



Global Re-introduction Perspectives: 2013

Further case-studies from around the globe
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IUCN/SSC Re-introduction Specialist Group (RSG)





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The release of northeast Bornean orangutans to Tabin Wildlife Reserve, Sabah, Malaysia

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Introduction

Bornean orangutans (*Pongo pygmaeus* sp.) are declining due to habitat destruction and fragmentation, hunting, and other human encroachment into their preferred habitats (Singleton *et al.*, 2004; Wich *et al.*, 2008), and are classified as Endangered (EN, A2c) (IUCN, 2012). A highly visible consequence of habitat loss is the presence of hundreds of displaced orangutans in rescue and rehabilitation centres throughout their range. The majority of remaining wild orangutans are located outside protected areas in forests that are exploited by humans or that are being converted for agriculture, thus it is likely that the number of orphaned animals arriving at rehabilitation centres will continue to rise. Since the early 1960s, hundreds of orangutans have passed through Sepilok Orangutan Rehabilitation Centre. Many of these individuals were subsequently released by the Sabah Wildlife Department (SWD) into Tabin Wildlife Reserve (TWR), yet nothing is known regarding re-introduction outcomes. The reserve (5°15'–5°10'N, 118°30'–118°45'E),



Bornean orangutan © James Robins

which encompasses 1,205 km² of protected primary and secondary lowland dipterocarp forest, has an estimated orangutan population of 1,400 individuals, at a density of 1.26 per km² (Ancrenaz *et al.*, 2004). Tabin was first gazetted as a Wildlife Reserve in 1984, and is jointly managed by the Sabah Forestry and Sabah Wildlife Departments.

Goals

- **Goal 1:** Provide much needed data on the outcomes of re-introduced orangutans by conducting long-term regular post-release monitoring of all released individuals.
- **Goal 2:** Provide individual ex-captive orangutans with an opportunity for enhanced welfare through re-introduction to their natural environment.
- **Goal 3:** Evaluate the efficacy of current rehabilitation protocols in Sabah based on the behavioural results of rehabilitants compared to wild orangutans. In doing so, assisting rehabilitation managers in the future to produce viable release candidates.
- **Goal 4:** To test, and help to develop, the use of emerging technologies designed to facilitate post-release monitoring, i.e. subcutaneous telemetry transmitters.
- **Goal 5:** Engage local people through the delivery of an educational awareness program targeting nearby stakeholders, schools, and communities. This is designed to i) provide increased protection to the release site against illegal encroachment; ii) engender a sense of ownership and shared objectives among the local community.

Success Indicators

- **Indicator 1:** The collation of long-term intensive behavioral data from re-introduced orangutans in Sabah, precisely documenting re-introduction progress and outcomes.
- **Indicator 2:** Complete nutritional independence of rehabilitants, and the development of a healthy, stabilised post-release weight.
- **Indicator 3:** Demonstrably similar behavioral repertoires when compared with wild orangutans ranging in similar habitats.
- **Indicator 4:** Adequate integration of rehabilitants with wild orangutans to include reproduction and successful infant rearing.
- **Indicator 5:** The production of a larger number of viable orangutans for re-introduction through the development of improved rehabilitation protocol.
- **Indicator 6:** Demonstrably similar behavioral repertoires when compared with wild orangutans ranging in similar habitats.

Project Summary

Feasibility: The Tabin Orangutan Project is an orangutan post release monitoring program co-managed by Orangutan Appeal UK (OAUk) and the SWD, and was formed under the guidance of the Sabah Wildlife Advisory Panel. Field assessments conducted by Kinabatangan Orangutan Conservation Program, a local partner NGO, sought to determine the most appropriate release location within Tabin by i) identifying areas with sufficient year round food resources; ii)

considering the proximity of neighbouring plantations, human settlements and roads; and iii) an area's topography and general accessibility for researchers conducting the post-release monitoring. This analysis led to the selection of an area of regenerating forest in western Tabin. The site had the highest density of fruiting trees known to be part of the orangutan's diet in Sabah, and the most diverse range of food species of five separate locations sampled. It encompasses one of the few flat areas of significant size in the area, and is dissected by a rarely used ex-logging road resulting in fast access to daily nesting locations by truck and on foot. The location is rarely ventured to by humans; the nearest settlement being the research base camp located 2.5 km away. Other sparsely populated communes close by are the SWD headquarters and a small tourist resort located 8 km away. To facilitate ongoing assessment of seasonal fluctuation of food availability, we established phenology plots where all orangutan food trees are scored by trained observers each month for their abundance of fruits, leaves, and flowers. A network of additional trails was also established to ease the tracking process.



Collecting data in the forest

© Elizabeth Winterton

Implementation: Selection of individual apes to be released was based on pre-release behavioural and medical screening. Release candidates were observed within the semi-wild confines of Sepilok/Kabili reserve during their rehabilitation phase, with orangutans deemed inadequate for release due to poor natural foraging skills, over familiarity with humans, inappropriate substrate use and locomotive patterns (e.g. too much time spent on the ground), and, hyper-sociality with conspecifics. All animals were a minimum of 6 years old at their age of release. The medical histories of all candidates were scrutinised for signs of persistent illnesses or susceptibility to disease, and they underwent periodic veterinary examinations which measured body weight, rectal temperature, pulse and breathing rate, heart and lungs auscultation, membrane colour, hydration status, and general body condition. To prevent the introduction of novel diseases into a naive ecosystem, animals were tested for potentially transferable diseases including tuberculosis, hepatitis B, and malaria. We also took blood samples for melioidosis, full blood counts and a wide biochemistry panel. Faecal smears were taken to investigate the presence of intestinal parasites, and each animal was dewormed to prevent any transfer of parasites to the release site.



School visit © James Robins

The anatomical structure of an orangutan's neck and their predominantly arboreal lifestyle preclude the use of radio collars as seen with chimpanzees (Tutin *et al.*, 2001). In attempting to overcome this most fundamental of problems, which has long constrained opportunities for thorough post-release monitoring of orangutans, the Research Institute of Wildlife Ecology in Vienna (FIWI) developed a subcutaneous radio

telemetry device and implantation method for use on this project. Surgical procedures to fit these transmitters lasted approximately 25 minutes and were carried out with no adverse effects to any animal.

Post-release monitoring: Five minute nest-to-nest focal interval sampling records information on activity; social interaction; substrate use and height; and, response to human researchers. We also continuously record data on food species; plant parts eaten; feeding patch duration; and nest-building behaviour. Ranging is monitored by way of GPS track logs which provide data on each animal's home range, nest locations, and daily distance travelled. Veterinary checks of released animals replicate the periodic examinations undertaken before release. Body weight is measured wherever possible although we often experience variance in sampling timing due to the unwillingness of the animals to submit to examination. In the absence of physical symptoms, we use any significant changes in activity levels, such as apparent lethargy or reductions in normal foraging, to gauge ill-health.

Three orangutans were released in 2010 using a hard release strategy with no supplementary food offered. In 2012 experiments began with the soft release of an additional five animals whereby food is offered on an *ad-hoc* basis. Orangutans are released in small groups of 1-3 individuals. We have three confirmed outcomes so far: one animal dispersed in month six, one died in month 10, and the other died in month 12. All individuals have integrated adequately with wild orangutans, and all have experienced varying degrees of post-release weight loss in their first few months after release. One released female has given birth to an infant male and both are healthy at the time of writing. The project is ongoing.

Major difficulties faced

- Maintaining contact with exploratory and fast moving animals over steep, undulating and broken terrain.
- Limited range of radio telemetry equipment in hilly terrain and bad weather. Some transmitters also failed earlier than anticipated. The reasons for the faults may not be easily discovered as recapturing and recovering devices would be highly invasive for animals that have already been released.
- Cutting dependency on humans - even the more independent of rehabilitated orangutans may view humans as an easy source of food. We witness many instances of begging behaviour, particularly in response to increased supplementation. This is an unavoidable legacy of rehabilitated great apes spending much of their infancy reliant upon humans for most their developmental needs.
- Balancing short-term welfare with long-term chances of thriving: i) supplementing an animal's diet can be at the expense of their developing sufficient natural dietary diversity, which is all they are able to rely on once monitoring stops; ii) post-release veterinary examinations may cause undue stress and inhibit gradually developing independence - we encountered a worrying situation at one animal's routine three month examination when his pulse and temperature rose to high levels, and he became very stressed, rendering the basic parameters fundamental to a clinical assessment effectively meaningless. Equally, orangutans are incredibly stoic and may only show signs of severe illness after a condition is already well advanced, thus calling into question the efficacy of using behaviour as the primary means of assessing health.
- Inappropriate training environments to facilitate acquisition of key skills needed to survive post-release: i) twice daily food supplementation for tourism purposes in rehabilitation centres may quell the need for independent foraging and learning; ii) Tabin is a secondary regenerating forest, while the rehabilitation facility at Sepilok is located in a virgin jungle reserve. The crossover of available food species is not identical, which may explain a heavy dependence on lower quality fall back species that we have seen post-release.

Major lessons learned

- For animals that require short-term medical treatment or close observation, it is important to have a holding cage/facility located within, or very close to, the release forest. This prevents the need to transport an animal back to its original rehabilitation centre, thus limiting psychological stress and restricting the likelihood of transferring disease between two areas. While a full-time veterinary presence may not be necessary for small group releases, regular external input offers a fresh perspective on the behavioural and physical health of an animal, and is crucial to increasing survivorship. In addition, non-invasive measures of health should be pursued. Despite encountering difficulty in gaining regular access to weigh the more independent animals, a stabilised healthy weight developed during the first year after a re-introduction, combined with complete dietary independence and good health, is likely to be the most important determinant of long-term survival. Given that a reluctance to submit to physical examination should be viewed positively, it would be ideal to

develop a method for non-invasive weighing in the field. Similarly, monitoring parasite loads provides another non-invasive method for assessing health. At pre-release it is important to avoid over enthusiastic pre-release worming regimes, while regulating exposure to allow some development of immunity

- Researchers should familiarise themselves with the wider release location, and try to anticipate movements away from any core areas previously identified during the pre-release phase. To maintain contact with animals, particularly in the first few months of their re-introductions, we needed to cut trails as we went. However, once more permanent trails had been established covering a larger area; we lost contact with the animals much less frequently
- Deciding when to stop following re-introduced rehabilitants is not an exact science and must be judged based on an individual's progress, and their natural desire to disperse. If animals are however not performing well, and are unable to learn from latterly re-introduced animals, they should be returned to the rehabilitation facility on welfare grounds. Given that all re-introduction mortality statistics are heavily influenced by the duration of post-release monitoring, the longer an animal can be monitored, then the truer the picture of re-introduction successes/failures and the reasons behind them
- Small group releases have enabled long-term post-release monitoring of all of our re-introduced animals so far. Depending on the number of staff available to re-introduction managers, and assuming nest-to-nest follows are conducted, we recommend that animals are followed intensively (\geq three days per week). This minimises the likelihood of losing contact while also allowing for each animal's health and behavioural status to be checked on a regular basis
- Re-introduction marks the beginning of the most challenging aspect of the entire rehabilitation process. As such, post release monitoring projects involving great apes must be conducted thoroughly over several years for its data to be most valuable. To most precisely document post-release outcomes, it is vital to equip an animal with a tracking device. Today we are using radio-telemetry, although there are still limitations associated with this. Further technological development may soon produce satellite devices that last for several years, and for some rehabilitants this may dispense of the need for a potentially disruptive, and expensive, human presence on the ground

Success of project

Highly Successful	Successful	Partially Successful	Failure
		√	

Reason(s) for success/failure:

- The project has contributed to the refinement of never before trialed implanted radio telemetry transmitters, which, in turn, has assisted researchers to stay in regular contact with all newly released animals.
- Large amounts of intensive behavioural data have for the first time been collected on the fate of individual rehabilitated orangutans.
- It is too early to assess the impact this research may have on shaping future rehabilitation protocol. More data must first be collected, analysed, and acted upon, from a larger number of orangutans, before judgement can be made on

this goal. However, the confirmed deaths of two out of three animals released during the hard release stage of the project demonstrate that in some cases rehabilitant orangutans are unable to survive without post-release support. Periodic weight loss displayed by others when not regularly supplemented also raises preliminary questions over both the suitability of the release site, and the current rehabilitation protocols in use in Sabah. In contrast, the carriage and subsequent birth of a healthy baby from a released rehabilitant mother is encouraging.

- It remains unclear how well prepared many orphaned orangutans are for thriving in a natural forest. Learning from similarly aged conspecifics or from human care givers is no substitute for an extensive mother/offspring learning period as experienced by undisturbed wild infants and juveniles.

References

Ancrenaz, M., Gimenez, O., Ambu, L., Ancrenaz, K., Andau, P., *et al.* (2004) Aerial Surveys Give New Estimates for Orangutans in Sabah, Malaysia. *PLoS Biol*, 3 (1): e3. doi:10.1371/journal.pbio.0030003

IUCN (2012) The IUCN Red List of Threatened Species v. 2012.1. [Http://www.iucnredlist.org](http://www.iucnredlist.org) [accessed 2 May 2012]

Singleton, I., Wich, S. A., Husson, S., Stephens, S., Utami Atmoko, S. S., Leighton, M., Rosen, N., Traylor-Holzer, K., Lacy, R. & Byers, O. (eds.) (2004) Orangutan Population and Habitat Viability Assessment: Final Report. IUCN/SSC Conservation Breeding Specialist Group: Apple Valley, MN.

Tutin, C.E.G., Ancrenaz, M., Paredes, J., Vacher-Vallas, M., Vidal, C., Goossens, B., Bruford, M.W. & Jamart, A. (2001) Framework for the release of wild-born orphaned chimpanzees into the Conkouati Reserve, Congo. *Conservation Biology*, 15 (5), 1247-1257

Wich, S. A., Meijaard, E., Marshall, A. J., Husson, S., Ancrenaz, M., Lacy, R. C., van Schaik, C. P., Sugardjito, J., Simorangkir, T., Traylor-Holzer, K., Doughty, M., Supriatna, J., Dennis, R., Gumal, M., Knott, C. D. & Singleton, I. (2008) Distribution and conservation status of the orang-utan (*Pongo* spp.) on Borneo and Sumatra: how many remain? *Oryx*, 42 (3), 329–339