

**BEST PRACTICE GUIDELINES FOR GIBBON AND SIAMANG
REHABILITATION AND TRANSLOCATION
ABRIDGED VERSION 2017**

Preface

This document serves as an overview of some of the key points of the Best Practice Guidelines for Gibbon Rehabilitation and Translocation (2015). This is not a standalone document and does not provide the level of detail in the main guidelines.

At this time, the full guidelines are only available in English. This abridged version (available in several languages) is to assist practitioners to present the guidelines to government and other groups for whom English is not a first language. This document should not be considered a complete set of guidelines and practitioners, government officials must refer to the full guidelines.

A free copy of the Best Practice Guidelines for Gibbon Rehabilitation and Translocation (2015) can be downloaded [here](#) or from [http://www.gibbons.asia/wp-content/uploads/2015/05/Best-Practice-Guidelines Gibbons LR.pdf](http://www.gibbons.asia/wp-content/uploads/2015/05/Best-Practice-Guidelines_Gibbons_LR.pdf)

Introduction

The IUCN Species Survival Commission's (SSC) Primate Specialist Group (PSG) Section on Small Apes (SSA) aims to coordinate gibbon (family Hylobatidae) conservation activities globally. Due to the incredibly high threat that gibbons face throughout their range, translocation can be an important component of conservation efforts given small population sizes, local extirpations and ready availability of gibbons for reintroduction.

Rehabilitation and translocation programmes are increasingly becoming an important component of Conservation Action Plans for threatened species. Translocation can address conservation issues on various levels by, firstly, allowing gibbons previously held in captivity, generally victims of illegal wildlife trade that have at some point been removed from the wild, to be rescued, rehabilitated, and then returned to the wild; and secondly, by releasing gibbons into areas where they may be locally extinct or populations are unviable in the long-term, thereby reinforcing wild populations (Cheyne 2005, 2009a; Kleiman 1989). In some instances, reintroduction programmes can provide the opportunity of re-establishing populations that have become locally extinct (Komdeur and Deerenberg 1997).

These guidelines have been developed in collaboration with stakeholders involved in hylobatid conservation. A workshop was facilitated by the IUCN SSC PSG SSA in January 2014 at which representatives from gibbon rehabilitation and conservation projects contributed to the development of draft best practice guidelines. This was followed by a period of review amongst the entire SSA and period of public comment. . Based on shared knowledge and experience to date, the guidelines are designed to be a practical and useful document available for all stakeholders, with the aim of equipping field projects and decision makers with the tools for scientifically-sound practice in gibbon rehabilitation, translocation. During the Gibbon Rehabilitation, Reintroduction and Translocation Workshop in 2014, issues that were identified with current gibbon translocation efforts included: (1) lack of clear guidelines outlining habitat assessment, husbandry and release protocols, (2) lack of available and protected habitat; (3) no standardised post-release monitoring guidelines;(4) inadequate

post-release protection strategies 5) lack of government support in challenging contexts and (6) lack of a specialized forum for information sharing specific to gibbons.

This document is a summary of the key principles discussed in the *Best Practice Guidelines for the Rehabilitation and Translocation of Gibbons* (Campbell et al. 2015). Practitioners should refer to the main document for clarification or contact the IUCN Species Survival Commission Primate Specialist Group Section on Small Apes for more information (www.gibbons.asia)

Definition of terms

There has been considerable discussion over recent years about definitions surrounding reintroduction and translocation (Seddon et al. 2012). Some clarification is required in relation to gibbons as previous IUCN guidelines for other taxa do not have definitions for all the actions addressed in this document nor do they represent the practicalities on the ground in terms of current actions. It is essential that definitions used in this guide are accessible to practitioners who are currently dealing with these issues: rehabilitation followed by conservation translocation, wild to wild translocation and welfare release. In this document we are discussing two types of projects:

- Projects engaged with the rescue of orphaned or injured gibbons, providing rehabilitation of those gibbons and finally the translocation of those suitable gibbons into a suitable habitat.
- Projects engaged with the movement of wild gibbons from an unsuitable to a suitable habitat i.e. wild to wild translocation projects.
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Acknowledging this but working within the framework of the IUCN 2013 definitions, the following will be applied in this document:

Table 1 Summary of definitions used in this document.

Definition/Source	SUMMARY AGREEMENTS
Rescue	The movement of wild primates from a hazardous situation or to resolve human-primate conflicts, to attempt to improve their welfare.
Rehabilitation	The managed process by which a displaced, sick, injured or orphaned wild gibbon regains the health and skills it requires to function normally and live self-sufficiently.
Translocation	The human-mediated movement of a gibbon from one area, with release in another.
Conservation Translocation	Conservation Translocation is the intentional movement and release of a gibbon where the primary objective is a conservation benefit: this will usually comprise improving the conservation status of the focal species locally or globally, and/or restoring natural ecosystem functions or processes.
Wild to Wild translocation	The deliberate capture and movement of wild gibbons from one natural habitat to another.
Population Restoration	Any conservation translocation to within indigenous range, and comprises two activities: Reinforcement and Reintroduction.
Reinforcement	The intentional movement and release of any gibbon (wild or captive) into an existing population of conspecifics.

Reintroduction	Reintroduction is the intentional movement and release of a gibbon inside its indigenous range from which it has disappeared.
Conservation Introduction	Conservation Introduction is the intentional movement and release of a gibbon outside its indigenous range.
Ecological Replacement	Ecological Replacement is the intentional movement and release of a gibbon outside its indigenous range to perform a specific ecological function.
Welfare Release	The release of captive gibbons, either within or outside their historic range where there is evidence to indicate that their welfare could be improved

Feasibility Assessment

The Precautionary Principle

The precautionary principle is an approach to decision making in risk management, which justifies preventive measures or policies despite scientific uncertainty about whether detrimental effects will occur. This approach should be taken when planning gibbon translocations: there is a burden of proof to show that the translocation does not endanger wild gibbon populations by threats of communicable disease, unintended hybridization, extreme social disruption, crowding, resource competition or other impacts. Translocations should also not endanger populations of other interacting indigenous taxa, or the ecological integrity of the area in which they live. The conservation of the taxon as a whole, and of existing viable wild gibbon populations, must take precedence over the welfare of individual apes in captivity.

Conservation versus Welfare Translocations

To ensure that translocations have a conservation impact translocated gibbons should either; contribute to reinforcing an existing wild population; contribute to establishing a new wild population within the geographic range of the taxon; contribute to restoring natural ecosystem functions or processes. In some instances, reintroduced or reinforced populations may not be viable in the long-term. In such instances additional translocations or ensuring the population is managed as part of a meta-population is appropriate for addressing viability issues.

Meta-population Management

It is strongly recommended that projects engaging in translocations of gibbons do so in light of consideration of meta-population management approaches. This entails active engagement with other institutions housing captive gibbons of the same taxon and *in-situ* conservation managers working in areas where wild conspecific gibbons persist. Such networking allows for more explicit understanding of how individual gibbons may contribute to conservation efforts as a whole rather than only considering translocation efforts from the perspective of individual gibbons and individual sites. The ultimate aim of such an approach would be integration of the *in-situ* and *ex-situ* conservation efforts to improve the conservation status of the taxon in question.

Funding Sustainability

To enable projects to secure long-term funding, practitioners need to engage in honest, open and realistic discussions with donors at the planning stage, including the need for projects to maintain ‘emergency funds’ for unexpected/unforeseen costs. Rational changes during the implementation phase are normal and budgets should contain enough flexibility to accommodate such changes (IUCN/SSC 2013). Key considerations include:

- Project activities and funding sources should be compartmentalized (within an overall master plan), such that if funding for one activity fails, the rest of the project is still viable.
- Identify point people within funding organizations, who can advise on the ongoing goals of funders.
- Communicate more effectively and frequently with donors throughout the relationship to ensure continuity in achieving shared goals even within changing parameters.
- Donor fidelity needs to be discussed when applying for grants; namely, is the grant renewable following successful completion of pre-approved goals?

Population Viability

If the purpose of translocation efforts is to establish a new population, then it is important to establish that there are sufficient founders to ensure that the population would survive stochastic events (such as a natural disaster) and maintain adequate genetic heterozygosity. Currently, providing an estimation of what constitutes a minimum viable population in a reintroduced gibbon population is not possible, however, in almost all circumstances, sufficient gibbons will not be on hand at any one institution at one time to create a viable population. Meeting the minimum viable population size could be achieved through successive translocation cohorts and/or natural breeding processes and/or ensuring the population is managed as part of a meta-population.

Regulatory assessment

Inclusion of local authorities

Government commitment to any proposed translocation is essential. Depending on the status of a chosen release site, the involvement of local authorities will vary, but each translocation programme will invariably require permission from relevant government agencies. Government policy on translocation may vary and it is important to consider provincial, national and international legislation and regulations to ensure there is a legal basis for translocation and that appropriate permissions are granted prior to proceeding (Beck, et al., 2007).

Land-use and land-use plans

Some surety about the permanence of sites selected for translocation projects should therefore be sought before a translocation occurs to avoid wasted conservation funds and loss of genetic resources. Current and proposed land-use plans for the proposed release site should be explored and discussed with relevant authorities. A release site should provide long-term secure habitat with limited potential for reduction in size, encroachment, infrastructure development or significant change in surrounding area due to these activities. Due diligence requires, however, that the vulnerability of any release site should be thoroughly evaluated, with reasonable assurances of long-term protection.

Release Site Assessment

Selection of an appropriate site is key when planning for translocations (IUCN SSC 2013). Lack of due diligence in this area of planning can result in project failure for a host of reasons. It may also result in more damaging long-term conservation impacts than those to the individual gibbons if translocations are conducted using taxa not native to the area.

- Meet all biotic and abiotic requirements of the species to be translocated,
- Be protected and have threats controlled or managed,

- Be adequate for all seasonal habitat needs, and
- Be large enough or have suitable connectivity to support a viable population (or meta-population management strategies are in place).

Rehabilitation

Disease

Gibbons should undergo extensive medical testing on arrival at a centre, as well as throughout their stay, to ensure that diseases are not transmitted to other captive gibbons nor transferred to wild populations via release programmes. No gibbon can be completely free of micro-organisms or parasites and, as such, disease risk assessment should be conducted in the planning stage and reviewed periodically (IUCN/SSC 2013).

Best practice demands:

- A specific and separate quarantine area for new arrivals
- Separate housing for long-term healthy gibbons
- Separate housing for sick residents demonstrating symptoms of disease, e.g. tuberculosis (TB), retroviruses etc. removed from resident healthy gibbons and quarantine area.
- Contacts with humans should be kept to a minimum to avoid disease transfer.
- Use of gloves and masks are required and eye shields, boots and footbaths are a recommended means of preventing disease transfer, especially in quarantine areas or those areas with sick gibbons.
- TB is endemic in the human population in many areas where gibbons are found and screening of staff can play an important role in disease control and prevention. Staff should be screened at least once each year. In cases of suspected TB in gibbons standard surgical masks may not be effective in preventing inhalation of droplet nuclei, because some are not designed to provide a tight face seal and to filter out particulates in the droplet nucleus size range (1-5 microns). N95 masks are recommended.
- Staff in contact with gibbons should also be screened and treated for any infectious diseases. Staff showing symptoms of illness should not be in contact with gibbons or other staff. These include, but are not restricted to diarrhoea, stomach ache, urine infections, skin diseases, open wounds, respiratory symptoms etc.
- Infectious waste should be dealt with safely to ensure no risk of contamination.

Behavioural enrichment

A sufficiently natural environment should be provided in cages/semi-wild enclosures, so the gibbons can exhibit as much natural behaviours as possible, thus enabling reliable observations to be made as to individual suitability for conservation translocation. The most obvious approach is to fill the cage with objects that will encourage the gibbon to brachiate and practice balance; for example, branches, swinging tyres and ropes. Branches facilitate the expression of species-typical activities (Reinhardt and Smith 1988): in the case of gibbons these are brachiating, swinging and perching. PVC pipes or bamboo can be used as alternatives to branches (Reinhardt and Smith 1988) and hessian sacks can also be hung to provide sleeping sites (Dickie 1994). The best type of manipulative object is one that responds to the gibbons' actions with unpredictable actions of its own (Carlstead et al. 1991). For example, a hanging tyre, which swings unpredictably when the gibbon lands on it, is a good source of enrichment. (Hebert and Bard 2000) have compiled a list of environmental

enrichment that has been shown to result in positive behavioural changes in primates, including but not limited to:

- dense bamboo structures
- uprooted trees
- novel objects
- food puzzles
- swings
- objects to manipulate/carry

Selecting candidates for release

Disease management

Sound quarantine protocols and veterinary management should be controlled throughout the rehabilitation phase with preventative medicine and pre-release screening. Ideally, qualified veterinarians, vet technicians or vet nurses are involved in the selection of suitable individuals for translocation. Introduction of diseases into existing primate populations through translocation efforts has the potential to counteract the conservation value of such programmes, placing at risk conspecifics and even other species. Acknowledging that our understanding of diseases in wild gibbon populations is relatively poor, we must consider that primates can act as reservoirs for human pathogens and vice versa.

Clearly defined veterinary protocols should be implemented upon completion or adoption of a risk analysis. As this can be costly, and in some cases a lengthy process, this element should be incorporated into translocation planning and financial management. A risk analysis framework such as the Stoplight Hazard Analysis outlined below should be applied to ensure that gibbons considered suitable for translocation are free of pathogens that pose a risk to existing populations or significantly reduce the likelihood of survival of the released gibbons.

Behavioural and psychological assessment

Gibbons should have been determined physically and behaviourally suitable for release prior to transfer to an acclimatisation enclosure. Only once the behaviour of the gibbons at this stage has again been deemed satisfactory (i.e. meeting basic behavioural requirements; for full review see (Cheyne 2009b; Cheyne et al. 2012; Cheyne, Chivers, et al. 2008) should the gibbon be confirmed for release from the acclimatization enclosure.

Transfer to the new environment may well result in the reoccurrence of previously-displayed negative behaviours, such as moving to the ground, cessation of calling and stereotypic behaviors (A. Ario, pers. comm. 2013). These behaviours may be due to stress of the new surroundings, but may also be an indicator of difficulty in adapting to new surroundings and careful assessment should be made prior to release.

Gibbons selected for conservation translocation should be displaying behaviours necessary for survival and reproduction in the wild. These would include effective brachiation, preferential use of the upper level of the enclosure, a preference for wild fruit/foilage, and maintenance of positive pair association (i.e., groom, play, singing and copulation) (Cheyne et al. 2012; Cheyne, Chivers, et al. 2008; Smith 2010). Gibbons should have the ability to detect and avoid threats (e.g. appropriate alarm-calling upon detection of predators). Gibbons should be physically- and sexually-mature (unless a geriatric/sub-adult/juvenile/infant as part of a group) and should ideally be part of a well-bonded pair or family unit, or in the case of individual release, have demonstrated positive social interaction with another gibbon.

Gibbons should not be spending any time on the ground of the enclosure, as this is likely to increase risk of predation. Enclosures should always be designed in a way that discourages this behaviour and any indication of this behaviour after release should also be managed using deterrents. Gibbons should be consuming a predominantly-natural diet prior to release and able to recognise water sources.

The major problems facing rehabilitated gibbons may be their lack of fitness and locomotor ability, the tendency of released gibbons to leave their mates and the problem of finding food. Research on wild gibbons has shown that they appear to have extensive knowledge of food sources at any one time, and this is not true of released animals, especially those raised in captivity, that don't even know what to look for. It may be difficult, however, to provision wild-reared gibbons in a new environment. They will need careful monitoring.

Conservation Translocation

Site preparation

The release site should be adequately prepared to facilitate adequate monitoring of released gibbons. The site should be mapped and demarcated. Depending on terrain, the construction of a trail system may be required to enable easier access and accurate recording and communication of information after release. Some nearby infrastructure may be required for staff facilities, as well as access to electricity, water and communication and an acclimatisation enclosure for the gibbons.

Acclimatization cage

Acclimatisation cages serve the purpose of allowing sensory adaptation to the new environment, as well as assessment of potential interference of other gibbons/species. They should be large enough to allow for normal behaviours and preferably be larger than the gibbons' previous enclosure, though this is not always possible due to terrain at release sites. It is also important to consider that the size is sufficient should there be unforeseen delays in the release.

The onset of regular calling is a general indication that gibbons are comfortable in the new environment and, providing that other key behavioural indicators are met, release from the acclimatisation cage would then be appropriate. Calling will also help to determine if there are other gibbons/species nearby that are likely to present a territorial challenge once the gibbons are released.

Wild to Wild Translocation Summary

The following issues apply specifically to wild to wild translocations, defined here as the deliberate capture and movement of wild gibbons from one natural habitat to another. Wild to wild translocations should adhere to the guidelines listed previously in this document, e.g. site, habitat and threat assessments, post release monitoring and protection, but the capture and removal of wild gibbons must also be adequately justified. Additionally, all efforts should be made to translocate entire groups together to avoid disrupting social cohesion and causing additional stress.

Translocation projects are generally considered due to the fact that gibbons are severely impacted by loss of forest quality due to their arboreal nature. Issues affecting gibbons include: 1) loss of canopy continuity (e.g. through logging), 2) isolation e.g. families/individuals stranded in a small number of trees, 3) fragmentation: gibbons forced to come down to the ground to reach other forest fragments to find sufficient food, making them vulnerable to predation and potentially causing human-gibbon conflicts. Fragmentation can also lead to the risk of malnutrition, increased exposure to pathogens in areas with human populations (Chetry et al. 2007) and population decline in the long term through stochastic processes and small population size.

Post-release Monitoring Summary

Data collection immediately after release/supplementation

Gibbons can be located after release by learning their ranging patterns and following them out to where they were seen to sleep for the night. In some species duetting can also be used to estimate where the gibbon groups are, but many pairs do not sing every day, so there are limits to this method (Brockelman and Ali 1987; Brockelman and Srikosamatara 1993; Cheyne, Thompson, et al. 2008; Hamard et al. 2010; Nijman and Menken B.J. 2005). Because the gibbons will be semi-habituated, it is hoped that, after a short space of time, the home ranges and daily travel routes of the released gibbons will be known, thus making the following and observing easier than if the gibbons were fully wild. Post-release monitoring includes the collection of data on behaviour, ranging, ecology, socialisation and on the interactions the gibbons have with other gibbons in the release area; for example, macaques and birds.

As a minimum, we suggest the following schedule for post-release monitoring:

Method	Length of time	Notes
Direct behavior observations	First 4 months	If supplemental feeding then throughout the duration of this especially if food is reduced to ensure gibbons are finding sufficient food in release area
Location data for both individuals in a pair	5-12 months	Monitoring should increase during seasonal changes to ensure gibbons are finding enough food confirmed through visual checks of body condition.

The gibbons should be located as often as possible for at least 1 year, or until they have experienced every season in the wild. After this the area should be regularly resurveyed to find out population status/trends over the years. We define success of a conservation translocation as the F1 generation surviving to produce offspring that then survive to weaning; that is, the same statistical chance of survival and reproduction in the wild as other gibbons. Thus, data on infants born and surviving will also provide information on how well the reintroduced gibbons are thriving; success depends on stabilising or increasing the population, as well as percentage of surviving gibbons. There will always be individual failures.

Wild to Wild Translocation Release

Wild to wild translocation releases will be managed considerably differently from conservation translocation releases, due to the speed with which they should be conducted and the lack of requirement for an acclimatisation process.

- Current evidence from India and Indonesia suggests that hard-releases are usually appropriate for immediate wild to wild translocation methods for gibbons. However a study from Thailand suggests that provisioning (soft release) is essential for a successful release of both rehabilitated and translocated gibbons (Brockelman and Osterberg 2015).

Wild to wild translocation site selection should be the same as that for conservation translocated gibbons, see **Release Site Assessment section**.

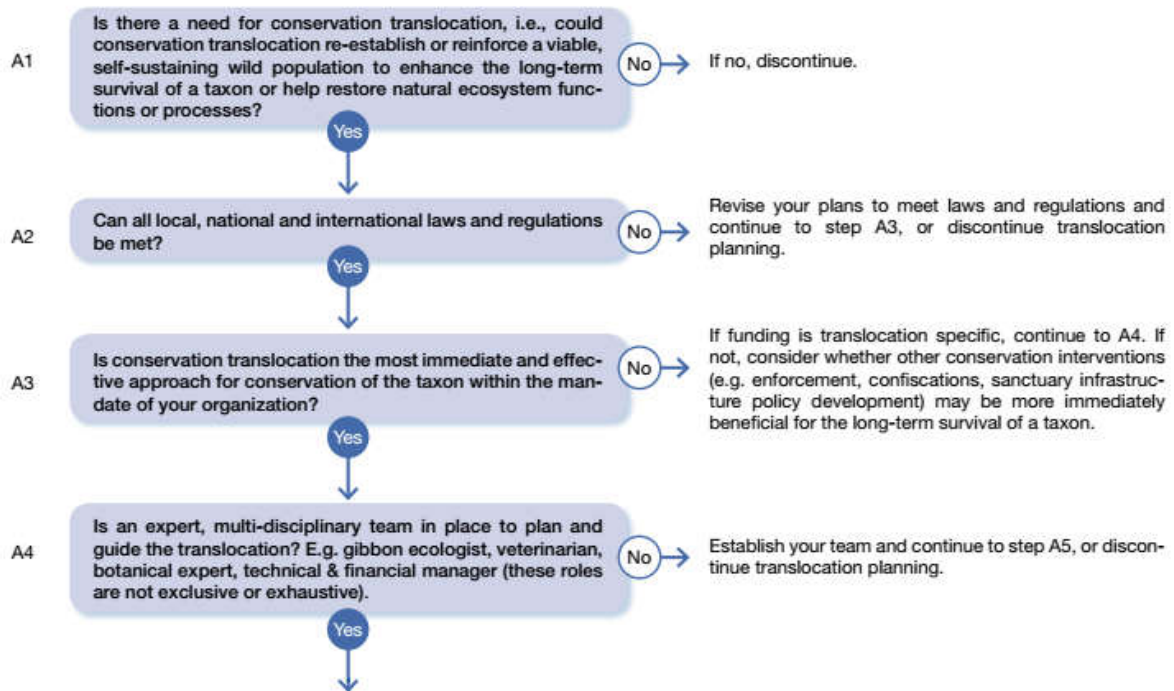
- When selecting suitable habitat of the gibbons, consider distance to new site for length of transport time.
- Gibbons should be released at least one average territory size for that species away from the nearest gibbon family at the release site.

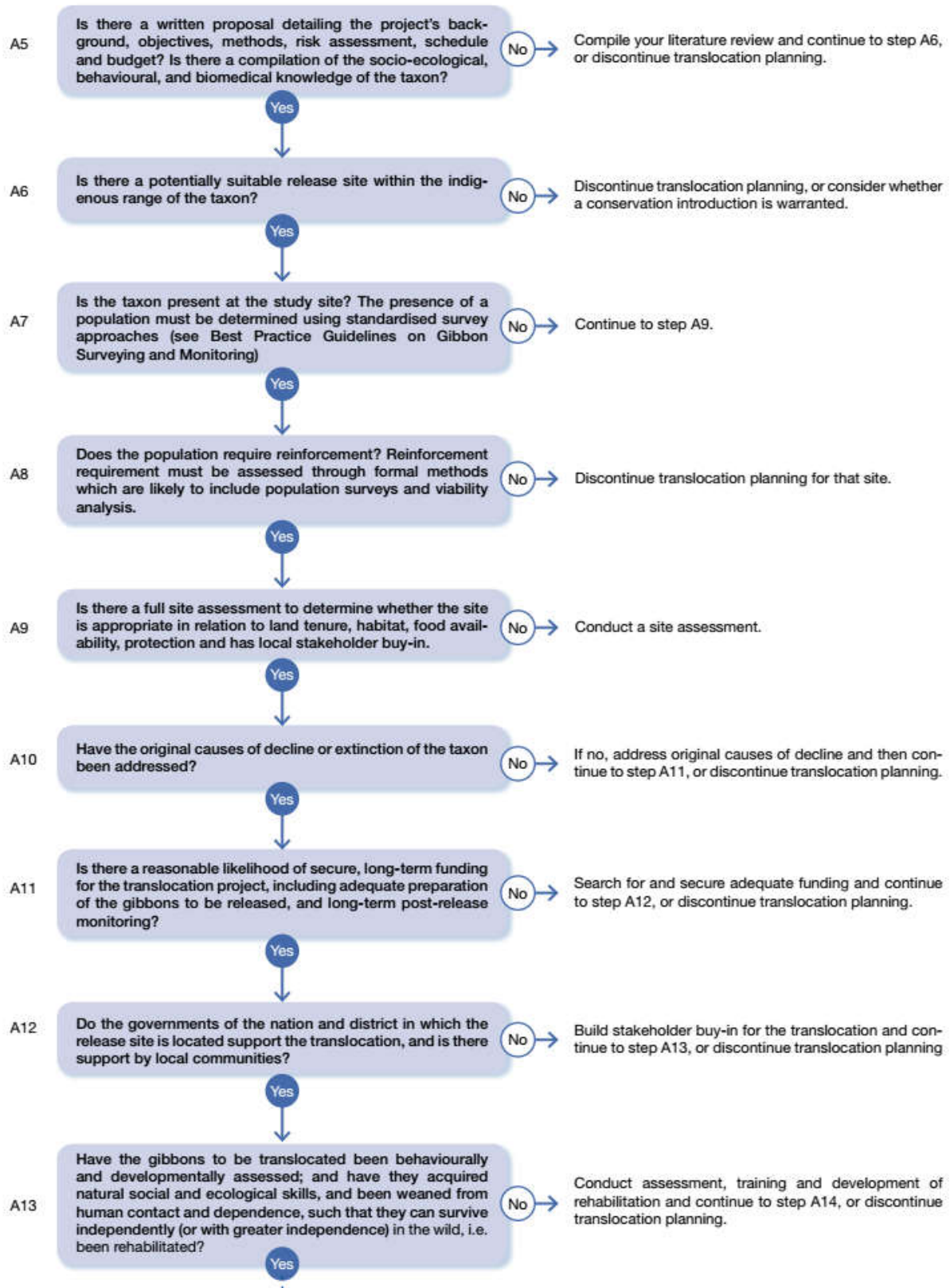
Post-release monitoring should follow the same protocol as that for conservation translocated gibbons (see **Post-release Monitoring Summary**).

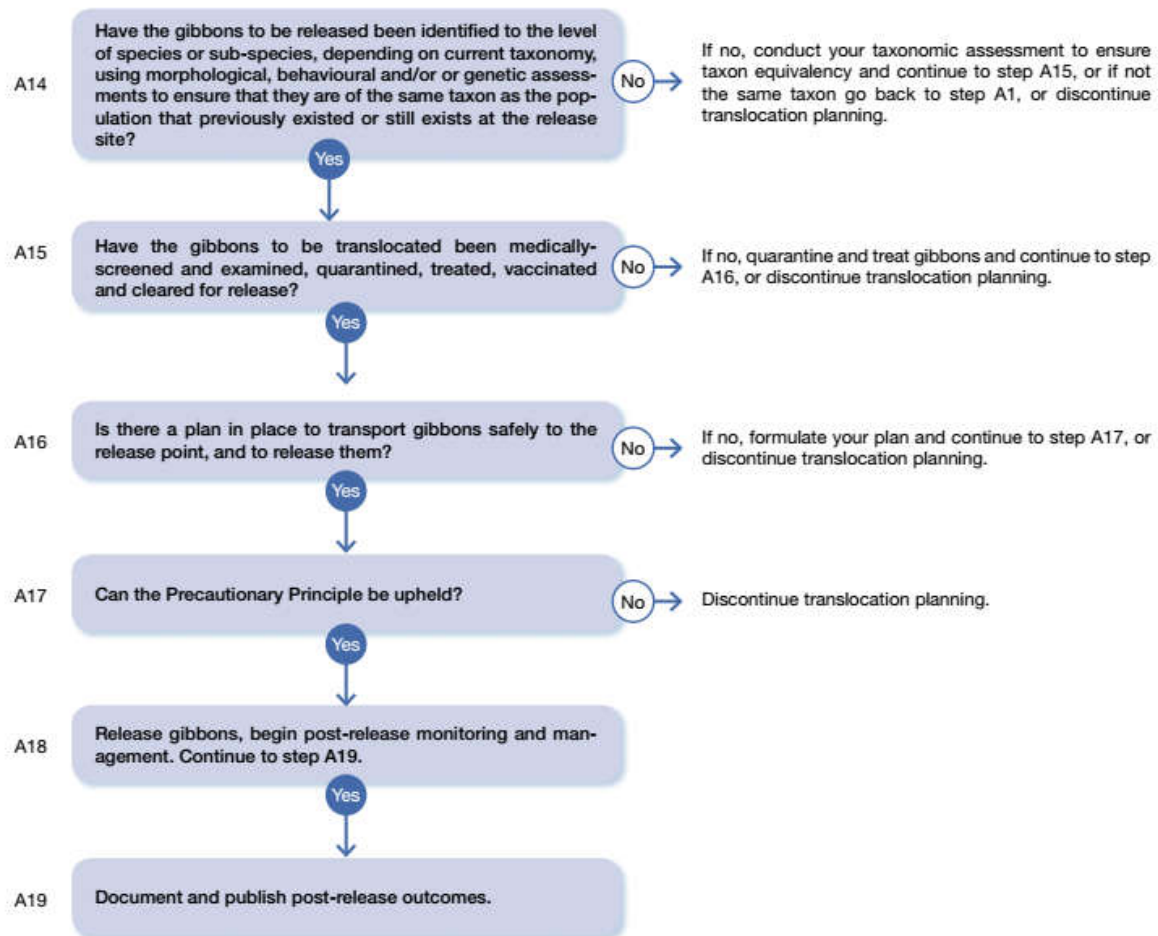
- Collars can be considered for wild to wild translocation gibbons, see **Post-release Monitoring Summary**, as can hair dyeing.

The Decision Tree

Planning is key to effective and successful Rescue, Rehabilitation, and Translocation projects. Issues to be addressed during project planning include: 1) translocation plan and risk assessment, 2) taxonomy and geographic range of gibbons involved, 3) a technical plan, 4) the need for a financial plan and 5) the need for a multi-disciplinary approach and an adaptive management strategy. The decision trees below are adapted from those for the Great Apes (Beck et al. 2007)







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