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Review

Social feasibility assessments in conservation translocations

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Improving the effectiveness of conservation translocations could contribute to reversing global biodiversity loss. Although evaluations of ecological factors affecting translocation outcomes are commonplace, consideration of human social factors remains rare, hindering improvements to this conservation practice. We analysed 550 translocation case studies to explore the inclusion of social factors in project feasibility assessments. Reviewed projects often failed to assess social feasibility, and assessments, where attempted, tended to be narrow in scope. Consequently, challenges such as proactively addressing conflict often remained unaddressed. Insufficient knowledge sharing and prioritisation of ecological feasibility, to the detriment of social feasibility, remain barriers to effective planning. Successful outcomes of translocations are linked to early assessment of social feasibility and to the establishment of long-term commitments between people, places, and partners.

Highlights

To reverse biodiversity loss, and meet targets in the Convention on Biological Diversity post-2020 biodiversity framework, species translocations are an increasingly important conservation intervention.

Translocating wildlife is challenging, although outcomes are improved by robust assessments of impacts on people, and careful planning of mitigation.

However, social feasibility assessments in translocations are often absent, narrow in scope, or conducted too late to influence actions.

Lack of capacity and resources for social sciences in conservation, and failures to record experiences and share best practice, are barriers to effective social feasibility assessment.

Successful translocation outcomes are linked to long-term commitments to people, places, and partners. Well-resourced social research, education, and outreach are essential for conservation translocations to be effective at scale.

Conservation translocations are social processes

Conservation translocations are the deliberate movement of organisms, where the primary objective is a conservation benefit [1]. They have become an indispensable tool in attempts to reverse biodiversity loss [2,3] by restoring ecosystem function [4], re-establishing and reconnecting wildlife populations [5], mitigating human–wildlife conflict [6], and as a response to climate change [7]. Despite their proliferation in conservation practice over the past 25 years, evaluations of the human social processes that often determine the outcomes of translocations remain relatively rare [8,9]. This is a challenge for researchers building an evidence base for effective conservation action, and highlights an opportunity for improving practice that could lead to better outcomes, both for biodiversity and affected human communities [10]. To that end, we have evaluated the conservation translocation literature with respect to the inclusion of human social factors in determining project feasibility.

Although they primarily seek ecological outcomes, translocations are inherently social processes that are influenced by organisational, political, economic, and cultural dynamics, and that exert impacts upon human communities [11–14]. Furthermore, they are complex processes that requiring diverse knowledge to navigate stakeholder interests, convoluted funding, regulatory and logistical requirements, and challenging social-political landscapes [10,15,16]. Social-ecological problems are often the underlying cause of the species declines that translocations seek to redress [17–19]. The human social environment therefore has a major bearing on translocation outcomes, and therefore including social factors when assessing project feasibility is a crucial step in guiding decisions during planning and implementation, as well as after release, should a project be deemed feasible.

Establishing and quantifying translocation success and failure is itself a challenge [19,20]. Inconsistency in defining and monitoring success, and a tendency for project managers to self-

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evaluate, mean that quantifications of rates of success and failure have high uncertainty, and reporting is typically biased towards ostensibly successful projects [21–23]. Furthermore, the multifaceted nature of translocations means that a project might be an ecological success but a social failure, or vice versa. In the context of assessing feasibility, the desired approach is a comprehensive assessment that aids decision making, irrespective of the outcome, although some practitioners may view the outcome as the determinant of success. This review does not seek to define success or failure; we focus instead on specific actions within translocation projects, and on whether they have been described as having positive or negative effects on project outcomes.

Biases in reporting mean that failures often go unreported and make diagnosing the causes of, and patterns in, project failure challenging [24,25]. This is particularly true for social aspects of translocation projects, despite these appearing to be a leading cause of project failure [15,24]. Until 2007 the literature on conservation translocations focused almost exclusively on biology, and only 4% of studies addressed social and organisational aspects [26]. However, the basis for evaluations may have changed since that time, both in response to increasing evidence highlighting the importance of socioecological processes [27], and the publication of the International Union for Conservation of Nature (IUCN) *Guidelines for Reintroductions and Other Conservation Translocations* (hereafter 'the Guidelines'). Published initially in 1998 [28] and updated in 2013 [1], the Guidelines provide an internationally recognised framework of best practices for planning and delivering conservation translocations.

Ecological specialism among conservation practitioners and a widespread (but certainly not universal) lack of expertise in, or awareness of, social sciences remain major barriers to greater attention to social aspects of conservation practice [29,30]. This is exacerbated by resource limitations, and often requires strict prioritisation of activities, typically favouring ecology, where required expertise is often already 'in-house' [31]. This comes at the expense of social research, public participation, and actions that may require considerable investment to be effective, and are frequently seen to be 'nice-to-have' rather than mission-critical [32–34].

Numerous reviews have assessed the trends, challenges, and practicalities of translocations, although these have generally drawn together ecological lessons [3,9,15,16,20,35–37]. We shift focus here by placing such a review in the context of social lessons by utilising the Guidelines and their section on 'social feasibility'. This comprises 10 guidelines (hereafter 'social feasibility guidelines'; Table 1) which outline a series of organisational and socioeconomic factors that project managers should consider at the 'feasibility and design' stage of planning a conservation translocation. Although the Guidelines themselves stop short of a definition, we define social feasibility assessment as the assessment of socioeconomic factors that influence the likelihood of achieving stakeholder acceptance and realising stated conservation objectives [38–40].

We conducted a systematic review of conservation translocations, as defined by the IUCN, utilising the *IUCN Global Reintroduction Perspectives* book series [41–47] and wider published and grey literatures (details in the supplemental information online). Briefly, our review included 550 studies fitting IUCN definitions of conservation translocations, and largely excluded papers focused on species ecology. We systematically coded each study using NVivo v12 [110]. We extracted statements describing actions relevant to one or more of the 10 IUCN social feasibility guidelines (Table 1), and cross-coded these within categories pertaining to the social feasibility guidelines, the project stage that a relevant activity was undertaken ('feasibility', 'implementation', and 'post-release'), and whether statements were described as 'reasons for failure', 'difficulties

Table 1. Definitions of the social feasibility guidelines for conservation translocations and the frequency of their use[a]

Guideline	Abbreviated title	Definition	Frequency of use (%)	Examples of action
1	Existing structures	Work with and/or within existing action or recovery plans, agencies, legal and policy frameworks, and infrastructure	27	Projects incorporated and learned from historic action plans and expertise when developing the project
2	Accommodate community	Plans have accommodated community, socioeconomic circumstances, attitudes and values, motivations and expectations, behaviours and behaviour changes, and anticipated costs and benefits of the translocation	35	Projects had direct contact with local communities to assess attitudes, understand local cultures, and/or encourage local participation
3	Engagement mechanisms	Mechanisms for communication, engagement, and problem solving between the public and translocation managers should be established well in advance of any release	25	Projects identified and actioned the most appropriate means of communication with the public, through either the development of a communication strategy or individual targeted actions
4	Address concerns	No organisms should be removed or released without adequate/conditional measures that address the concerns of relevant interested parties; this includes any removal as part of an exit strategy	11	Projects ensured that relevant stakeholders have a platform to voice concerns, and these could be acted upon, such as public meetings or including concerned groups in planning
5	Species connection	Where local communities may have no connection to the species or it is unknown to them, and hence oppose their release. Special effort to counter such attitudes should be made well in advance of any release	21	Projects identified target audiences and undertook awareness and outreach programmes to raise the profile of the focal species and provide information about the proposed project
6	Economic impact	Projects should acknowledge potential positive and negative impacts on affected parties or for community opposition; where possible, sustainable economic opportunities should be established for local communities	15	Projects conducted an assessment of the costs, benefits, and opportunities, such as ecotourism, that the project could have on communities and were transparent in communicating this
7	Collaboration	Interproject, inter-regional, or international communication and collaboration are encouraged in the interests of making best use of resources and experience for attaining translocation goals and effective conservation	23	Projects created formal or informal partnerships with a diverse range of parties to maximise available expertise and resources
8	Stakeholder organisation	Where multiple bodies, such as government agencies, non-government organisations, and informal interest groups all have interests in a translocation, mechanisms for all parties to play a constructive role should be defined and the establishment of special teams that can guide, oversee, and respond swiftly and effectively as management issues arise should be encouraged	21	Projects established working groups to help to steer and structure project development and/or clearly defined the roles of implementing organisations
9	Priority alignment	Where multiple parties have their mandates, priorities, and agendas, effective facilitation should be undertaken to align priorities and resolve potential conflict areas	13	Projects undertook a process of decision making with the aim of creating an agreed plan, objectives, and direction for the project
10	Socioecological balance	Conservation actions meet the general ethical obligation to conserve species and ecosystems; however, the conservation benefits of a project should be balanced against the obligation to avoid collateral harm to other species, ecosystems, or human interests	14	Projects conducted an ethical review and/or risk assessment of the project as part of the decision-making process to identify ethical concerns, and took steps to implement solutions which minimise damage to other interests

[a]Frequency is based on the number of case studies that evidenced the inclusion of each guideline as a proportion of the 229 case studies where there was evidence that at least one guideline was followed during the feasibility stage of a translocation. Guideline numbers and definitions are adapted from section 5.2 (Social feasibility) of the IUCN/SSC 2013 *Guidelines for Reintroductions and Other Conservation Translocations* [1].

faced', or 'reasons for success' (Table S1). Our analysis identified whether, when, where and how social factors were included in reported assessments of project feasibility, and detailed barriers to their inclusion and best practices.

Inclusion and application of the IUCN social feasibility guidelines

We found that, despite evidence supporting the inclusion of social factors in translocations extending over the past 35 years [48–52], this remains a minority activity. Fewer than half of the reviewed case studies reported inclusion of social factors when assessing project feasibility and, among those that did, assessments were limited in scope; only 5% of projects included more than five of the 10 social feasibility guidelines (Box 1). As with other facets of the conservation translocation literature, published methodologies and evaluation of social approaches were often absent [35].

The limited scope of assessments is also apparent when looking at the frequency with which use of the social feasibility guidelines was apparent (Table 1). 'Accommodating community' was followed in planning more than any other guideline, typically through direct contact with local communities and assessments of attitudes towards the project. Support was frequently inferred from simple quantitative statements of majority support, indicating that some project planners view social feasibility assessments as amounting to speaking with and assessing attitudes of nearby communities [53]. Questionnaires were regularly used, but in many cases it was unclear whom these targeted, or how support was measured. This raises concerns that projects are failing to consider variation in the relative influences that different individuals and groups of

Box 1. Trends in the inclusion of social feasibility

We analysed 550 case studies of conservation translocations from eight IUCN statutory regions, of which 419 focused on vertebrates, 85 on plants, and 46 on invertebrates. Of the case studies, 210 (38%) did not evidence any social feasibility considerations. Approximately half (259, 47%) provided evidence that at least one social feasibility guideline was followed during the feasibility stage, and 81 (15%) included at least one social feasibility guideline during and/or after implementation. For 15 (3%) case studies we cannot find evidence that they resulted in a translocation taking place.

From the 259 case studies addressing social feasibility guidelines at the feasibility stage, 42% evidenced one social feasibility guideline and 28% did so for two, whereas 5% of case studies did so for five or more, and none evidenced more than seven. There was significant variation in the frequency of inclusion of the various social feasibility guidelines (χ^2_9 = 60.8, P <0.001) (Table 1). 'Accommodating community' (35%) was evidenced most frequently and more than all other social feasibility guidelines, except for 'existing structures (27%) and 'engagement mechanisms' (25%). 'Address concerns' (11%) was evidenced least and was significantly negatively selected versus other social feasibility guidelines, except 'priority alignment' (13%), 'socioecological balance' (14%), and 'economic impact' (15%).

From 177 case studies, we coded 193 reasons for success into six distinct groups related to social feasibility guidelines (Table S2): stakeholder organisation (23%), engagement mechanisms (21%), multidisciplinary collaboration (18%), community involvement (15%), public support (12%), and conflict management (10%). From 213 case studies, we coded 232 reasons for failure into six distinct groups (Table S2): social conflict (20%), uncoordinated stakeholders (18%), opposing views (18%), under-resourced engagement (17%), political and legal barriers (15%), and communication and awareness (11%).

In total, 59% (n = 324) of case studies linked social factors to project outcomes. This varied depending on the project stage at which they were first evidenced. Of case studies that evidenced the inclusion of social factors at the feasibility stage, 37% associated these with project success, compared to 11% where social factors were absent, and 59% when their inclusion was evidenced during or after implementation. Of case studies, 27% that evidenced social factors at the feasibility stage associated them with project failure, 17% did so when none was evidenced, and 60% when the first evidence of their inclusion occurred during or after implementation.

The timing of publication of the IUCN Guidelines was associated with more frequent inclusion of social factors (χ^2_2 = 9.98, P = 0.006) (Table S5). Case studies after the publication of the 2013 Guidelines were more likely to include social factors when assessing feasibility, and those undertaken before the 1998 Guidelines were less likely to do so. There was marked variation among the IUCN regions (χ^2_7 = 24.2, P <0.001), and projects in Meso and South America (64%), and North America and The Caribbean (57%) were more likely to include social factors, whereas their inclusion in projects in Oceania (36%) was less likely than expected. All other regions fell within the expected range (Table S5). Significant variance was found among taxonomic groups (χ^2_2 = 20.9, P <0.001); translocations involving plants (28%) and invertebrates (32%) were less likely than expected to include social factors, whereas their inclusion in projects involving vertebrates was more likely (Table S5). There was no significant difference among vertebrate taxa (χ^2_4 = 2.52, P = 0.64).

stakeholders will have over the feasibility and outcome of a project, as well as the importance of the relationships and power dynamics that exist between them [54,55].

The social feasibility guidelines followed least frequently ('address concerns' and 'aligning priorities') have much in common (Table 1). 'Address concerns' refers to having measures in place to address questions or challenges raised by interested parties, whereas 'aligning priorities' refers to coordinating plans and resolving conflict among primary actors (Table 1). Both involve acknowledging and addressing potential conflict. Identifying and addressing conflict in distinct, often unique, social scenarios is challenging given that conflicts have diverse origins [56,57]. The paucity for which projects evidenced these guidelines may be indicative of the time, energy, and resources that can be required when dealing with conflict, meaning they may be set aside early in project development, especially if the required expertise is not readily available [58]. It is also possible that early actions towards addressing conflict and aligning priorities have been treated as nugatory, low impact, or even as a hindrance to progress, creating a reluctance to plan on this basis.

Social feasibility assessment is hindered by a lack of shared best practice in how to conduct assessments most effectively [35,58]. Hence, projects tend to coalesce around more tractable actions rather than conducting the robust, and sometimes difficult, social feasibility assessments that the Guidelines suggest are needed. This leads to more complex issues, such as identifying and addressing conflict, being side-lined. Despite the boom in translocation science, the breadth of research is often insufficient to provide evidence to support management decisions [10]. This presents a challenge to practitioners, who have access to the Guidelines but are faced with a disparate evidence base that is often disconnected from more familiar ecological research, and thus requires additional investment of time and learning [59,60]. Research on integrating social scientific theory and methodologies into conservation planning is increasingly available [30,32,51,61], but the challenge is not only to ensure there is a framework within which to include social feasibility but also to provide an evidence-based justification for the methods of making the assessment. Without this, the application of the IUCN social feasibility guidelines is likely to be guided by individual or organisational experience, anecdote, or not at all [62,63].

Timing of social feasibility assessments

Ultimately, the use of social feasibility assessments will be influenced by evidence of their impact on project outcomes. Our analysis indicates that conducting feasibility assessments during project planning is linked to a reduction in the frequency of reporting social challenges during the implementation and post-release stages of translocations (Box 1). In projects where social factors were only considered after the feasibility stage, greater social challenges were reported. In these instances, actions were often implemented as a reaction to the emergence of social problems, creating unexpected resource burdens, as well as impacting on public tolerance and awareness of both the species and the project [64–66]. Resource limitation is universal in translocation projects, meaning that reactively allocating adequate resources to solve post-release problems is invariably challenging [15]. The timing of social feasibility assessments is therefore important [32,67]; assessments made too late could lead to projects proceeding in circumstances that an earlier assessment might have identified as severely compromising feasibility. Projects may be driven or compelled to continue because of insufficient resources to reverse releases, but ultimately the viability of the project may be affected [52]. Planning and decision frameworks are increasingly available [68], and participatory approaches, such as structured decision making [69] and adaptive management frameworks, are regularly used [70]. This enables project managers to break down complex problems, such as assessing whether a translocation should proceed, into smaller decisions through the analysis of different scenarios, while also facilitating the direct involvement of stakeholders [71,72]. Although clearly beneficial, such

approaches still require the right timing and social expertise within the process to identify potential threats and design effective tests of steps in mitigation.

Social feasibility outcomes

The reviewed literature suggests that internal factors (where implementing organisations interact with each other) were as important as external factors (implementing organisations interact with external stakeholders) for project outcomes (Table S2). 'Stakeholder organisation' (agreements and planning within project partnerships) was the most frequently cited social reason for success, and was characterised by long-term commitments and support at local, national, and international levels (Table S2). This coincided with increased resource capacity and resilience. Including a diversity of partners across sectors, disciplines, and scales also provided greater breadth of expertise to inform robust planning and implementation.

Engagement mechanisms, such as public outreach and education programmes, were the second most frequently reported reason for success. However, in most cases, the detail and evaluation of these activities and their effectiveness remained unreported (Table S2). The value of such actions can be seen in the case of the recovery program for the Antiguan racer snake (*Alsophis antiguae*; Box 2). Conversely, when these activities were not prioritised and were under-resourced, they were highlighted as a prominent reason for failure, and in most cases inaction was linked to resource availability [73,74]. Building support and participation through engagement activities involves developing an understanding of key stakeholder viewpoints and knowledge levels [54], and subsequently the creation of appropriate framings of the project [75,76]. This is particularly true of poorly understood species and/or those that are likely to be contentious [77]. In these instances, early articulation of any costs or benefits is imperative to reduce the risk that uninformed opinion or misinformation might influence attitudes [77]. Even then, it is unrealistic to expect rapid consensus, as demonstrated by projects such as grey wolf (*Canis lupus*) reintroduction into Yellowstone National Park and Idaho, USA, where it took 20 years of debate to achieve broad support for the project [78]. Failing to allocate appropriate resources to support public engagement and participation in planning can be detrimental to both project reputation and outcomes [79]. Cases of social conflict commonly involved highly mobile, large species whose release generated negative public opinion and where the species were often perceived as detrimental to human interests (Table S2). These outcomes are commonly a consequence of failures to take adequate measures to identify and address concerns in the planning stages, as in the case of the tammar wallaby (*Macropus eugenii*; Box 3) where conflict between communities and conservationists occurred after a largely ecological planning process failed to address social concerns.

Together, the characteristics of successful and failed translocations (Table S2) tell us that projects making early commitments to people, places, and partners for the long-term and taking a multidisciplinary approach represent good value and are more effective at improving knowledge, organisational relationships, and resource resilience. Committing to affected people, as much as to wildlife, is likely to lead to more successful practice.

Barriers to inclusion of social factors

Understanding what practical and institutional barriers prevent greater incorporation of social feasibility is an important step toward increasing accessibility. Our review indicates that the key barriers are (i) insufficient resources and lack of prioritisation for social scientific research and insights, (ii) lack of in-house expertise or inclusion of social scientists during planning, and (iii) differences in terminology, methodology, and literature bases that limit access to, and appropriate deployment of, robust social research methodologies.

Box 2. The Antiguan Racer Conservation Project (ARCP)

Background

The ARCP is a multi-partner project formed in 1995 in response to the immediate threats facing the species [104]. At inception of the project ~50 Antiguan racers (*Alsophis antiguae*) remained on Great Bird Island, Antigua (Figure I) [105]. Research found that this island could only sustain ~100 individuals in the long term [105]. A 10 year reintroduction action plan was therefore drawn up to reintroduce the racer to other islands in the region [106].

Social assessment

In planning, the project partners committed to investing in building local capacity and resources with the aim of the project being run by local organisations deemed crucial for its long-term sustainability [106]. They also identified that few Antiguans or tourists knew about the Antiguan racer, and most of those who did expressed a negative attitude, with many presuming them to be dangerous, causing them to be deliberately killed [106]. Similarly, trampling and the prevalence of campfires were identified as key issues to address [104]. Raising awareness and education were determined to be key actions if any reintroduction was to be feasible, and private landowners, tour operators, and other regular island users were identified as key stakeholders [104].

Actions

The project team utilised a range of media and tapped into local knowledge within the project team to inform people about the racer. Activities included making television documentaries, hosting field trips, posters, presentations, and newspaper articles, as well as workshops with local guides [104]. Further to this, the Antiguan Racer Schools Campaign targeted children throughout Antigua to enable them to visit the remaining population on Great Bird Island and learn about conservation; this was accompanied by teacher training [104,106]. In 1999 this education and engagement work formed part of the endorsement of a formalised plan between the IUCN/SSC Reintroduction Specialist Group and the Antiguan Racer Conservation Project [106].

Outcomes

The partners of the project credited these actions as one of the primary reasons that the species has avoided immediate extinction [105]. Knowledge and opinions towards the racers showed significant improvement, evidenced by 26% of visitors to Great Bird Island first hearing of the racers through the education programme, as well as the racer becoming a symbol on the Antigua and Barbuda EC$50 telephone card and being prioritised in the National Biodiversity Strategy of these countries [104]. Finally, many Antiguan schools were reported to have established wildlife conservation in their syllabus as a result of the schools campaign and wider engagement activities [105].

Figure I. Antiguan racer snake (*Alsophis antiguae*). Photo credit Jenny Daltry, authorised for use by Durrell Wildlife Conservation Trust.

Appropriately resourcing social scientific research would enable a robust, evidence-based rationale for wider social feasibility assessments, and would also provide insights that aid the development and targeting of engagement activities, such as education and outreach programmes. Such programmes are effective at increasing local knowledge and positive attitudes [80]; prioritising resources here will therefore benefit overall project outcomes. Resource prioritisation toward social research should also be reflected more widely in conservation science training to aid the development of practitioners equipped with the skills needed to meet present-day conservation challenges [29,81].

The inclusion of social scientists early in the planning process is an important step in bringing social considerations to the forefront of translocation planning. Planning in wildlife management is typically led by ecologists, meaning that the identification of social issues and access to appropriate methodologies is often limited [82]. Removing such barriers enables projects to integrate social scientific thinking, which often comes from different perspectives on, and approaches to, both research priorities and the roles of people in ecosystems [31,83]. Challenging an embedded way of working that is configured towards the natural sciences would be made more achievable by placing a greater emphasis on developing in-house social scientific expertise which can shift organisational cultures as well as support specific projects.

Box 3. The tammar wallaby reintroduction

Background

Plans to reintroduce the tammar wallaby (*Macropus eugenii*; Figure I) to South Australia (SA) were submitted by the Department for Environment and Heritage in 2004 [107]. The mainland tammar subspecies had become extinct in the region in the 1930s owing to habitat clearance and fox predation [65]. It was listed for reintroduction as part of the Federal 1996 Action Plan for Australian Marsupials and Monotremes [108]. The Innes National Park, an area surrounded by intensively cultivated agriculture and its rural community, was selected as the most suitable site for release [107].

Social assessment

The project put a great deal of planning into captive breeding, site selection, and post-release monitoring, greatly outweighing any social feasibility work, which made up two pages of the 66 page reintroduction proposal [107]. According to Peace [109], the project assumed that because the biodiversity credentials were so compelling, any concerns of local people would be easily dealt with. The project failed to identify and address potential conflict areas, although the spread of the tammar wallaby beyond the boundaries of Innes National Park was fundamental to the success of the project, and farming communities held a negative view of the implementing body before the project [109].

Actions

Although a public relations campaign was planned, details of the project were leaked to local farmers before this work had been conducted [109]. In response, the community was dismayed that an animal that had been declared an agricultural pest on nearby Kangaroo Island and in New Zealand should be reintroduced; news also spread to the local media who expressed their displeasure at the plans [109].

Outcomes

An 18 month conflict unfolded between practitioners and residents, consuming a considerable proportion of project resources [65]. Local people were concerned that populations of red fox (*Vulpes vulpes*), a non-native invasive species, would not control the spread of the wallabies as scientific modelling had suggested, leading to threats to human livelihoods [65,109]. Retrospective consultation failed to rectify the divide, and trust between the two parties had been eroded. In the face of opposition, the relocation of the wallabies into the National Park went ahead [65]. Despite the conflict and continuing opposition from farmers post-release, a stable population has been established [109].

Arguably a robust social feasibility assessment would have identified many of the issues that occurred, thus allowing project leaders to plan and prioritise resources to address them. Alternatively, it may have determined that the project was socially unfeasible at that time, despite its ecological and technical strengths. The team of practitioners leading the project have stated that the primary lesson learned is that community engagement needs to occur well in advance of any reintroduction [65].

Figure I. A tammar wallaby (*Macropus eugenii*). Photo credit Bret Charman; authorised for use by the Wildscreen Exchange Project.

Finally, breaking down barriers in terminology and literature bases would improve communication and flow between the social and natural sciences in translocation projects [84]. Such barriers limit access to and sharing of best practices, and mean that learning across disciplines requires extra dedication of time. Journals are increasingly taking an interdisciplinary approach which will enable greater knowledge sharing between disciplines [33,83]. Furthermore, we would encourage the *IUCN Global Reintroduction Perspectives* book series to place greater emphasis on the social side of its case study reporting.

An overview of best practice

By bringing together lessons from our reviewed case studies and wider conservation literature, we can start to identify what best practice in social feasibility looks like. Although covering methodologies for every social feasibility guideline and project scenario is beyond the scope of this review, we can identify broad themes and priorities.

Establish partnerships with shared goals

We have identified early and long-term commitments to stakeholder individuals and organisations as a precursor to successful outcomes. In many cases we found that this was facilitated by formal agreements between implementing organisations, such as a memorandum of understanding or the development of an agreed long-term plan [85,86]. This process and the surrounding discussions help to coalesce partners towards shared aims, while the creation of an agreed leadership structure can aid the delineation of responsibilities and overall accountability [12]. These agreements work in parallel with discussions to clearly define objectives, needs for resources and skills, and costs. Taking a multidisciplinary approach has also been linked to successful outcomes through the utilisation of diverse expertise in the creation of a project plan, as well as by facilitating

access to resources and local communities [87,88]. Together these actions help to inform the organisational feasibility of undertaking a translocation project and identify areas where the project requires additional actions or knowledge to become a feasible endeavour.

Conduct a dedicated social feasibility assessment

At present, the inclusion of social factors in feasibility assessments appears to be sporadic and largely fails to follow social feasibility guidelines. If social feasibility is to become a standard part of the conservation translocation process, we believe projects should conduct a dedicated social feasibility assessment (a specific document that addresses each guideline in turn) at the earliest opportunity, preferably alongside ecological feasibility assessments, and certainly in advance of translocations taking place. This provides ample opportunity to explore and analyse the social landscape and enables such early assessments to shape translocation planning, rather than being dictated by prior decisions and commitments. When integrated into a structured decision-making process, this enables projects to identify relevant challenges and action appropriate solutions. Furthermore, it may be that a project is ultimately deemed socially unfeasible and therefore should not proceed. Early assessments may therefore save resources and reduce the risk of damaging relationships between conservationists and stakeholders. Every social feasibility guideline does not need to apply to every project, but, by creating a standardised process, projects can explicitly justify their inclusion or exclusion, as well as providing a clear route to the evaluation of decision making post-release. Conducting assessments in this way would reduce reactive decision making and better enable project managers to prioritise actions and resources from an early stage.

Invest in community research and engagement

The social feasibility guidelines highlight the importance of ensuring that the views and circumstances of interested and affected communities are incorporated into feasibility assessments, and surveying public attitudes appears to be the most common way in which social feasibility is assessed. Although quantifying public support may provide a useful overview, projects should consider what information is most relevant to determining feasibility when designing assessment methods. Commonly used, and often relatively untargeted, approaches such as questionnaires and online surveys are rarely meaningful in isolation, and when designed without prior knowledge may ask the wrong questions of the wrong people. They may also fail to pick up the underlying reasons why particular views are held, which in some cases may not be related to the species or project at all, nor do they account for the changeable nature of public opinion, or power dynamics within and among stakeholder groups [54,89]. Projects could benefit from mixed-methods approaches, for example by conducting interviews with targeted individuals who may have specific knowledge or represent key stakeholders, combined with or, perhaps better, followed by questionnaires aimed at larger populations (such as residents) to understand the range and prevalence of different views [90–92].

Projects should seek to bring local people and organisations closer to the project, thus providing opportunities for community participation and wider public buy-in [93–95], which in turn would facilitate longitudinal monitoring of local attitudes [89]. A more integrated and transparent approach decreases the feeling of outside imposition and builds trust, enabling projects to develop a deeper understanding of affected communities, cultures, and traditions, and to explore drivers of support or opposition [69]. This could include both formal methodologies such as interviews, focus groups, and public meetings, as well as action-orientated approaches such as providing a platform for community participation in the design and delivery of projects. Community participation brings clear benefits to translocations [76,95,96] that are not often realised [34]. The feasibility stage is the best time to explore the range and prevalence of different views and building relationships, and the methods of assessment should reflect this. Conducting

thorough engagement as part of the feasibility process should not be viewed as attempting to make a project more or less feasible but as a means to inform better decision making, which in turn provides better long-term conservation outcomes for wildlife and people.

Address divisions and identify consensus

Translocations are multi-stakeholder endeavours. Therefore it is crucial to encourage open dialogue and an inclusive process that acknowledges the range of viewpoints and places all stakeholders as part of the process rather than outside of it. One method to align the priorities of these wider groups is through the use of workshops or working groups [97,98]. These can include a multitude of stakeholder groups and encourage wider participation in the planning process, thus helping to legitimise decision making. Inclusive approaches to decision making have their challenges [99,100]; however, ensuring broad representation of views, through open and transparent dialogue, early in planning, will highlight where consensus exists, and where division and conflict may arise, as well as providing wider context for any underlying issues [11,93,97,101,102]. These can be discussed and acceptable mitigation and an adaptive management framework developed through collaborative means, ahead of time [97,98,103].

Concluding remarks

Although awareness of the 2013 IUCN Guidelines may have helped to increase uptake of social feasibility assessments in conservation translocations, these practices remain narrow in scope and largely opaque in their reporting [see Outstanding questions (i)]. This indicates that translocation projects still do not generally apply a comparable focus on planning for social and ecological factors. This is due to a lack of information regarding best practices, insufficient social expertise, and resource prioritisation towards ecological and technical feasibility. A reactive approach to assessing social issues, in particular around conflict, leaves projects vulnerable to unexpected outcomes. Integrating bespoke social feasibility assessments into planning could alleviate some of these issues and provide a clear route to evaluating outcomes and prioritising actions [see Outstanding questions (ii)]. Furthermore, increasing institutional capacity for social scientific research and advice within conservation organisations, and in turn addressing the lack of time and funding given to social aspects of translocation projects, should be considered to increase the resilience of dynamic projects that are working in complex social-ecological circumstances [see Outstanding questions (iii)]. In addition, the value of making long-term commitments to translocation project partners, places, and people cannot be overstated in achieving positive outcomes for biodiversity conservation.

Outstanding questions

(i) How can we broaden the scope of conservation translocation literature? Translocation projects should place greater emphasis on recording and publishing social aspects of their planning, actions, and outcomes. Augmenting existing data resources to address more explicitly the social aspects of translocation planning and practice, from the earliest stages of project conception, will be fundamental.

(ii) How can translocation practitioners be supported to conduct robust assessments of social feasibility? As we have outlined, conducting a bespoke social feasibility assessment before a translocation has many benefits. Although we have established that this is not common practice, further research is needed into best practice and how barriers preventing such assessments might be overcome.

(iii) How can resourcing and capacity building for social science in translocations be supported? Developing both in-house expertise and partnerships with research organisations with strong social science capabilities, as well as embracing local conservation knowledge, has the potential to increase resilience and resource capacity, and the potential to adapt to cultural and social issues during translocation processes.

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Declaration of interests

The authors declare no conflicts of interest.

Supplemental information

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