

REPORT

MONITORED RELEASE OF SMOOTH-COATED OTTERS (*Lutrogale perspicillata*) IN ANGKOR ARCHEOLOGICAL PARK, SIEM REAP, CAMBODIA

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Abstract: A family of smooth-coated otters (*Lutrogale perspicillata*) from Phnom Tamao Wildlife Rescue Center (PTWRC), Takeo, Cambodia, was reintroduced into the Angkor Archeological Park, Siem Reap, Cambodia, following IUCN Reintroduction Guidelines. Protocols included pre-release site surveys, candidate selection, health checks, rehabilitation and training, followed by acclimatization at the release site and post-release supplementary feeding and daily monitoring to ensure the continued survival and welfare of the released otters. The family, composing one male, one female and three offspring, was transported from PTWRC to a previously prepared release enclosure within the protected forest surrounding the Angkor Archeological Park for acclimatization. Following the death of two offspring due to eating poisonous toad eggs within the pre-release enclosure, the surviving three otters were released. The remaining juvenile disappeared approximately three weeks later, shortly after which the adult pair produced two pups. The family of four continues to survive, now six months after their release.

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INTRODUCTION

Reintroduction of rescued or captive-bred animals is an accepted conservation strategy to mitigate declining populations of species in the wild (Kleiman, 1989; Beck et al., 1994; Sjöåsen, 1996; Johnson and Berkley, 1999; Duplaix and Savage, 2018). Hard release - the reintroduction of animals without conducting any measures regarding monitoring or support - may be appropriate for certain species. Animals that have spent a prolonged time in captivity may have lost some of the abilities and behaviors necessary to survive in the wild and should be soft-released under IUCN Reintroduction Guidelines to increase the likelihood of survival and welfare (Beck et al., 1994). These include release site surveys, candidate selection, health checks, rehabilitation, acclimatization at the release site, post-release supplementary feeding and monitoring (IUCN/SCC, 2013).

Since 2001, Wildlife Alliance has been supporting the Cambodian Forestry Administration (FA) with its care for rescued wildlife at Phnom Tamao Wildlife Rescue Center (PTWRC), Takeo, Cambodia. Set within regenerated forest, it is Cambodia's main government-run wildlife rehabilitation facility. Whenever possible, wildlife rehabilitated at PTWRC and suitable for reintroduction will be released into

appropriate, protected habitat. For certain species, individuals unfit for release are put into captive-breeding programs and their offspring are returned to the wild at a later date if suitable. Wildlife Alliance implements strict reintroduction protocols when involved in the release of captive-born animals or those that have spent extended periods in captivity, from PTWRC.

Three otter species have been confirmed in Cambodia; Asian small-clawed (*Aonyx cinereus*), hairy-nosed (*Lutra sumatrana*) and smooth-coated otter (*Lutrogale perspicillata*) (Bennetto, 2009). Populations of all three species are decreasing due to land encroachment, habitat conversion, pollution, competition with humans for prey hunting and the pet trade (Aadrean et al., 2015; de Silva et al., 2015; Wright et al., 2015; Gomez and Shepherd, 2019). Of the three species, smooth-coated otters are more commonly encountered (Santiapillai, 2000; Bennetto, 2009). They also encompass the majority of otters rescued or donated to PTWRC.

Otters at PTWRC are often rescued from the pet trade. They will usually have been hand-raised by humans and habituated, which may make them unsuitable release candidates. Following a quarantine period, an appropriate male and female will be paired, as smooth-coated otters are monogamous with groups generally composed of a breeding pair and their multiple litters. A family of otters kept in an enclosure in a designated area of the center, which is off-access to the public, exhibited natural behavior, including a preference to avoid humans. This group was considered for potential release.

In 2019 the otters were taken to a pre-release enclosure within the protected forest surrounding the Angkor Archaeological Park, Siem Reap, Cambodia, as part of a larger rewilding initiative. The otters were kept in the on-site enclosure for five months and soft-released, following IUCN Reintroduction Guidelines (IUCN/SCC, 2013). Here we document the soft-release protocols employed, challenges faced and outcomes from the first recorded release of rehabilitated smooth-coated otters in Cambodia, as a resource for future practitioners looking to conduct similar reintroduction programs.

ANIMALS, MATERIALS AND METHODS

Site Selection

Suitable release sites in Cambodia for most species are limited by the presence of wild resident conspecifics or lack of adequate protection. In 2013, in partnership with FA and the authority managing Angkor, APSARA, Wildlife Alliance began a program to reintroduce a variety of species into the forest surrounding the Angkor Archaeological Park. Surveys of the area conducted in 2006, including line transects and interviews of villagers living nearby, found little wildlife remained in the area, and no presence of otters (Leroux et al., 2019). Wildlife populations have been reduced due to illegal hunting and logging in the '80s and '90s (Le Billon, 2000). APSARA and police within the Park are now effectively protecting the area and it is a designated UNESCO World Heritage site, safeguarding the Park from further human encroachment. We built the pre-release enclosure in a remote area of forest within the Angkor Thom complex, which holds several large bodies of water including lakes and moats and is not heavily visited by tourists.

Ethical Statement

All activities documented adhered to the legal requirements of Cambodia at all times with approval from the relevant government authorities. Transport and handling

of animals was overseen by Wildlife Alliance lead veterinary and senior animal care staff.

Reintroduction Candidates, Health Checks and Pre-release training

The otters selected for reintroduction consisted of an adult male and female introduced into the enclosure in 2016, and their three captive-born dependent offspring. Offspring were from two different litters: one pup born in 2017, and two pups born in 2018. Otters were vaccinated for distemper annually. Health-checks were restricted by limited diagnostic facilities available for animals in Cambodia: blood chemistry testing to ensure normal levels for the species and examination of baseline physiological parameters. Rehabilitation conditions at PTWRC included a 50 m x 50 m enclosure, built around a section of the forest including different types of natural vegetation, logs, large rocks and roots, natural substrates which allowed digging, concrete dens for sleeping and an artificial concrete pond. The pool measured 5x4x1.5 m at the deepest point. The enclosure was located in an area of the center that is off-access to the public and isolated from other mustelid species to limit disease transmission. Following selection, the otters had minimum contact with animal care staff, limited to feeding and cleaning. We implemented behavioral enrichment feeds to encourage foraging and provided live fish in their pools so otters could acquire hunting skills. The otters were able to forage for enrichment feeds, such as snails and crabs, hunt for live fish, and catch frogs that wandered into the enclosure. They demonstrated other natural behavior such as swimming, scent-marking, digging and avoidance of humans.

Acclimatization

Animal care and veterinary staff captured the otters and transported them in two crates to the release site on July 3rd, 2019 (Fig. 1). The otters were acclimatized in the pre-release enclosure for five months. The enclosure is constructed around a section of forest and measures 60 m x 60 m with metal sheeting on the upper half to discourage the otters from climbing. It contains an artificial pool measuring 6 m x 4 m x 1.5 m at the deepest point, and two small sleeping dens made of concrete measuring 1.5 m x 1.5 m x 1 m (Fig. 2). The substrate is of soil, allowing otters to dig. We fed the otter family approximately 4 kg of live and dead fish per day in the afternoons (1 kg per adult otter, with a reduced amount for offspring). Fish species provided were dependent on availability in the market and predominantly included walking catfish (*Clarias* spp.) and Java barb (*Barbodes gonionotus*). Fish was supplemented by enrichment feeds of freshwater eels, crabs and snails provided at random times, every two or three days.

Post-release monitoring and supplementary feeding

Animal care staff installed a camera trap at the enclosure door to noninvasively monitor the otters' movements and conducted *ad hoc* visual observations throughout the day. As there are no wild conspecifics present in the area, the otters were easily identified. Supplementary feeding was provided in the same manner as we fed the otters during their acclimatization period in the enclosure, provided in and around the concrete pool. We initially fed a slightly reduced amount (just under 1 kg per adult otter), however increased the amount and split the feeds into morning and afternoon to encourage otters to remain close to the pre-release enclosure. Supplementary feeding is continued as a management tool for as long as we deem necessary and the otters return to feed.



Figure 1. Rehabilitated smooth-coated otters (*Lutrogale perspicillata*) introduced into the forested pre-release enclosure at the Angkor Archeological Park, Siem Reap, Cambodia.



Figure 2. Smooth-coated otters (*Lutrogale perspicillata*) using concrete den built within the pre-release enclosure, Angkor Archaeological Park, Siem Reap, Cambodia.

OBSERVATIONS

During their acclimatization period in the pre-release enclosure, the otters initially slept in the small dens we provided, later moving into holts they dug themselves in the ground. On November 3rd, two of the younger otters died after eating the poisonous toad eggs that were washed into the enclosure following heavy rains. In mid-November, the remaining otters escaped by digging under the enclosure fencing. We recaptured the family when they returned inside the enclosure to feed by blocking their exit. Shortly after this, we decided to release the group, removing the barrier under the fence and opening the main enclosure door.

In the first few weeks, the otters moved around during daylight, returning through the tunnel they created to sleep in the dens they had dug within the pre-release enclosure each day. They avoided people, running away if approached. Following the disappearance of the third young otter, last seen on December 6th, the adults became more secretive, preferring to venture out in the evenings and early mornings. However, they still returned in the afternoons for the supplementary feed. Animal care staff observed the otters daily, locating them as far as 3 km away from the release site. We split supplementary feeding to two times a day (morning and afternoon) and increased the quantity provided (just over 1 kg per adult otter per day) to ensure the otters did not venture into unsafe areas or those heavily visited by tourists. The extra feed reduced the distances the otters travelled as the extra nourishment removed the group's need to explore too far from the area for alternative food sources.

Towards the end of December 2019, the pair's behavior changed. They remained close to the pre-release enclosure, becoming more elusive and they dug a hole within the roots of a large tree, outside the pre-release enclosure, around 20 m away, in which they slept. On February 22nd 2020, animal care staff saw two pups for the first time accompanying the adult otters as they came to feed. Though small, the pups were well developed and we estimated them to be around six weeks old.

There have been only two encounters to cause concern following the otters' release so far. On May 14th, we found footage on YouTube of village dogs attacking the adult otters. The breeding pair charged the dogs in their defense. The footage, which continued for around 20 minutes, did not show the result. The following morning the otters were in the pre-release enclosure for supplementary feeding without any visible injuries, which suggests they defended themselves successfully. However, it is unclear when the footage was taken, as the pups were not present in the video and therefore it could have been recorded before their birth. The second incident occurred at the end of May when one of the wild-born pups was caught in an illegal fishing trap within the nearby lake. The fisherman fell over as he attempted to free the young otter and was attacked by the adults, subsequently requiring hospitalization for a brief period. When staff went to release the pup, they found it had already managed to make its way out of the trap and rejoined the family.

DISCUSSION

In the six months following their release, the adult otters and their wild-born offspring continue to survive. The rehabilitation and release of the adult pair can be considered a success thus far, as they have bred and continue to thrive with these offspring (Kleiman, 1989; Kleiman et al., 1991; Johnson and Berkley, 1999). However, it is not a complete success as two captive-born offspring died from

consuming poisonous toad eggs in the pre-release enclosure during acclimatization and one disappeared within the first few weeks of their release.

The death of the offspring in our release initiative does not suggest captive-born smooth-coated otters should not be considered for reintroduction programs. Reintroduced captive-bred carnivores, including otters, have lower survival rates than their wild-caught counterparts as they are more likely to be habituated, resulting in human-caused mortality, or unable to forage and hunt for themselves once in the wild (Sjøåsen, 1996; Jule et al., 2008). The two captive-born offspring in our release died in the enclosure of causes unrelated to habituation or dependence on humans, and the third offspring's fate remains unknown. With proper rehabilitation and pre-release training specific to species biological and ecological needs, captive-bred or hand-reared animals that have spent prolonged periods in captivity can acquire skills necessary for survival in the wild (Beck et al., 1994; Somers and Markus, 2009; Reading et al., 2013; Dey et al., 2018). For the smooth-coated otters, rehabilitation following reintroduction protocols included limiting human contact, allowing pups to be raised by their parents, and providing enrichment and an environment to encourage natural behavior. As a result, the adults who spent an extended period in captivity, demonstrated appropriate behavior required for survival in the wild prior to and following release; foraging, hunting live fish, digging dens, avoiding humans and protecting their young.

The protocols and release site selection in our smooth-coated otter reintroduction differed from previous otter releases. Releases of a smooth-coated otter and giant otters (*Pteronura brasiliensis*) have been conducted using orphaned animals that have been hand-raised by practitioners (Gómez et al., 1999; Mcturk and Spelman, 2005; Dey et al., 2018). Our protocols limited human interaction with candidates, allowing offspring to be raised by their parents without intervention, as often animals raised by conspecifics are more easily and quickly able to develop appropriate natural behaviors needed for survival (Nicholson et al., 2007). Sites of previous otter releases have contained wild conspecifics (McTurk and Spelman, 2005; Dey et al., 2018). The release of a single hand-reared male smooth-coated otter selected a site with resident otters and was ultimately a success (Dey et al., 2018). Releases of hand-reared orphaned giant otters into habitat with wild groups had mixed results: the majority of individuals were adopted into or mixed with wild groups; however, about a sixth of released otters were killed by wild conspecifics (Gómez et al., 1999; Mcturk and Spelman, 2005). We chose an area with no resident smooth-coated otters present, as we were concerned they would outcompete the released individuals for resources, possibly driving them from protected and ideal habitat, and potentially could lead to intraspecies-caused conflict or mortality (Kleiman and Beck, 1994; Sjøåsen, 1997; IUCN/SCC, 1998; Mcturk and Spelman, 2005; Dey et al., 2018). Our selected release site influenced our candidate selection; we released an established family group similar to that found in the wild to increase likelihood of survival as they navigate their new environment, rather than releasing individuals (Kleiman and Beck, 1994; Batson et al., 2015).

Post-release monitoring gives us knowledge of release outcomes, creating a better understanding of species-specific challenges in reintroduction programs and enabling appropriate management of issues as they arise (Spinola et al., 2008). The post-release monitoring we implemented enabled us to adjust protocols as needed. In the early days, before they became adept at surviving using their own skills, the otters began to explore further away from the pre-release enclosure. Otters released in Sweden predominantly travelled in the first 10-15 weeks as they scouted for resources

and established territories, where animals that dispersed farther distances from the release area suffered a greater number of human-related mortalities than those that remained closer to the site (Sjöåsen, 1996, 1997). To encourage the smooth-coated otters to remain close to the safe release site, we added a second supplementary feed. The additional food source has kept the otters in the remote area close to the pre-release enclosure, away from high human activity and visitor frequented areas.

The success of the release so far can also be attributed to the cooperation and investment into the reintroduction program by relevant authorities (APSARA), and the community. After the pup was caught in the illegal fishing trap, APSARA increased protection and removed remaining fishing equipment from the area. Community support similarly benefited the release of a smooth-coated otter in India, where fisherman provided post-release monitoring and *ad hoc* reports on the otter for 1.5 years after rehabilitators left the area (Dey et al., 2018). As with other species reintroduced as part of the rewilding program in Angkor, the release of otters has an additional conservation value for the remaining resident fauna with increased protection for the habitat and awareness from the local community.

Although resource-intensive, it is essential to implement IUCN recommended pre- and post-release protocols from an animal welfare and a conservation perspective, especially for captive-bred or rescued species that have spent extended periods in captivity. Indeed, it could be considered inhumane and a waste of resources to ignore such protocols. As populations of different species continue to decrease in the wild due to anthropogenic circumstances, the release of captive-born or rescued wild animals will become an increasingly important science. The documentation and dissemination of release outcomes is imperative to improve methodology so that reintroduction programs can contribute to the conservation of species.

We will continue to monitor and support the released otters for as long as necessary. The Angkor rewilding program between APSARA, FA and Wildlife Alliance, is being conducted on a step-by-step basis. As we have done with the pileated gibbons (*Hylobates pileatus*) we have released into Angkor, we hope to release a second pair of otters in a different location once we are sure the original animals can survive and after we have identified a suitable unrelated pair for release.

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REFERENCES

- Aadreaan, A., Kanchanasaka, B., Heng, S., Reza Lubis, I., de Silva, P. Olsson, A. (2015).** *Lutra sumatrana*. The IUCN Red List of Threatened Species 2015: e.T12421A21936999. <https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T12421A21936999.en>. Downloaded on 24 June 2020.
- Batson, W.G., Gordon, I.J., Fletcher, D.B., Manning, A.D. (2015).** Translocation tactics : a framework to support the IUCN Guidelines for wildlife translocations and improve the quality of applied methods. *J. App. Ecol.*, **52**: 1598-1607.
- Beck, B.B., Rapaport, L.G., Stanley Price, M.R., Wilson, A.C. (1994).** Reintroduction of captive-born animals. In: **Olney, P.J., Mace, G.M., Feistner, A.T. (Eds.)**. Creative

- Conservation: Interactive management of wild and captive animals. Chapman & Hall, London, UK, pp. 265-286.
- Bennetto, C. (2009).** International training workshop on Asian otter research and conservation. *IUCN Otter Spec. Group Bull.* **26**(2): 113-125.
- de Silva, P., Khan, W.A., Kanchanasaka, B., Reza Lubis, I., Feeroz, M.M. and Al-Sheikhly, O.F. (2015).** *Lutrogale perspicillata*. The IUCN Red List of Threatened Species 2015: e.T12427A21934884. <https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T12427A21934884.en> Downloaded on 08 April 2021.
- Dey, S., Dey, S., Choudhary, S., Kelkar, N. (2018).** On the rehabilitation of a hand-reared adult smooth-coated otter *Lutrogale perspicillata* in Bihar, India. *IUCN Otter Spec. Group Bull.* **35**(2): 71-84.
- Duplaix, N., Savage, M. (2018).** The Global Otter Conservation Strategy. IUCN/SSC Otter Specialist Group, Salem, Oregon, USA.
- Gómez, J. R., Jorgenson, J., Valbuena, R. (1999).** Report on the Rehabilitation and Release of Two Giant River Otter (*Pteronura brasiliensis*) Pups in the Bitá River (Vichada, Colombia). *IUCN Otter Spec. Group Bull.* **16** (2): 86-89.
- Gomez, L., Shepherd, C.R. (2019).** Stronger International regulations and increased enforcement effort is needed to end the illegal trade in otters in Asia. *IUCN Otter Spec. Group Bull.* **36**(1): 71-76.
- IUCN/SCC (1998).** Guidelines for Re-introductions. Gland, Switzerland and Cambridge, UK.
- IUCN/SCC (2013).** Guidelines for Reintroductions and Other Conservation Translocations. Version 1.0. Gland, Switzerland.
- Johnson, S.A., Berkley, K.A. (1999).** Restoring river otters in Indiana. *Wildl. Soc. Bull.* **27**(2): 419-427.
- Jule, K.R., Leaver, L. A., Lea, S.E.G. (2008).** The effects of captive experience on reintroduction survival in carnivores : A review and analysis. *Biol. Conserv.* **141**(2): 355–363.
- Kleiman, D.G. (1989).** Reintroduction of Captive Mammals for Conservation. *J. BioScience.* **39**(3): 152-161.
- Kleiman, D.G., Beck, B.B. (1994).** Criteria for reintroductions. In: **Olney, P.J., Mace, G.M., Feistner, A.T. (Eds.)**. Creative Conservation: Interactive management of wild and captive animals. Chapman & Hall, London, UK, pp. 287-303.
- Kleiman, Devra G., Beck, B., Dietz, J.M., Dietz, L.A. (1991).** Costs of a re-introduction and criteria for success : Accounting and accountability in the Golden Lion Tamarin Conservation Program. *Symp. Zool. Soc.* **62**: 125-142.
- Le Billon, P. (2000).** The Political Ecology of Transition in Cambodia 1989 ± 1999 : War , Peace and Forest Exploitation. *Dev.Chang.* **31**: 785-805.
- Leroux, N., Bunthoeun, R., Marx, N. (2019).** The Reintroduction of Captive-born Pileated Gibbons (*Hylobates pileatus*) into the Angkor Protected Forest, Siem Reap, Cambodia. *Primate Conservation*, **33**: 11.
- McTurk, D., Spelman, L. (2005).** Hand-Rearing and Rehabilitation of Orphaned Wild Giant Otters , *Pteronura brasiliensis* , on the Rupununi River , South America. *Zoo Biol.* **24**:153-167.
- Nicholson, T.E., Mayer, K.A., Staedler, M.M., Johnson, A.B. (2007).** Effects of rearing methods on survival of released free-ranging juvenile southern sea otters. *Biol. Conserv.* **138**: 313-320.
- Reading, R.P., Miller, B., Shepherdson, D. (2013).** The Value of Enrichment to Reintroduction Success. *Zoo Biol.* **32**: 323-341.
- Santiapillai, C. (2000).** Threats to otters in Cambodia. *Biosphere Conserv.* **3**(1): 49–54.
- Sjöåsen, T. (1997).** Movements and establishment of reintroduced European otters *Lutra lutra*. *Brit. Ecol. Soc.* **34**(4): 1070-1080.
- Sjöåsen, T. (1996).** Survivorship of captive-bred and wild-caught reintroduced European otters *Lutra lutra* in Sweden. *Biol. Conserv.* **76**(2): 161-165.
- Somers, M.J., Markus, G. (2009).** The Role of Social Behaviour in Carnivore Reintroductions. In: **Hayward, M.W., Somers, M.J. (Eds.)** Reintroduction of Top-Order Predators. Blackwell Publishing Ltd., New Jersey, United States, pp. 270-281.

Spinola, R.M., Serfass, T.L., Brooks, R.P. (2008). Survival and Post-release Movements of River Otters Translocated to Western New York. *Northeast. Nat.*, **15**(1): 13-24.

Wright, L., de Silva, P., Chan, B., Reza Lubis, I. (2015). *Aonyx cinereus*. The IUCN Red List of Threatened Species 2015: e.T44166A21939068.

<https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T44166A21939068.en>. Downloaded on 24 June 2020.

RÉSUMÉ

SUIVI DU LACHÉ DE LOUTRES À PELAGE LISSE (*Lutrogale perspicillata*) DANS LE PARC ARCHÉOLOGIQUE D'ANGKOR, SIEM REAP, AU CAMBODGE

Une famille de loutres à pelage lisse (*Lutrogale perspicillata*) du Phnom Tamao Wildlife Rescue Center (PTWRC), Takeo, au Cambodge, a été réintroduite dans le parc archéologique d'Angkor, Siem Reap, au Cambodge, conformément aux directives de réintroduction de l'IUCN. Les protocoles comprenaient des enquêtes sur le site avant le lâché, la sélection des individus, des contrôles sanitaires, la réadaptation et l'apprentissage, suivis de l'acclimatation sur le site de lâché, d'une alimentation complémentaire après la libération et une surveillance quotidienne pour assurer la survie et le bien-être des loutres relâchées. La famille, composée d'un mâle, d'une femelle et de trois loutrons, a été transportée du PTWRC vers un enclos de libération préalablement préparé dans la forêt protégée entourant le parc archéologique d'Angkor pour l'acclimatation. Suite à la mort de deux loutrons en raison de la consommation d'œufs de crapaud venimeux dans l'enceinte de déconfinement, les trois loutres survivantes ont été libérées. Le juvénile restant a disparu environ trois semaines plus tard. Peu de temps après, le couple adulte a eu deux loutrons. Cette famille de quatre individus continue de survivre, six mois après leur remise en liberté.

RESUMEN

LIBERACIÓN MONITOREADA DE NUTRIAS LISAS (*Lutrogale Perspicillata*) EN EL PARQUE ARQUEOLÓGICO ANGKOR, SIEM REAP, CAMBOYA

Una familia de nutrias lisas (*Lutrogale perspicillata*) del Centro de Rescate de Fauna Silvestre Phnom Tamao (PTWRC), Takeo, Camboya, fue reintroducida en el Parque Arqueológico Angkor, Siem Reap, Camboya, siguiendo los Lineamientos de Reintroducción de UICN. Los protocolos incluyeron relevamientos de sitio pre-liberación, selección de animales candidatos, revisiones sanitarias, rehabilitación y entrenamiento, seguido por aclimatación en el sitio de liberación, alimentación suplementaria post-liberación, y monitoreo diario para asegurar la supervivencia continua y el bienestar de las nutrias liberadas. La familia, compuesta por un macho, una hembra y tres crías, fue transportada desde el PTWRC a un recinto de liberación preparada, dentro del bosque protegido que rodea al Parque Arqueológico Angkor, para aclimatación. Luego de la muerte de dos crías debido a haber comido huevos de sapo venenoso dentro del recinto de pre-liberación, las tres nutrias sobrevivientes fueron liberadas. El juvenil desapareció aproximadamente tres semanas más tarde, y poco tiempo después la pareja adulta produjo dos crías. La familia de cuatro continúa sobreviviendo, habiendo pasado seis meses de su liberación.

មូលនិយមសង្ខេប

ការត្រួតពិនិត្យតាមដានលើការដោះលែង កេន្តរលោង (*Lutrogale perspicillata*) ក្នុងឧទ្យានអង្គរ ខេត្តសៀមរាប ព្រះរាជាណាចក្រកម្ពុជា

គ្រួសារកេន្តរលោង (*Lutrogale perspicillata*) មកពីមជ្ឈមណ្ឌលសង្គ្រោះសត្វព្រៃភ្នំតាម៉ៅ ខេត្តតាកែវ ព្រះរាជាណាចក្រកម្ពុជា ត្រូវបានបញ្ជូនទៅឧទ្យានអង្គរ ខេត្តសៀមរាប ព្រះរាជាណាចក្រកម្ពុជា ដោយអនុលោមតាមគោលការណ៍ណែនាំរបស់អង្គការសហភាពអន្តរជាតិដើម្បីអភិរក្សធម្មជាតិ (IUCN) ។ វិធីសាស្ត្រនៃការដោះលែងរួមមាន អង្កេតទីកន្លែងមុនដោះលែង ការជ្រើសរើសភេទ ត្រួតពិនិត្យតាមដានសុខភាព វិធីស្តារនីតិសម្បទា និងការបង្កាត់ឲ្យរស់នៅតាមរបៀបធម្មជាតិ ដោយអនុលោមតាមការដាក់ឲ្យបន្សំនៅទីតាំងមុនធ្វើការដោះលែង និងផ្តល់ចំណីបន្ថែមមុនដោះលែង ហើយធ្វើការតាមដានប្រចាំថ្ងៃដើម្បីឲ្យប្រាកដថា ពួកវាអាចរស់នៅបាន និងមានសុខភាពល្អ ចំពោះគ្រួសារកេន្តរលោងដែលត្រូវដោះលែងនេះ។

ក្នុងគ្រួសារកេន្តរលោងនេះ មានបាមួយក្បាល មេមួយក្បាល និងកូនៗចំនួនបីក្បាល ហើយត្រូវបានបញ្ជូនពីមជ្ឈមណ្ឌលសង្គ្រោះសត្វព្រៃភ្នំតាម៉ៅ ទៅទ្រុងដែលបម្រុងសម្រាប់ធ្វើការដោះលែង ហើយព័ទ្ធនៅដោយព្រៃការពារនៅឧទ្យានអង្គរ ដើម្បីធ្វើឲ្យពួកគេមានភាពបន្ទប់នៅទីនោះ។ ជាអកុសលកូនកេន្តរលោងពីរក្បាលបានពុលស្លាប់ ដោយពួកវាបានស៊ីពងសត្វគីដ្យូក្នុងទ្រុងមុនធ្វើការដោះលែង ហើយសត្វកេន្តរលោងទៀតដែលនៅសល់ត្រូវបានដោះលែង។ បន្ទាប់ពីដោះលែង ពួកវាបានបាត់ខ្លួនមួយរយៈ ហើយប្រហែលពីអាទិត្យក្រោយមក គ្រួសារកេន្តរលោងបានត្រឡប់មកវិញ មិនយូរប៉ុន្មានពួកវាបង្កើតបានកូនពីរបន្ថែមទៀត។ បន្ទាប់ពីដោះលែងរយៈពេលប្រាំមួយខែ គ្រួសារកេន្តរលោងបួនក្បាលនេះនៅតែបន្តរស់នៅក្នុងឧទ្យានអង្គរដដែល។