; recruiting the help of trusted members of the community to convey project information; consulting local people and leadership of interest groups to listen to their beliefs, concerns, as well as knowledge, as these change over time.

Actively Involving the Local Communities

During the implementation phase, do not restrict activities solely to the biologically significant aspects, like the wellbeing, adaptation to the release site, health, reproduction, and survival of the focal species. It is also important to focus on the social significance of the translocation.

Recommendation: Ensuring social significance, and consequently increasing local support, active participation and local ownership of the project.

For example, during the tiger reintroduction program in Panna, the local stakeholders, especially influential landowners, village chiefs, tourism sector representatives were all engaged individually at first and collectively thereafter to develop a common vision of the restoration. The engagement was complimented with monthly updates on the project and actively seeking local inputs to guide project components. Over time, these efforts improved local knowledge of the project, and trust between the local groups and the project staff (Kolipaka et al., 2015). Likewise, local religious leaders were involved to interpret the significance of restoring tigers into forest to communicate in ways that the local communities accepted (Kolipaka, 2018).

A Dedicated Institution/Group for Restoration Project-Local Community Interface During Implementation Phase

Recommendations: Allocating resources for the intensive and time demanding work of engagement with local communities and stakeholders.

Case study

In the Panna Tiger Reintroduction Project, a formal institution, Friends of Panna (FOP) was created to support the project–people engagement process. However, the FOP did not function well because of government heavy handedness and lack of foresight regarding the resources needed to operationalize the institution. Instead, an informal coalition of core members from local groups proved more effective in engaging diverse stakeholders during the reintroduction. Leadership was a vital component of these efforts and the core group members played leading roles within their groups and shared responsibilities (Kolipaka, 2012).

Considerations for Cultural Beliefs in Management Decisions

In some cases, invasive methods of collecting biological data may be dissonant with the cultural beliefs of the communities involved in the project. For instance, radio collaring of released animals may be rejected by some indigenous groups as disrespectful to the animals concerned (Clarke and Slocombe, 2009). Other partners may be concerned that telemetry attachments bother the animals and may harm them. In such cases, non-invasive methods of monitoring, e.g., using faecal samples, foraging signs, and trail cameras, should be considered.

Recommendation: Discussing the use of invasive biological data collection methods before release to identify the most appropriate method acceptable in the socio-cultural context.

End Stage and Exiting the Project

Translocations are conservation interventions that by their nature have a definite endpoint, and like all conservation interventions an exit strategy should be structured from the beginning (Conservation Measures Partnership, 2020). For translocations, an exit strategy is the process of terminating the project or an actor's participation in the project. There are various types of exits in conservation and reasons for them (Ruiz-Miranda et al., 2020). Exit strategies apply to the ending of the translocation itself or when a stakeholder stops participating. In either case, the strategy should aim for a responsible or "beautiful exit": leaving with minimal negative consequences to the project's conservation network or the translocation project itself (Ruiz-Miranda et al., 2020). Ideally, all stakeholders should work together to shape the exit strategy or at least all be aware of it. Because exit strategies involve multiple stakeholders with different expectations, a wicked problem approached may be necessary to implement the appropriate communication or negotiation strategies (Game et al., 2014; Mason et al., 2018).

A reintroduction project's endpoint seems to vary along the phases of population growth. The goal of a conservation translocation is expected to be the establishment of at least a minimum self-sustaining viable population (Beck et al., 1994; Kleiman, 1996). This can be achieved by establishing a new population or reinforcing an existing population. However, some translocations are planned as experimental translocations, or for animal well-being, or aim at establishing absent ecological processes (i.e., seed dispersal). In such cases, the endpoint may occur during the early phases of population growth.

Planning With Interest Groups

An Exit Strategy should be devised during the Planning Phase of the project, with input from all parties. Possible partners may include managers (government, other players), sponsors and the local community, or representatives. Different groups may be involved at different levels, with a smaller core group to move decision-making forward. According to Carlos Ruiz-Miranda "all projects need a steward, who will carry the project over time, it is key to have a clear steward that takes responsibilities to make the decisions" (HWIWG, 2019).

The WWF provides a Sustainability and Exit Strategies risk assessment, which may provide useful guidance for conservation translocations (WWF, 2017). Potential areas of weakness should be identified at the beginning of the project. Legal contracts must be considered. If there are fears that one of the partners is likely to withdraw, the effects on the species being reintroduced must be considered. Ethical concerns must address responsibilities of partners, community and all stakeholders. Contracts or agreements must be defined among stakeholders to establish commitments and roles of partners, to ensure their commitment into the plan and to offer warranties in respect to future decision making. Tools such as matrix and decision trees may be used to include ethical considerations in exit planning from the beginning of the project.

Project Endpoint and Associated Exit Strategies

Different exit strategy approaches may be necessary according to where the project endpoint lays in the population growth curve (**Figure 2**). If the translocation succeeded in achieving minimum viable population goals, then either a hand-off or voluntary cessation exit may be appropriate. For most endangered species, the target population will probably need further protection or management actions in the Post Exit Stage. Who will be the steward of the conservation of the population established by the translocation? Will it be another conservation group, or will the local community maintain the achieved status quo, or will a government environmental agency continue other actions or serve as a watchdog? For successful projects the exit strategy could be a "hand-off" to the local community (Ruiz-Miranda et al., 2020).

What to do if the project achieved more modest goals related to the initial phases of population growth? In this case, a hand-off strategy would allow for conservation efforts to maintain stewardship of a more long-term strategic plan. Among the concerns are making sure that necessary scientific, fundraising and governance capacities are present in the new core group that will further the project.

Another reason to exit is when failure is imminent because neither primary nor secondary goals will be achieved or because the negative effects of the release of animals are overwhelming the conservation benefits. Here the exit strategy is intimately tied to the technical criteria for success or failure. Even if feasibility and risk assessments were done, the challenges may be daunting at the time and an exit to rethink, or refit may be due.

Communicating failure is a difficult but necessary component of adaptive management. When the target species is a top or mesopredator that could directly threaten livestock the acceptable levels of risk or economic loss need to be worked out with the local community (see Titus and Jachowski, 2021).

Timescales, Budget and Project Sustainability

The sustainability of a project should feature as a Project Management Goal. It must consider the time scale necessary for actions, as well as the funding necessary to execute these. Therefore, the Exit Strategy must feature as part of planning for the sustainability of the project, towards it becoming self-sustaining.

Time of and decision to exit must reflect the goals of the project, and if they have or have not been achieved; the timeline of the project; its sustainability (who is going to carry it out to the end?); feasibility standards; new opportunities; and changes in scenarios reflecting human pressure and other environmental changes.

Exit Strategy for "Stewards" and Members of the Project's Team

As goals are met, key members of the team are less needed or their roles, involvement and funding may be better channelled elsewhere. However, leaving may impact other members of the team in many ways, emotionally and in practical terms with the capability of completing their tasks.

Recommendations:

- Building Exit Strategies into the project's strategy in connexion with its goals.
- Plotting the role and expectations of funding partners against the goals of the project.
- Analysing the positive contribution a funder can make and the negative impacts of its unplanned exit in relation to the goals of the project.
- Discussing strategies regarding: a minimum time duration of their commitment to funding the project (including a transition period in case of unexpected changes in their circumstances); an exit strategy, with funding partners as part of the planning process. These may be part of a contract or a pledge.
- Considering other stakeholders when planning Exit Strategies, as the reintroduction and its exit may affect each one differently.

Public Perceptions of Exit

Public perceptions must be addressed when decisions are made to reduce the activity of conservation programmes in selected areas. Because exit strategies are part of the adaptive management approach to conservation, they can change as new information is gathered or if conditions change (WWF, 2017). The process of evaluation that drove the decision to exit must be transparent, so that decisions reflect what is feasible and what is best for the species and the conservation network. It is possible that the programme may plan to reinstate efforts if appropriate conditions arise. In some cases, if opportunities arise to connect isolated areas to the core areas, adaptive management can be applied, and conservation strategies can be developed for those
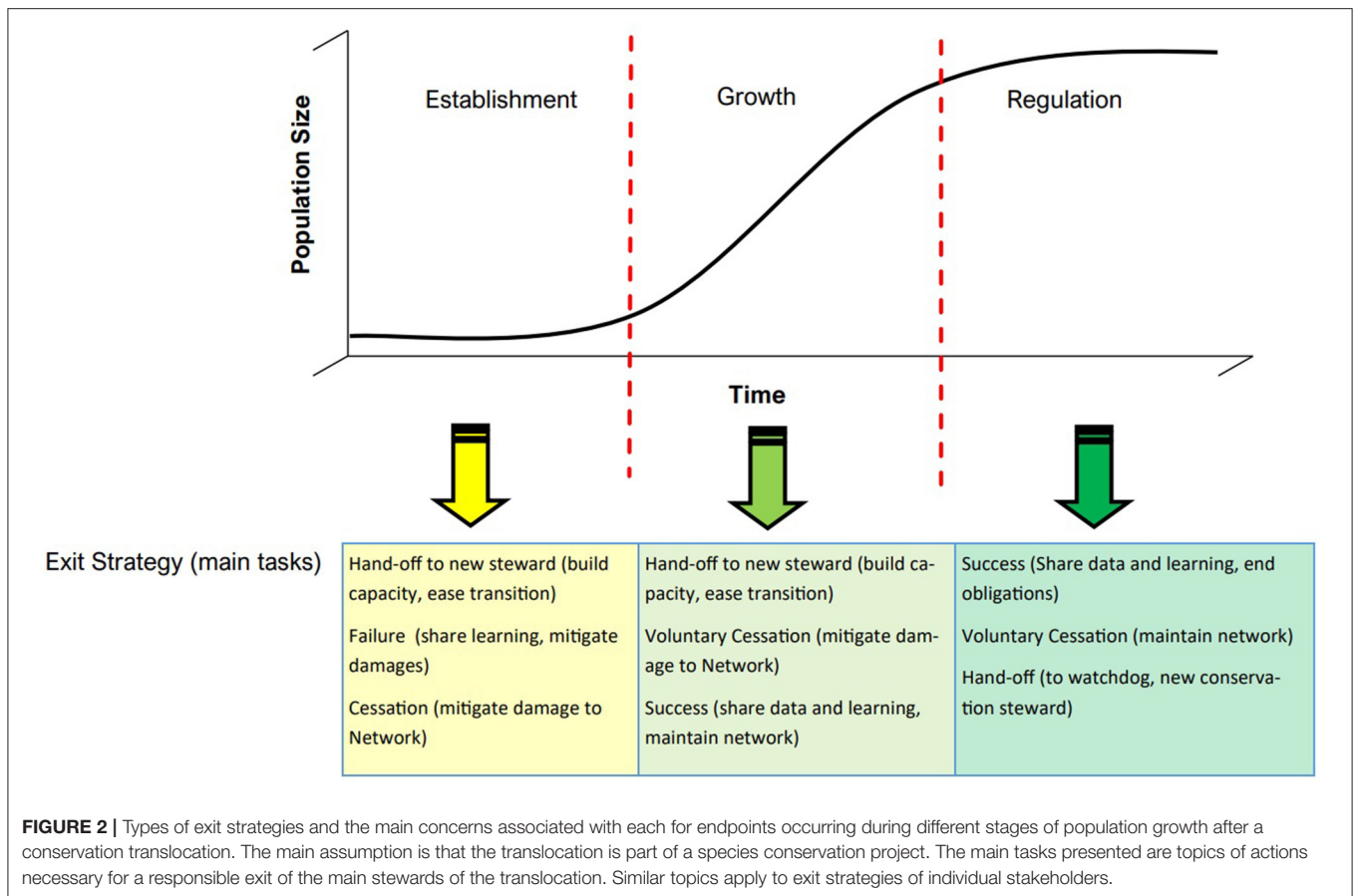
FIGURE 2 | Types of exit strategies and the main concerns associated with each for endpoints occurring during different stages of population growth after a conservation translocation. The main assumption is that the translocation is part of a species conservation project. The main tasks presented are topics of actions necessary for a responsible exit of the main stewards of the translocation. Similar topics apply to exit strategies of individual stakeholders.

areas. In this sense, a responsible exit may foster sustainability of the species' conservation.

It is important to consider that the closing of bases may affect local people on many levels and provoke feelings of disenchantment. The project has an impact on local people's values, attitudes, behaviours, lifestyles; local people may change their livelihoods as a result of the programme and become reliant on jobs associated to the programmes for income or their identity (e.g., from poacher to activist); new careers are created. As stated by Sian Waters "There is an issue of responsibility towards the community that has been engaged and is involved. An abrupt closing of a project when you have community involvement is irresponsible" (HWIWG, 2019). Communication with all stakeholders and their inclusion in developing a proper exit strategy can help avoid disenchantment over not meeting project expectations or goals. Disenchantment should be avoided because it can affect the conservation network and future conservation in the area.

Recommendations:

- Securing long term sustainability for new career opportunities created by the project (which are transferable) and for infrastructures that are more environmentally friendly'; "weaning" people off the project infrastructure.
- Investing in long term strategies to prevent the return of livelihoods/practises that create impact on focal species/biodiversity (e.g., poaching); preventing the

development of negative attitudes towards the project that may impact pro-environmental practises and affect the long term conservation of focal species.

Community Based Monitoring

Monitoring starts in the last stages of the implementation phase and continues through the end stage and beyond into the post–exit stage. Community based monitoring requires both technical and financial resources and local NGOs or community institutions are well suited to support this function very well. For example, Schmiedel et al. (2016) highlight the usefulness of developing and involving para ecologists.

Recommendations: To ensure that the restoration is stable, complete and successful monitoring efforts may be aided by the local community; monitoring must be funded to ensure stability and long-term success of the conservation translocation.

Enabling and Enhancing Traditional PRACTISES

Local/indigenous populations are well placed to carry out long-term monitoring and management practises to maintain the population of reintroduced species at a sustainable level beyond the exit of the project. Conservation translocations are part of indigenous practises across the globe to restore and enhance biodiversity, in connexion with cultural practises and sustainable harvesting (see freshwater conservation translocation case study, New Zealand, in Rayne et al., 2020).

Recommendations: Enabling and enhancing traditional practises that are already in place may be the most effective way to promote biodiversity conservation and to benefit the focal species, in certain cases.

Post-exit Stage

Although some people may support a reintroduction and get involved in associated initiatives as a result of social or cultural motivation, circumstances may change over time. Ensuring sustainability after "Handoff" strategies.

Investments in capacity building during previous phases of the project are important to prepare and empower local institutions to take over and carry out the long-term project. By creating and facilitating a sustainable conservation culture the project invests in achieving its long-term goals. This way, pro-environmental values and behaviours remain and are transferable to other situations (including other jobs and careers), socio-economic benefits to local people continue to be associated with the focal species and support for its conservation continues to exist post-exit. Lack of economic options after project conclusion, on the other hand may cause a return to activities that harm conservation success, such as poaching (Chatty, 2002).

Good Exit Strategies may enhance the reputation of conservation professionals, while a bad reputation is often associated with failure. A focus on ethical decision-making also impacts positively on the reputation and marketing profile of project funders.

Recommendations:

- Considering the positive and negative consequences of a project beyond its immediate goals, in relation to how it affects the conservation of biodiversity in general.
- Maintaining clear communication with interest groups, to avoid making unrealistic promises.

DISCUSSION AND CONCLUSION

Throughout the HWIWG webinar discussions and 2019 ICCB session, several key themes related to HWIs and the success of conservation translocation programs were repeatedly discussed.

Despite often creating barriers to translocation program success, the human dimension is often still omitted during program development. All relevant stakeholders should be identified and included in the initial planning phases and throughout each program's duration. Local people must always be informed about proposed translocations and planning should include a pre-release period where extensive consultation and outreach takes place with interest groups. Although this can be time consuming, building strong relationships with local communities helps de-escalate potential conflicts and mitigate existing ones. This process of discovery may help address local beliefs and attitudes associated with cultural constructs, to improve the likelihood that key behaviour changes occur.

Finding inclusive solutions to avoid or mitigate conflict with local people requires research, outreach, and thinking outside-the-box. Practitioners should ask how the project might contribute to fulfilling the interests of local groups and individuals. To answer this question, practitioners should apply a social science-based approach to elucidate the attitudes of interest groups towards wildlife and the goals of the translocation project and encourage all project stakeholders to reach consensus via participatory decision making. By developing connexions between the translocation program and fulfilling local community needs we are more likely to promote long-term success. The success of any given action may depend on local norms and perceptions, so place-based actions should be developed.

Transparency is key to program success and the advancement of the field. Documenting and disseminating the translocation process and problems encountered using research-based data enables us to improve dialogue with local people and governments. Consistent transparency, data sharing, and dialogue is essential for developing and maintaining the trust that is critical to long term success. The publication and sharing of program results helps concurrent and future programmes learn from both successful and failed experiences of othersand encourages successful practises, reducing the waste of time and resources. Our community of conservation translocation professionals must continually improve collaboration and communication via the CTSG.

Concluding Remarks

Echeverri et al. (2018, p. 57) suggest that collaboration between biological and social sciences, arts and humanities to understand HWIs, may contribute to an exploration of "additional layers of complexity in conservation problems." Cross-disciplinary and cross-paradigmatic research collaboration may be particularly achievable when applied to problem-solving in wildlife conservation, consistent with pragmatic research orientation, and should be explored when planning future projects.

The science of reintroduction has come a long way, advancing knowledge towards the achievement of success regarding the establishment, growth and regulation of reintroduced populations. While the 2013 guidance acknowledges the need for considerations regarding social context and impact on reintroductions on local people, progress has mostly focused on population, metapopulation and ecosystem levels, as illustrated by Seddon and Armstrong (2016).

Rampant climate change and the biodiversity crisis require that we adapt and develop our practise to be responsive to the inevitable changes both in ecological and in socio-political systems where projects are based. Much of the evidence reviewed here suggests that in order for us to save species in peril we must abandon hasty solutions and invest in long term collaborations. We must build relationships that foster trust and respect amongst all parties, to support decision-making and commitment to conservation solutions, increasing lasting success.

Achieving progress in consideration for HWIs may require a coordinated effort involving practitioners and researchers. The

examples and recommendations offered here are intended as an aid to advance the inclusion and consideration of factors concerning HWIs that play a substantial role in the long-term success of conservation translocations worldwide.

AUTHOR CONTRIBUTIONS

FUNDING

ACKNOWLEDGMENTS

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcosc.2022.788520/full#supplementary-material

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