

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES  
OF WILD FAUNA AND FLORA

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CONSERVATION STATUS OF AND TRADE IN *MACACA FASCICULARIS* IN SOUTHEAST ASIA

The attached information document has been submitted by the Secretariat at the request of the Species Survival Network, in relation to agenda item 12<sup>1</sup>.

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# An Update on the Conservation Status of and Trade in The Long-tailed Macaque (*Macaca fascicularis*) in Eleven Countries of SE Asia

## SSN Primate Working Group

### BANGLADESH

In Bangladesh, the Burmese long-tailed macaque (*M. f. aurea*) is considered a critically endangered sub-species according to national laws<sup>1</sup>. The sub-species has been listed by the IUCN as 'Data deficient', as there is little information on population status and threats. However, in 2003, it was found to be 'Critically Endangered' by the Conservation Assessment and Management Plan (C.A.M.P), which reflects the severe pressure from the different threats acting upon it<sup>2</sup>. C.A.M.P was developed by the IUCN SSC Conservation Breeding Specialist Group and used IUCN Red List criteria and categories to assess the status of the sub-species.

The trade in primates was banned in Bangladesh during 1979 and the major threats to this sub-species are currently agriculture, mangrove removal, human settlement and deforestation. The Teknaf Peninsula population is restricted and found in only two locations in the Teknaf mangroves, which are under threat. This population also occurs in Lao PDR, Myanmar and west-central Thailand and is believed to have been almost completely decimated by shrimp cultivation and ship building<sup>2</sup>.

### CAMBODIA

According to the WCMC-UNEP CITES Database, 32,592 live *M. fascicularis* were reported to have been exported from Cambodia, between 1999 and 2008<sup>3</sup>. The total number of recorded exports of *M. fascicularis* from this Range State increased from 200 between 1999 and 2003 to 32,392 between 2004 and 2008<sup>3</sup>.

#### Habitat loss

Though the species is adaptable, habitat loss has brought *M. fascicularis* populations into conflict with humans in both rural and urban landscapes<sup>4</sup>. This has intensified as *M. fascicularis* populations find it increasingly necessary to exploit human food sources.

The exploitation of primates for use in traditional medicine, loss of habitat from logging, and, especially, trade are the major reasons for declining populations of primates in Cambodia<sup>5</sup>.

According to a 2005 report conducted by the Food and Agriculture Organization of the United Nations (FAO), Cambodia has the third highest rate of deforestation in the world<sup>6</sup>. Cambodia's primary rainforest cover fell from over 70 per cent in 1970 to 3.1 per cent in 2007<sup>7</sup>.

*M. fascicularis* occurs in the Tonle Sap-Mekong peat swamp forests, which now occupy only a small vestige of their former range<sup>8,9</sup>. More than 90 per cent of this ecoregion has been converted to scrub or degraded forest. Intensive agriculture and the alteration of the hydrodynamics of the river systems in the region have altered the

<sup>1</sup> Khanam, S., Sarker, S. U., Hasan, R. and Baten, A. (2005) Review of the literature on primates in Bangladesh. *The Natural History Journal of Chulalongkorn University* 1: 95

<sup>2</sup> Molur, S., Brandon-Jones, D., Dittus, W., Eudey, A., Kumar, A., Singh, A., Feeroz, M. M., Chalise, M., Priya, P. and Walker, S. (2003) Status of South Asian Primates: Conservation and Management Plan (C.A.M.P) Workshop Report Zoo Outreach Organization/CBSG-South Asia, Coimbatore, India

<sup>3</sup> UNEP-WCMC Cites Trade Database. [online] Available at: <http://www.unep-wcmc.org/citestrade/novice.cfm?CFID=40316189&CFTOKEN=23762323> [Accessed 06 June 2010]

<sup>4</sup> Eudey, A. A. (2008) *The crab-eating Macaque* (*Macaca fascicularis*): *Widespread and Rapidly Declining Primate Conservation* 23: 129-132 **Error! Bookmark not defined.**

<sup>5</sup> Thao, S., Meas, S., Oi, T. *Recorded species of non-human primates in Cambodia and their present status* [online] Available at: <http://www.ips2010.jp/program.html> [Accessed 10 August 2010]

<sup>6</sup> Food and Agriculture Organization (FAO) of the United Nations (2005) *The Global Forest Resources Assessment* [online] Available at: <ftp://ftp.fao.org/docrep/fao/008/A0400E/A0400E00.pdf> [Accessed 11 August 2010]

<sup>7</sup> Planet Ark. *Logging Threatens Cambodian Tragedy - UN. Thomson Reuters*. March 6, 2003 [online] Available at: <http://www.planetark.org/dailynewsstory.cfm/newsid/20049/story.htm> [Accessed 11 August 2010]

<sup>8</sup> BUAV (2008) *Cambodia: The trade in primates for research. A BUAV investigation*. British Union for the Abolition of Vivisection

<sup>9</sup> WWF website. *Tonle Sap freshwater swamp forests (IM0164)* Available at: [http://www.worldwildlife.org/wildworld/profiles/terrestrial/im/im0164\\_full.html](http://www.worldwildlife.org/wildworld/profiles/terrestrial/im/im0164_full.html) [Accessed 11 August 2010]

natural river fluctuations, adversely affecting the remaining native vegetation. Very little of the original forest cover remains in pristine condition today<sup>9</sup>.

#### *Population surveys*

A 2008 report on Cambodia by TRAFFIC stated that, according to the authorities, population surveys of macaques inhabiting areas around the Tonle Sap Lake (situated within the floodplain of the Mekong River) were carried out in 2001, 2002, 2003 and 2005. However, some of the population surveys were supported financially by macaque breeders. TRAFFIC concludes that 'to ensure transparency, such support in future should be discouraged'<sup>10</sup>.

#### *Illegal trade*

A recent report points to a sophisticated trans-border wildlife trafficking network involving wild-caught *M. fascicularis* smuggled from Cambodia to Vietnam with forged CITES permits<sup>11</sup>. Other evidence points to an illegal (and therefore unrecorded) trade in wild-caught *M. fascicularis* that is likely to have a big impact on populations. Field officers from the British Union for the Abolition of Vivisection (BUAV) have been informed that wild *M. fascicularis* are regularly illegally smuggled out of Cambodia<sup>8</sup>.

According to a 2008 investigative report, *M. fascicularis* have been exported to farms in Vietnam from Cambodia and Lao PDR<sup>12</sup>. The report stated that one farm acted simply as a holding facility for imported primates from these two countries who were then re-exported to China. *M. fascicularis* were apparently taken by boat along the River Dong, moved into larger boats and then transported via the Saigon River to China<sup>12</sup>.

A more recent media story highlighted that Forest Rangers in the central province of Phu Yen seized ninety-six *M. fascicularis* from smugglers and sent them to a breeding farm in Dong Hoa District<sup>13</sup>.

#### *Unsustainable trapping and the misuse of trapping permits*

In the Cambodian province Ratanakiri farmers in 2008 reported that no macaques had been "harvested" in recent times due to apparent population declines<sup>4</sup>.

In 2008, field officers from the BUAV joined a group of trappers in the forest reserves of Cambodia, the preferred habitat of *M. fascicularis*<sup>Error! Bookmark not defined.8</sup>. Not only did trappers not hold any permits, but the expedition took them into the Boeng Tonle Chhma, which is a protected area within the Tonle Sap UNESCO Biosphere Reserve of Cambodia. The Boeng Tonle Chhma is one of three Ramsar Convention sites in Cambodia. The trappers also claimed that primate breeding facilities use the same license several times to catch *M. fascicularis*<sup>8</sup>.

Conversations with trappers reveal a disturbing trend of population reduction of *M. fascicularis* in the region. The field officers were informed by trappers who had been trapping primates in the region for many years that the number of *M. fascicularis* caught had fallen dramatically during the last few years. Between 2002 and 2003, a week-long trapping expedition would catch between 80-200 *M. fascicularis*. In 2008, this number had dropped to an average of five to eight individuals<sup>8</sup>.

The method used to trap wild macaques is extremely destructive. The field study in 2008 showed that hunters isolate a macaque troop in a large tree by cutting down all the surrounding forest in a 25-30m radius. Evidence suggests that chainsaws and axes are used for this work<sup>14</sup>. Once the area has been cleared, nets are set up around the periphery of the cleared circle. The macaques are forced to drop to the ground and captured in the nets as they attempt to escape.

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<sup>10</sup> Thomson, J. (2008) *Captive breeding of selected taxa in Cambodia and Viet Nam: A reference manual for farm operators and CITES authorities*. TRAFFIC Southeast Asia, Greater Mekong Programme, Ha Noi, Viet Nam

<sup>11</sup> Thanh Nien News. *Thanh Nien finds monkey business in export*. 29 June 2007 [online] Available at: [www.thanhniennews.com/society/?catid=3&newsid=29526](http://www.thanhniennews.com/society/?catid=3&newsid=29526) [Accessed 29 June 2010]

<sup>12</sup> Hoang Quoc Dung. (2008) *A trans-border wildlife trade network unmasked, in 4 parts*. Tien Phong Newspaper, Hanoi, Vietnam. Unofficial translation, Earth Journalism Network. [online] Available at: [www.earthjournalism.org](http://www.earthjournalism.org) [Accessed 08 June 2010]

<sup>13</sup> Vietnam Net Bridge. *Rangers sell smuggled monkeys instead of letting them go*. 14 June 2010 [online] Available at: [www.english.vietnamnet.vn/social/201001/Rangers-sell-smuggled-monkeys-instead-of-letting-them-go-888632/](http://www.english.vietnamnet.vn/social/201001/Rangers-sell-smuggled-monkeys-instead-of-letting-them-go-888632/) [Accessed 29 June 2010]

<sup>14</sup> Lee, B. P. Y. H. (2008) *A possible decline in populations of the long-tailed macaque (Macaca fascicularis) in northeastern Cambodia*. Unpublished report, Programme in International Wildlife Trade & Conservation, Durrell Institute of Conservation & Ecology, University of Kent, Canterbury, UK

A total of five capture sites were found along one short stretch of river approximately 700m long, with an estimated 50 to 100 trees cut down at each site, and there are bound to be many more<sup>14</sup>.

#### *A rapid expansion of breeding facilities*

In Cambodia, there is large-scale capture of wild *M. fascicularis* throughout the country<sup>15</sup>. Field research in 2008 revealed eight large-scale breeding operations for *M. fascicularis*, with a number of primate facilities under construction<sup>8</sup>. Researchers from TRAFFIC have been informed that wild primates are obtained from areas around the Tonle Sap for the purposes of stocking these facilities. These wild-caught primates are then funneled through various holding facilities and farms that range in size from several hundred to upwards of 10,000 animals<sup>10</sup>.

#### *A reliance on wild populations*

Many of the facilities exporting *M. fascicularis* in Cambodia do not have a reliable capability to produce second-generation offspring. They were established and continue to be replenished using animals from wild populations<sup>10</sup>.

Around the Tonle Sap Lake in Cambodia, *M. fascicularis* are being trapped and traded in large numbers in response to demand from farms in both Cambodia and Vietnam<sup>16</sup>. Field research by TRAFFIC in 2008 revealed that farms rely on the purchase of wild animals, and have not demonstrated their capability to reliably produce second generation offspring<sup>10</sup>. Furthermore, TRAFFIC stated that since at least 2005 there appears to have been an ongoing dependence on wild populations to increase breeding stock, and expressed concern regarding the true status of so-called 'self-sustaining' captive-breeding colonies<sup>10</sup>.

A 2007 report by the Wildlife Conservation Society on primates in the Seima Biodiversity Conservation Area in Monduliri Province states that current levels of trapping for international trade will pose a significant threat to wild populations of *M. fascicularis* in Cambodia and throughout its range if they continue unabated, and that the impact of intense collection of *M. fascicularis* in Cambodia is not yet known but may be 'dramatic'<sup>17</sup>.

#### *Inaccurate use of CITES source codes*

Field research has given rise to serious concerns regarding the inaccurate use of source codes by key *M. fascicularis* exporting countries, including Cambodia.

According to the CITES trade database, exports of *M. fascicularis* from Cambodia began in 2004<sup>3</sup>. The source codes used for these exports indicate that the animals were captive-bred<sup>3</sup>. *M. fascicularis* are reproductively active from around four years of age and, therefore, in order for a captive-bred (F2+ generation) animal to be available for export at the age of two (the typical age a macaque is exported for research purposes) in 2004, the breeding facilities would need to have been established around 1994<sup>18</sup>. There do not appear to be any farms in Cambodia that were established prior to 1994.

This large expansion of breeding facilities, their failure to demonstrate a capability to reliably produce second generation offspring, and the inaccurate use of source codes on CITES permits demonstrates a need for improved implementation and enforcement within key *M. fascicularis* exporting countries such as Cambodia.

### **INDIA (NICOBAR ISLANDS)**

*In India, on the Nicobar Islands, the Nicobar Island long-tailed macaque (M. f. umbrosa) is listed by the IUCN as 'Vulnerable' and is on Schedule-I of the Indian Wildlife Protection Act. M. f. umbrosa has a small and isolated*

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<sup>15</sup> Rawson, B. (2007) Surveys, Trade and Training in Voensei Division, Ratanakiri Province, Cambodia. *Conservation International*

<sup>16</sup> Campbell, I. C., Poole, C., Giesen, W. and Valbo-Jorgensen, J. (2006) Species diversity and ecology of Tonle Sap Great Lake, Cambodia. *Aquatic Sciences* 68: 355–373

<sup>17</sup> Pollard, E., Clements, T., Hor, N. M., Ko, S. and Rawson, B. (2007) *Status and conservation of globally threatened primates in the Seima Biodiversity Conservation Area, Cambodia*. Wildlife Conservation Society

<sup>18</sup> CITES Conf. 10.16 (Rev.): *CITES Resolution Conf. 10.16 (Rev.) on Specimens of Animal Species Bred in Captivity* [online] Available at: [www.cites.org/eng/res/10/10-16.shtml](http://www.cites.org/eng/res/10/10-16.shtml) [Accessed 07 June 2010]

population which has become seriously fragmented and has therefore been recommended as a candidate for protection<sup>19</sup>.

This call for protection reflects the likely increases in disturbances to the sub-species' habitat due to human activities. Part of its habitat is thought to have been severely affected by the tsunami in 2004, and hunting and the construction of roads on Katchall Island and Great Nicobar Island also pose major threats<sup>2</sup>.

## INDONESIA

According to the WCMC-UNEP CITES Database, 24,765 live *M. fascicularis* were reported to have been exported from Indonesia between 1999 and 2008<sup>3</sup>. This increased from 10,285 between 1999 and 2003, to 14,480 between 2004 and 2008<sup>3</sup> - an increase of approximately 40 per cent.

In 1993, *M. fascicularis* was included in the Review of Significant Trade (Phase 2). Indonesia reviewed the species, and the Animals Committee formulated recommendations for both Indonesia and the Philippines. Subsequently, the species was identified as a possible candidate for inclusion in the 2004 Review, though it was not included. At the time, TRAFFIC stated that 'there could be substantial unreported trade in the species' and that 'further review of trade conducted outside of CITES trade controls may be warranted'<sup>20</sup>.

In order for a Non-Detriment Finding (NDF) to be an accurate reflection of the effect of trade on a population, it must also take into account the ability of that population to withstand other threats affecting the species. Although *M. fascicularis* is a widespread species, and one that adapts well to changing habitat, populations are declining due to a wide variety of threats (including trade).

### Habitat loss

Habitat loss and degradation are a significant concern for the species. In Indochina in particular, local populations of macaques are in peril due to rapid economic and associated infrastructure development<sup>21</sup>.

As early as the 1980's Mackinnon and Mackinnon (1987) reported that 63 per cent of primate habitat in Indonesia was no longer suitable for habitation<sup>22</sup>. Southwick and Siddiqi (1994) however pointed out that Mackinnon's estimates may not have taken into account the patchy distribution of *M. fascicularis* and so the figures reported may overestimate actual population levels<sup>23</sup>. Indonesia's forests are being degraded and destroyed by logging, mining operations, large-scale agricultural plantations, human colonisation, and subsistence activities like shifting agriculture and cutting for fuel wood<sup>24</sup>.

Further areas of concern include:

A significant reduction in forest cover on Java, due to burgeoning human population and a long history of farming. This has led to human-macaque conflict resulting in the removal of local populations of macaques, killing and poaching.

A reduction in the size of the Muara Angke Wildlife Reserve, the remaining mangrove forest in Jakarta, which is home to a small local population of *M. fascicularis*. The Reserve is under pressure from development and there have been calls to eradicate the *M. fascicularis* population because of conflict with people in nearby residential areas<sup>25</sup>.

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<sup>19</sup> Umaphy, G., Mewa Singh, S. and Mohnot, S. M. (2003) Status and Distribution of *Macaca fascicularis umbrosa* in the Nicobar Islands, India *International Journal of Primatology* **24** (2): 281–293

<sup>20</sup> TRAFFIC and the IUCN/SSC Wildlife Trade Programme (2004) AC20 Inf. 12: Taxa identified as possible candidates for inclusion in the review of significant trade in specimens of Appendix-II species [online] Available at: <http://www.cites.org/common/com/ac20/E20-inf-12.pdf> [Accessed 06 June 2010]

<sup>21</sup> *International Primatological Society (IPS) Conference (2010) Abstract: Hamada, Y. Malaivijitnond, S. Pathomthong, S. Kingsada, P. Son, V. D. Van, N. H. Minh, N. V. San, A. M. Thu, A. Oi, T. and Kawamoto, Y. (2010) Distribution, phylogeography and present status of macaques distributed in Indochina* [online] Available at: <http://www.ips2010.jp/program.html> [Accessed 09 August 2010]

<sup>22</sup> Mackinnon, J. and Mackinnon, K. (1987) Conservation status of the primates of the Indo-Chinese Subregion. *Primate Conservation* **8**: 187-195

<sup>23</sup> Southwick and Siddiqi (1994) Population status of nonhuman primates in Asia, with emphasis on rhesus macaques in India. *American Journal of Primatology* **34**: 51-59

<sup>24</sup> Butler, T. A. (2006) Indonesia [online] Available at: <http://rainforests.mongabay.com/20indonesia.htm> [Accessed 07 June 2010]

<sup>25</sup> Thompson Reuters Foundation website. *Urban boom threatens Jakarta wildlife reserve, monkeys* [online] Available at: <http://www.trust.org/alertnet/news/urban-boom-threatens-jakarta-wildlife-reserve-monkeys/> [Accessed at 10 January 2011]

A recent report by United Nations Environment Programme (UNEP) which stated that up to 98 per cent of forest in Sumatra and Borneo, which is a significant habitat for *M. fascicularis*, may be destroyed by 2022 through conversion to palm plantations, poaching of timber and clearing for farming<sup>26 27</sup>.

In West Kalimantan, primates have faced serious problems since forests covering 24,920 hectares were taken over by a logging company. Logging companies work in protected forest that borders the Betung Kerihun National Park<sup>28</sup>.

On Pulau Maratua, East Kalimantan, the Maratua long-tailed macaque (*M. f. tua*) is listed by the IUCN as 'Data deficient' with a decreasing population<sup>29</sup>.

The Sumatran lowland rainforest is one of the most diverse forests on earth, and also one of the most threatened. Primary tropical rainforest (especially in the lowlands) has disappeared rapidly<sup>30</sup>, with most of the land being converted to commercial timber concessions, cultivated lands and human settlements.

Numerous primate species live in freshwater swamp forests in Sumatra, including *M. fascicularis*. However these swamp forests have fertile soil suitable for agriculture, and so this ecoregion has been intensively converted and exploited.

An intermittent population survey carried out on Lombok between 2001 and 2009 highlighted the threat of continuous habitat loss through logging and shifting cultivation, potentially affecting the *M. fascicularis* population. This population is also under potential threat from the recent development of ecotourism practices that may accelerate the species' dependence on humans for food<sup>31</sup>.

#### Population surveys

Despite presumed abundance and widespread distribution, little recent data exists on the status of *M. fascicularis* populations in Indonesia. A survey was carried out in 2009 on Java which revealed a vast area that included agricultural land and forest habitat, in which there were no reports of monkey sightings by the local people. This suggests a patchy distribution of *M. fascicularis* on Java. The authors concluded that due to the abundance of *M. fascicularis* in areas of human settlement, there may be assumptions of over-abundance but that actual population sizes may be smaller than perceived<sup>32</sup>.

During field research carried out by SSN Member group, the BUAV, interviews with officials from the Indonesian Institute of Sciences (LIPI) - the designated CITES Scientific Authority - revealed that primate supply companies have funded population surveys, and representatives of these companies accompanied LIPI officials and representatives from the Forestry Department on the surveys themselves<sup>33</sup>. This involvement raises concerns about the objectivity and reliability of survey data.

According to one LIPI official, population surveys have been 'based on speculation, on the counting of *M. fascicularis* within protected areas, and the use of extrapolation'<sup>33</sup>. These methods raise concerns about the scientific validity of the surveys. Extrapolation, particularly based on surveys in protected areas, is not an appropriate technique for assessing primate populations because the animals are patchily distributed, and numbers in sample areas may not be an accurate guide to population levels at other sites. This is particularly relevant for *M. fascicularis* as the species prefers forest edge habitats.

<sup>26</sup> Kinnaird, M. F., Sanderson, E. W., O'Brian, T. G., Wibisono, H. T. and Woolmer, G. (2003) Deforestation trends in a tropical landscape and implications for endangered large mammals. *Conservation Biology* 17 (1): 245-257

<sup>27</sup> Linkie, M., Smith, R. J. and Leader-Williams, N. (2004) Mapping and predicting deforestation patterns in the lowlands of Sumatra. *Biodiversity and Conservation* 13: 1809-1818

<sup>28</sup> Profauna website. Available at: [www.profauna.org](http://www.profauna.org) [Accessed 08 August 2010]

<sup>29</sup> Ong, P. and Richardson, M. (2008) *Macaca fascicularis*. In: *IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4*. [online] Available at: [www.iucnredlist.org](http://www.iucnredlist.org) [Accessed March 1, 2012]

<sup>30</sup> Yanuar, A., Chivers, D. J., Sugardjito, J., Martyr, D. J. and Holden, J. T. (2009) The population distribution of pig-tailed macaque (*Macaca nemestrina*) and long-tailed macaque (*Macaca fascicularis*) in west central Sumatra, Indonesia. *Asian primates journal* 1(2): 2-11

<sup>31</sup> International Primatological Society (IPS) Congress Abstract (2010) Tanaka, H. T., Suryobroto, B. and Watanabe, K. Distribution pattern and current status of long-tailed macaques (*Macaca fascicularis*) and lutungs (*Trachypithecus auratus*) in the Lombok island, Indonesia [online] Available at <http://www.ips2010.jp/program.html> [Accessed 10 August 2010]

<sup>32</sup> Kyes, R. C., Iskandar, E. and Pamungkas, J. (2011) Preliminary survey of the long-tailed macaques (*Macaca fascicularis*) on Java, Indonesia: Distribution and human-primate conflict. In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds.) *Monkeys on the Edge* Cambridge University Press

<sup>33</sup> BUAV (2009) *Indonesia: The trade in primates for research. A BUAV investigation. British Union for Abolition of Vivisection*

In 2008, a census carried out on Karimunjawa long-tailed macaques (*M. f. karimondjawa*) on Karimunjawa concluded that the population of this sub-species is very small (under 1,000 individuals), and likely to be under 500. This is due to significant conflict occurring between locals and macaques living around the park. The authors of the study concluded that *M. f. karimondjawa* Redlist status be re-evaluated and given a more protected status from the IUCN. They state:

'with our initial census, evidence suggests that this sub-species qualifies for special protection status based on the size of their geographical range, number of mature individuals in the population, and the possible threats from direct conflict with local people. The situation of this sub-species is as dire or worse than *M. fascicularis condorensis* in Vietnam, which is listed as vulnerable<sup>34</sup>.

In 2009, following an examination of information on *M. fascicularis* (and *M. nemestrina*) by the CITES Scientific Authorities of EU Member States, and their subsequent concerns expressed regarding the conservation status of the species within Indonesia, the EU Scientific Review Group (SRG) requested that Indonesia provide information clarifying the procedures used to carry out population surveys and the making of NDFs, which form the basis for annual trapping quotas<sup>35</sup>.

#### *Inaccurate use of CITES source codes*

Field research by the BUAV has given rise to concerns regarding the inaccurate use of source codes by Indonesia.

There are concerns regarding the source of the many thousands of *M. fascicularis* exported from islands in Indonesia (e.g. Tinjil and Deli). The CITES Management Authority in Indonesia categorises these islands as another type of breeding operation, and issues 'F' and 'C' source codes on permits for *M. fascicularis* from these islands. However, captive-breeding requires a closed environment where variables can be strictly controlled. CITES Resolution 10.16 (Rev.) states that:

'a controlled environment' is 'an environment that is manipulated for the purpose of producing animals of a particular species, that has boundaries designed to prevent animals, eggs or gametes of the species from entering or leaving the controlled environment, and the general characteristics of which may include but are not limited to: artificial housing; waste removal; health care; protection from predators; and artificially supplied food<sup>36</sup>.

SSN understands that on these islands, the necessary controls for compliance with RC10.16 are absent. The habitat on these islands is the same as that for wild populations of *M. fascicularis* on the mainland. The primates are subjected to the same conditions as other wildlife on the islands, and they directly contribute to and are part of the wild ecosystem there. SSN believes that these animals fail to meet the CITES criteria for either 'captive-bred' or 'captive-born' and should be classified as wild-caught.

#### *A reliance on wild populations and unrealistic trapping quotas*

Facilities exporting *M. fascicularis* from Indonesia do not have a reliable capability of producing second-generation offspring; they were established and continue to be replenished using animals from wild populations<sup>33</sup>.

The trade in primates to the international market from Indonesia commenced in 1959. The trade reached a peak in 1989, when more than 16,000 *M. fascicularis* were exported<sup>37</sup>.

In 1992, Indonesian law only allowed wild-caught primates to be exported by companies that had also set up captive-breeding programmes. However, a field study by the BUAV at that time found very little evidence of captive-breeding programmes<sup>38</sup>.

<sup>34</sup> Afendi, N., Rachmawan, D. and Gumert, M. D. (2011) The long-tailed macaques of Karimunjawa (*Macaca fascicularis karimondjiwae*): A small and isolated island subspecies threatened by human-macaque conflict. In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds.) *Monkeys on the Edge* Cambridge University Press

<sup>35</sup> European Commission. Letter received by BUAV. 15 June 2010

<sup>36</sup> CITES Conf. 10.16 (Rev.) *Specimens of animal species bred in captivity*: [online] Available at: [www.cites.org/eng/res/10/10-16.shtml](http://www.cites.org/eng/res/10/10-16.shtml) [Accessed 07 June 2010]

<sup>37</sup> International symposium of non-human primates (2002) Trade in nonhuman primates from Indonesia (2002) *An overview of non-human primates' use in biomedical research in the United States*. International symposium of non-human primates, Bogor-Indonesia

<sup>38</sup> BUAV (1992) *The Indonesian Trade in Primates*. British Union for the Abolition of Vivisection

Subsequently, according to I Made Subadia, Director of General of Forest Protection and Nature Conservation, Ministry of Forestry, in 1993 the CITES Secretariat, based on the recommendations of the Animals Committee 'questioned Indonesia about the non-detriment (scientific basis) finding for undertaking trade in the monkeys'<sup>39</sup>. In 1994 the Indonesian government announced a ban on the export of wild-caught *M. fascicularis* and *M. nemestrina*. However, at that time there were no restrictions on the number of primates who could be trapped in the wild to replenish breeding 'stock'.

In 2002, Mr. I Made Subadia proposed that the government develop a strategy that included the export of both wild-caught and captive-bred primates, but, as far as SSN is aware, this has not yet been done<sup>39</sup>.

Indonesia has reportedly had captive-breeding programmes in operation since 1994. However, 17 years later, the industry continues to rely on the large numbers of wild-caught *M. fascicularis* allowed to be trapped annually, both for research within Indonesia and for alleged 'breeding stock' for companies that export primates for research<sup>33</sup>.

In April 2009, the CITES Management Authority of Indonesia announced a three-fold increase in wild *M. fascicularis* (15,100, increased from 5,100 in 2008 and 4,100 in 2007) allowed to be trapped during that year for both domestic research purposes and 'breeding stock'<sup>33</sup>.

It is unclear whether the authorities are able to ensure that those *M. fascicularis* exported for research, all of whom are supposed to be captive-bred or captive-born individuals are genuinely captive-born or captive-bred and not wild-caught, particularly when thousands of animals are allowed to be taken from the wild each year by the very companies exporting them for research. During an interview with representatives from the BUAV at the National Office of the Forestry Department, no details could be provided on the checks adopted by the authorities to ensure wild-caught animals are not exported as captive-born or captive-bred. It was instead implied that the national CITES office relied on, and trusted, written reports from the primate companies themselves<sup>33</sup>.

#### *Other threats*

The Padangtegal population is threatened by the risks of inbreeding depression and increased disease transmission due to the close interface with humans<sup>40</sup>.

#### *Illegal trade*

In 2009, when field officers from the BUAV met with trappers in Indonesia they confirmed that during the past five years, the numbers of *M. fascicularis* had decreased rapidly partly due to illegal hunting<sup>33</sup>.

#### *Domestic trade*

In Indonesia, observations by TRAFFIC Southeast Asia have indicated that the trade in wildlife for the domestic pet markets in Medan alone is extensive and possibly of conservation concern<sup>41</sup>. In Sumatra, macaques are specifically targeted by hunters, and *M. fascicularis* is the most commonly found primate in pet markets in Indonesia<sup>42</sup>.

#### *The misuse of trapping permits*

Field research by the BUAV has raised concerns regarding the inaccurate use of trapping permits. One primate supply company in Indonesia obtained a permit from the Head of Conservation Office for Natural Resources in Java to capture 200 *M. fascicularis* (50 males and 150 females) in 2007. According to local villagers in Semarang, Central Java, the company captured over 500 *M. fascicularis*, violating the terms of the permit<sup>33</sup>.

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<sup>39</sup> Management Programme for Primates for Sustainable Utilization (2002) International Symposium, Applicable of Non-human primates in biotechnology for conservation and biomedical research

<sup>40</sup> Brotcorne, F., Wandia, I. N., Rompis, A. L. T., Suartha, S. I. and Huynen, M. C. (2011) Recent demographic and behavioural data of *Macaca fascicularis* at Padangtegal, Bali, Indonesia In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds.) *Monkeys on the Edge* Cambridge University Press

<sup>41</sup> Shepherd, C. R., Sukumaran, J., Wich, S. A. (2004) *Open Season: An analysis of the pet trade in Medan, Sumatra 1997 – 2001* TRAFFIC Southeast Asia

<sup>42</sup> Shepherd, C. R. (2010) *Illegal primate trade in Indonesia exemplified by surveys carried out over a decade in north Sumatra*. TRAFFIC

The allocation of substantial quotas for capturing *M. fascicularis* from the wild to supplement breeding stock indicates that primate-breeding and supply companies in Indonesia are not self-sustaining. Furthermore, the numbers of *M. fascicularis* actually removed from the wild appear to be far more than those allocated by the trapping quotas. This is because the quotas apparently do not include trapped animals considered 'unsuitable' e.g. large males or elderly animals<sup>33</sup>.

The large number of breeding facilities, their failure to demonstrate their capability to reliably produce second generation offspring, and the inaccurate use of source codes on CITES permits demonstrates a need for improved implementation and enforcement within Indonesia.

## **LAO PEOPLE'S DEMOCRATIC REPUBLIC**

Lao PDR began exporting live *M. fascicularis* in 2004<sup>3</sup>, and there has been a rapid expansion in the trade since. No *M. fascicularis* were reported to have been exported between 1999 and 2003 but, according to the WCMC-UNEP CITES Database, from 2004-2008, 20,255 *M. fascicularis* were exported<sup>3</sup>. The majority of these macaques were exported to Vietnam and China.

### *Habitat loss*

The Lao population of *M. fascicularis* is under threat due to human population growth and associated economic development<sup>43</sup>. For example, hydraulic power programmes inundate wide areas of riverine forests, and agricultural lands are being widely developed in low altitudinal forests near rivers, particularly for the production of commercial commodities. Additionally, hunting and wildlife trade are prevalent. These threats will increase with the construction of roads and bridges connecting Lao PDR to neighbouring countries<sup>43</sup>.

Threats to *M. fascicularis* are likely to accelerate rapidly in the near future. Commodity crop cultivation is driven by capital from foreign countries. Wide areas of coffee and vegetable plantations have been established in the Bolaven Plateau. Large areas of forests, which are habitats for *M. fascicularis*, have been cleared and turned into large-scale farmlands for commodity crop production. Industrial afforestation of acacia, eucalyptus and other trees, is expanding rapidly for the supply of paper materials and for the control of carbon discharge. The plantations will be established in similar regions as the farmlands, and will replace block regeneration of forests, separating macaque habitat into small isolated patches<sup>44</sup>.

The combination of loss of forest cover and over-exploitation of wildlife populations poses significant threats to all forest-dependent species in Lao<sup>45</sup>. Habitat loss through land development for agriculture (especially for commodity crops), mining and hydro power are looming threats<sup>46</sup>.

*M. fascicularis* has been found in primary forests, disturbed and secondary forests, and riverine and coastal forests of nipa palm and mangrove<sup>47</sup>. It has been reported that the ecologically important 'old growth' forests are being impacted by years of unregulated logging operations controlled by the Lao military<sup>48</sup>.

The largest undisturbed montane evergreen forest in Lao is largely encompassed within the Nakai-Nam Theun National Biodiversity Conservation Area (NBCA). Plans to develop a \$2 billion hydropower project along the major river draining the area (the Nam Theun) have resulted in considerable controversy and promoted intensive research into the likely effects of such a development.

The situation is particularly desperate along the recently completed north-south economic corridor - a 1150 mile road that runs from Thailand to China, passing through the heart of Lao. The corridor has spurred widespread deforestation and wildlife poaching. Vast tracts of forest along the corridor have been logged for timber and converted for teak or rubber plantations, while hillsides have been burned for glutinous rice cultivation.

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<sup>43</sup> Lee, B. P. Y.-H. (2011) Distribution and present status in Laos. In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds.) *Monkeys on the Edge* Cambridge University Press

<sup>44</sup> Hamada, Y., Kurita, H., Goto, S., Morimitsu, Y., Malaivijitnond, S., Pathontong, S., Pathontong, B., Kingsada, P., Vongsombath, C., Samouth, F. and Praxaysombath, P. (2011) Distribution and present status of long-tailed macaques (*Macaca fascicularis*) in Laos and their ecological relationship with Rhesus macaques (*Macaca mulatta*). In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds.) *Monkeys on the Edge* Cambridge University Press

<sup>45</sup> *Wildlife Conservation Society website*. Available at: <http://www.wcs.org/where-we-work/asia/lao-pdr.aspx> [Accessed 09 August 2010]

<sup>46</sup> International Primatological Society (IPS) Congress Abstract (2010) Kingsada, P., Pathomthong, S., Praxaysombath, B., Malaivijitnond, S., Hamada, Y. *Distribution pattern of macaque species in southern Lao PDR: examining the ecological segregation among macaque species* [online] Available at: <http://www.ips2010.jp/program.html> [Accessed 09 August 2010]

<sup>47</sup> University of Michigan Museum of Zoology. *Animal Diversity Web* [online]

[http://animaldiversity.ummz.umich.edu/site/accounts/information/Macaca\\_fascicularis.html](http://animaldiversity.ummz.umich.edu/site/accounts/information/Macaca_fascicularis.html) [Accessed 10 January 2010]

<sup>48</sup> Asia Times. *A tree falls in Laos*. [online] Available at: [http://www.atimes.com/atimes/Southeast\\_Asia/LJ05Ae01.html](http://www.atimes.com/atimes/Southeast_Asia/LJ05Ae01.html)

### *Population surveys*

In October 2009, an official from the Lao Forestry Department stated during field research (carried out by the BUAV) that no population surveys for *M. fascicularis* had been carried out in the country<sup>49</sup>.

### *Illegal trade*

According to a 2008 investigative report, *M. fascicularis* have been exported to farms in Vietnam from Cambodia and Lao<sup>12</sup>.

The owner of the main primate supply facility in Lao, Vannaseng Farm, stated during field research by the BUAV that his breeding animals originated from Malaysia and Cambodia<sup>49</sup>. Yet, according to the CITES database there are no records of imports to Lao from these countries. According to a report in the *Malay Mail*, the Malaysia Wildlife and National Parks Department confirmed that no *M. fascicularis* had been exported to Lao<sup>50</sup>. The owner also reported that a second farm, due to be opened in 2010, would be established using wild-caught primates from Cambodia<sup>49</sup>.

### *Marking and record-keeping at breeding facilities*

The Preamble to CITES Resolution Conf. 8.13 (Rev.) states: '*there is no reason to limit the use of coded-microchip implants to only live animals of species included in Appendix I or high-value species*<sup>51</sup>.

As far as SSN is aware, *M. fascicularis* at breeding facilities in Lao are not given a permanent means of identification such as a tattoo or microchip. Instead, facilities use neck tags which can be easily removed and replaced. The owner of one farm admitted that the removable tags were used at the request of the companies in Vietnam and China importing the primates<sup>49</sup>. An absence of permanent methods of marking and identification for *M. fascicularis* makes it extremely difficult to verify the source and provenance of each primate at captive-breeding facilities.

### *A reliance on wild populations*

According to BUAV field research, Vannasang, the main primate supply company in Lao, does not have a reliable capability of producing second-generation offspring; it was established and continues to be replenished using animals from wild populations.

### *Inaccurate use of CITES source codes*

Field research by the BUAV has given rise to serious concerns regarding the inaccurate use of source codes by Lao.

According to the CITES trade database, exports of *M. fascicularis* from Lao began in 2004<sup>5</sup>. The source codes used for these exports indicate that the animals were captive-bred<sup>5</sup>. *M. fascicularis* are reproductively active from around four years of age and, therefore, in order for a captive-bred (F2+ generation) animal to be available for export at the age of two (the typical age a macaque is exported for research purposes) in 2004, the breeding facilities would need to have been established around 1994.

In order for a captive-bred (F2+ generation) two-year old animal to be available for export in 2007 (as recorded by Lao) the breeding facilities should have been established around 1997. There do not appear to be any farms in Lao that were established during this time. The main 'farm' or breeding facility in Lao was not established until 2004.

Farm owners in Lao have stated to an SSN Member organisation that 1,000 *M. fascicularis* were born in 2007 and that, in subsequent years, between 2000-3000 have been born each year. Yet the same facility stated that in 2008, it had exported 9,000 primates - more than the total number claimed to have been bred in captivity<sup>51</sup>.

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<sup>49</sup> BUAV (2009) *An investigation into the trade in primates for research in Laos*. Unpublished report, British Union for the Abolition of Vivisection

<sup>50</sup> Malay Mail. 07 April 2010 [online] *Investigations called on possible illegal export of local primates*. Available at: <http://www.mmail.com.my/content/32668-investigations-called-possible-illegal-export-local-primates> [Accessed 10 August 2010]

<sup>51</sup> Conf. 8.13 (Rev.) Use of coded-microchip implants for marking live animals in trade: [online] Available at: <http://www.cites.org/eng/res/all/08/E08-13R11C15.pdf> [Accessed 31 October 2011]

During 2007 and 2008, Lao used source code 'R' for some exports of *M. fascicularis*. However, in 2010, the European Commission recommended that EU Member States refrain from issuing import permits for primates from Lao if the application contains source code 'R', as ranching is not appropriate for primates<sup>52</sup>. Ranching is defined in Resolution Conf. 11.16 (Rev. CoP. 15) on 'Ranching and Trade in Ranches Specimens of Species Transferred from Appendix I to Appendix II' as '*the rearing in a controlled environment of animals taken as eggs or juveniles from the wild, where they would otherwise have had a very low probability of surviving to adulthood*'<sup>53</sup>. Following discussions at the 53<sup>rd</sup> SRG meeting in 2010, the Commission is seeking information from Lao and will be considering any response at the 54<sup>th</sup> SRG meeting.

## **MALAYSIA**

### *Habitat loss*

Though the species is adaptable, habitat loss has led *M. fascicularis* populations into conflict with humans in both rural and urban landscapes<sup>4</sup>. This has intensified as *M. fascicularis* populations find it increasingly necessary to exploit human food sources. In Malaysia the species has colonised land cleared for plantations, and increasing human-macaque conflict has led to the development of extermination programmes<sup>54</sup>.

Many protected areas are small<sup>55</sup>.

Data from the United Nations indicates that the deforestation rate in Malaysia is accelerating. Large areas of forest are slated for conversion to farmland or timber concessions.<sup>58</sup>

Khan *et al.*, (1982) pointed out a 23 per cent decline in the population of *M. fascicularis* between 1957 and 1975 in Malaysia<sup>56</sup>.

In 2007, Malaysia's long-standing ban on the export of primates was lifted, partly on the basis of an NDF document produced by the Department of Wildlife and National Parks (which enforces Peninsular Malaysia's wildlife laws). This document has subsequently received criticism<sup>57</sup>. It was also reported that lifting the export ban could have dire consequences for wild populations of *M. fascicularis*.<sup>58</sup> The ban was reinstated in 2008.

In Malaysia, there is also evidence that *M. fascicularis* is trapped for human consumption<sup>61</sup>.

## **MYANMAR**

According to the WCMC-UNEP CITES Database, 8,000 live *M. fascicularis* were reported to have been exported from Myanmar in 2006 using source code 'R'<sup>5</sup>.

### *Habitat loss*

In Myanmar, *M. f. aureus* is distributed along coastal regions from the northwestern border near Bangladesh to the southernmost border near Thailand. The Ayeyarwady Delta, BagoYoma, and the northern Tanintharyi regions appear to have suffered extensive population losses<sup>59</sup>. In May 2008, the Ayeyarwady was devastated by cyclone Nargis, which destroyed most mangroves and coastal forests. The extent of natural forests and plantations damaged by storms in the Ayeyarwady and Yangon Divisions was reported to be 14,000 ha and

<sup>52</sup> Letter from European Commission to the BUAU. Received 02 June 2010. Ranching is defined in Resolution Conf. 11.16 (Rev. CoP. 15)

<sup>53</sup> CITES CoP15 Doc. 28 [online] Available at: [www.cites.org/eng/cop/15/doc/E15-28.pdf](http://www.cites.org/eng/cop/15/doc/E15-28.pdf) [Accessed 28 June 2010]

<sup>54</sup> Lee, P. C. and Priston, N. E. C. (2005) Perceptions of Pests: Human Attitudes to Primates, Conflict and Consequences for Conservation. In: J. D. Paterson. (ed.) *Commensalism and Conflict: The Primate-Human Interface*. Winnipeg, Manitoba, Hignell Printing

<sup>55</sup> Wildlife Conservation Society website. Available at: <http://www.wcs.org/where-we-work/asia/malaysia.aspx> [Accessed 10 August 2010]

<sup>56</sup> Khan, M., Elagupillay, S. and Zainal, Z. (1982) *Species conservation priorities in the tropical rainforests of peninsular Malaysia*. In: Species conservation priorities in the tropical forests of Southeast: Proceedings of a symposium held at the 58<sup>th</sup> Meeting of the IUCN Species Survival Commission Asia. International Union for Conservation of Nature and Natural resources. Pp. 9,15

<sup>57</sup> Twigg, I. (2008) *A warning of the possible decline in long-tailed macaques (Macaca fascicularis) in Peninsular Malaysia due to a programme of indiscriminate culling*. Unpublished report, Primate Conservation, Oxford Brookes University, Oxford UK

<sup>58</sup> The Star Online. Authorities rescue 449 protected animals. 28 October 2011 [online] <http://thestar.com.my/news/story.asp?file=/2011/10/28/nation/9789034&sec=nation> [Accessed 31 October 2011]

<sup>59</sup> International Primatological Society (IPS) Congress (2010) Abstract: San, A. M. and Hamada, Y. *Distribution and current status of long-tailed macaques (M. f. aurea) in Myanmar* [online] Available at: <http://wwwsoc.nii.ac.jp/psj2/ips/> [Accessed 08 August 2010]

21,000 ha, respectively<sup>60</sup>. Tree canopies were damaged during the cyclone, and forests in some areas have yet to recover.

Habitat loss from cyclonic storms, logging, agricultural and aquacultural activities, and hunting for food and trading are current threats to *M. fascicularis* populations in Myanmar. As a result, the populations may be fragmenting and declining<sup>62</sup>.

The status and distribution of *M. fascicularis* in Myanmar is still poorly understood<sup>61</sup>, and since the publication of existing reports<sup>62 63</sup>, there have been significant environmental changes in Myanmar<sup>64</sup>.

*The population of Andaman long-tailed macaques (M. f. aurea) in Myanmar may not be very large, appears fragmented, and may be threatened by human development and trade<sup>64</sup>.*

The forests in Myanmar are declining and have continued to decline by 0.3 per cent annually since the early 1990s<sup>64</sup> due to logging, construction of infrastructure, and conversion for agriculture and aquaculture. Forest habitat and quality have been significantly reduced in Myanmar, especially in the South.

Lowland, coastal, and mangrove forests, which are the primary habitat of *M. fascicularis*, have been significantly affected by forest conversion. Furthermore, hunting and the wildlife trade also threaten *M. fascicularis*<sup>2</sup>.

It is a misconception that macaques are highly resilient to the impact of human activities, and because they are 'edge species' that often occur in close proximity to human settlements, local people assume populations are large. However, over the last few decades, their populations have been reduced by habitat degradation and hunting, and it is predicted that the risk of local extinctions is quite high<sup>59</sup>.

The two major ranges of *M. fascicularis* (the Rakhine and southern Tanintharyi region) have undergone significant environmental degradation:

The Rakhine – The lowland forests that *M. fascicularis* inhabit have been deforested. Moreover, the coastal mangrove forests have been encroached upon for paddy cultivation and shrimp farming. In the Southern Rakhine area, habitat has rapidly degraded. Bamboo forests have expanded, and erosion and gullies have been observed<sup>65</sup>. Immigrants also occupy the lowland forests and *M. fascicularis* are hunted using snares, poison arrows and guns.

Southern Tanintharyi region – 9 per cent of the tropical rainforest was lost between 1990 and 2000, and 6350 km<sup>2</sup> were degraded from closed forest to degraded forest<sup>66</sup>. Both illegal and legal logging has had a heavy impact on primate populations<sup>67</sup>. Hunting pressure is also high and in the majority of areas within Tanintharyi, primates are hunted for village-scale consumption. They are also hunted for trade<sup>59</sup>.

Furthermore, these two ranges are separated by the Ayeyarwady Delta and northern Tanintharyi regions. These areas have seen extensive conversion for human settlement and this is likely to have impacted *M. fascicularis* populations<sup>59</sup>.

## SINGAPORE

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<sup>60</sup> International Society for Mangrove Ecosystems and International Tropical Timber Organization (2008) *Proceeds of the meeting and workshop on Guidelines for the Rehabilitation of Mangroves and other Coastal Forests damaged by Tsunami and other natural hazards in the Asia-Pacific region* [online] Available at: [http://www.gloemis.com/Proceedings\\_No5-2.pdf](http://www.gloemis.com/Proceedings_No5-2.pdf) [Accessed at 17 November 2010]

<sup>61</sup> San, A. M. and Hamada, Y. (2011) *Distribution and current status of long-tailed macaques (Macaca fascicularis) in Myanmar*. In. Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds.) *Monkeys on the Edge* Cambridge University Press

<sup>62</sup> Tun Yin. (1967) *Wild animals of Burma* Rangoon Gazette, Rangoon

<sup>63</sup> Fooden, J. (1995) Systematic review of Southeast Asian long-tailed macaque, *Macaca fascicularis* (Raffles, 1821). *Fieliana Zoology* **81**: 1-205

<sup>64</sup> Leimgruber, P., Daniel, S. K., Marck, S., Jake, B., Thomas, M. and Melissa, S. (2005) Forest cover change patterns in Myanmar (Burma) 1990-2000 *Environmental Conservation* **32**(4): 356-364

<sup>65</sup> Geissmann, T., Grindley, M., Momberg, G., Lwin, N. and Moses, S. (2009) Hoolock gibbon and biodiversity survey and training in southern Rakhine Yomam, Myanmar. *Gibbon Journal* **5**: 7-27

<sup>66</sup> NCEA (National Commission for Environmental Affairs). 2006. National Performance assessment and subregional strategic environment framework in the Greater Mekong Subregion. ADB/TA No. 6069-REG, prepared by the Secretariat, UNEP Regional Resource Centre for Asia and the Pacific. 323 pp.

<sup>67</sup> Hla, H., Sein, Myo Aung, Moses, S., Eames, J., and Nyunt Tin, Saw. (2003) *Gurney's Pitta Survey and Biodiversity Conservation Assessment in Tanintharyi Division, Myanmar*, unpublished

The *M. fascicularis* population of the island-state of Singapore consists of ca. 1,218-1,454 individuals. About seventy per cent of the population (ca. 1,027 individuals) is concentrated in both Bukit Timah and Central Catchment Nature Reserves<sup>68</sup>.

## THAILAND

### Habitat loss

*M. f. fascicularis* inhabits southern Thailand, the aureus long-tailed macaque (*M. f. aureus*) west central Thailand, and the dark-crowned long-tailed macaque (*M. f. atriceps*) Khram Yai Island, off the southeast coast<sup>69</sup>. Both *M. f. fascicularis* and *M. f. aureus* adapt well to disturbed habitats, yet local populations face a number of threats. These include habitat fragmentation and loss, isolation, genetic pollution (hybridisation and translocation), and conflict with humans; also the release of pet macaques which contributes to the spread of disease amongst wild populations<sup>70 71</sup>.

*M. fascicularis* is also threatened by inbreeding or outbreeding depression<sup>72</sup>.

Updated information on the situation and status of Thailand's *M. fascicularis* is urgently needed<sup>72</sup>.

Although many troops of Thai *M. fascicularis* have inflated population densities, some local troops exhibit morphological, genetic and behavioural uniqueness that may be important to conserve<sup>72</sup>.

*M. f. atriceps* is listed by the IUCN as 'Data deficient'. Humans have invaded and disturbed the natural habitats of primates in Thailand through destruction of forests, establishing vast agricultural fields, road construction and widespread encroachment; all of which greatly impair and fragment habitats.

Additionally, anthropogenic habitat alteration has increased the overlap between *M. fascicularis* and humans because many areas near human settlements, where macaques are now found, were not areas of interface in the past<sup>71</sup>. Whilst *M. fascicularis* are the most frequently observed species of macaque in Thailand, their numbers may not be comparable with populations that previously occupied natural forest habitats and were never assessed<sup>72</sup>.

### Illegal trade

It has been suggested that trafficking of 'temple monkeys' to Cambodia from Thailand has been taking place for many years<sup>4</sup>.

## PHILIPPINES

According to the WCMC-UNEP CITES Database, 16,300 live *M. fascicularis* were reported to have been exported from the Philippines between 1999 and 2008<sup>5</sup>. The total number of recorded exports of *M. fascicularis* from this Range State increased from 7,987 between 1999 and 2003 to 8313 between 2004 and 2008<sup>5</sup>.

### Habitat loss

On the main islands of the Philippines, it has been reported that *M. fascicularis* is taken for local consumption and hunted for sport. It is also persecuted as a 'pest'<sup>73</sup>.

<sup>68</sup> Sha, C. M. J., Gumert, M. D., Lee, B. P. Y. H., Fuentes, A., Subaraj Rajathurai., Chan, S., Jones-Engel, L. (2009) Status of the long-tailed macaque *Macaca fascicularis* in Singapore and implications for management. *Biological Conservation* **18** (11): 2909-2926

<sup>69</sup> Ong, P. and Richardson, M. (2008) *Macaca fascicularis*. In: *IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4*. [online] Available at: [www.iucnredlist.org](http://www.iucnredlist.org) [Accessed March 1, 2012]

<sup>70</sup> Malaivijitnond, S. and Hamada, Y. (2008) Current Situation and Status of Long-tailed Macaques (*Macaca fascicularis*) in Thailand. *The Natural History Journal of Chulalongkorn University* **8**(2): 185-204

<sup>71</sup> Malaivijitnond, S., Hamada, Y., Varavudhi, P. and Takenaka, O. (2005). The current distribution and status of macaques in Thailand. *Natural History Journal of Chulalongkorn University, Suppl 1*: 35-45

<sup>72</sup> Malaivijitnond, S., Vazquez, Y. and Hamada, Y. (2011) Human impact on long-tailed macaques in Thailand. In: Gumert, M. D., Fuentes, A. and Jones-Engel, L. (eds.) *Monkeys on the Edge* Cambridge University Press

<sup>73</sup> Ong, P. & Richardson, M. 2008. *Macaca fascicularis*. In: *IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2*. [online] [www.iucnredlist.org](http://www.iucnredlist.org). [Accessed November 30, 2011]

## VIETNAM

According to the WCMC-UNEP CITES Database, 61,879 live *M. fascicularis* were reported to have been exported from Vietnam between 1999 and 2008<sup>5</sup>. The total number of recorded exports of *M. fascicularis* from this Range State increased from 21,681 between 1999 and 2003 to 40,198 between 2004 and 2008<sup>5</sup> - an increase of 85 per cent.

Since 2004, Vietnam reportedly imported 18,405 animals from Lao PDR, Cambodia and Myanmar, 4,400 of whom were re-exported - all to China<sup>5</sup>.

### Habitat loss

Threats to the species in Vietnam include habitat loss and degradation. In Indochina in particular local populations of macaques are in peril due to rapid economic and associated infrastructure development<sup>74</sup>.

Within Hang Nature Reserve in Vietnam, some 10,000 construction workers are due to commence work on a hydro power and flood prevention dam project. This will lead to increased demand for wildlife products, firewood, and increased human activities due to improved accessibility by roads and the future lake<sup>75</sup>.

The results of a recent study reveal that five Vietnamese macaque species, including *M. fascicularis*, are severely depressed by habitat destruction, hunting and illegal trade, although only three have been listed in the Vietnam Red Data Book (*M. arctoides*, *M. leonina*, and *M. assamensis*)<sup>76 77</sup>.

Vietnam used to be almost entirely forested, providing for a diversity and abundance of primates<sup>78</sup>. From 1943 to 1995, however, the forest cover declined from 44 per cent to 28.2 per cent of the total land area as the result of human activities including war, logging and land conversion.

Although forest coverage recovered gradually during the 1990s, reaching 36.7 per cent in 2005, forest quality has drastically declined. The two largest wetland ecosystems in Vietnam, the Red River delta and the Mekong River delta, are being largely converted to agricultural lands, industrial zones and aquaculture areas. During the past two decades, over 200,000 ha of mangrove forests have been destroyed to create shrimp and fish ponds<sup>79</sup>.

Information on the distribution and status of macaques in Vietnam is scarce. However, field studies reveal that forest fragmentation has resulted in increasing isolation of macaque populations. Persistent hunting has made the animals very timid, and macaques can normally be observed only in protected areas<sup>78</sup>. Abundance and diversity surveys and effective conservation measures for primates in Central Vietnam are urgently needed<sup>76</sup>.

The Con Dao long-tailed macaque (*Macaca fascicularis condorensis*), a sub-species inhabiting the islands off the southern coast (Con Son Island and Hon Ba Island), is listed by the IUCN as 'Vulnerable'. The population is estimated at less than 1,000 individuals. At present, there is very little information about *M. f. condorensis*, and the sub-species is not mentioned in the Vietnam Red Data Book<sup>79</sup>.

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<sup>74</sup> International Primatological Society (IPS) Congress Abstract (2010) Minh, N. V., N.H. Van N. H. and Hamada, Y. Distribution and present status of non-human primates in central Vietnam [online] Available at: <http://www.ips2010.jp/program.html> [Accessed 10 August 2010]

<sup>75</sup> Konstant, W. R. and Nadler, T. 2005. Tonkin Snub-nosed Monkey, *Rhinopithecus avunculus* Dollman, 1912. In: Primates in Peril: The World's 25 Most Endangered Primates 2004-2006, R. A. Mittermeier, C. Valladares-Pádua, A. B. Rylands, A. A. Eudey, T. M. Butynski, J. U. Ganzhorn, R. Kormos, J. M. Aguiar and S. Walker (eds.), p.30. Report to IUCN/SSC Primate Specialist Group (PSG), International Primatological Society (IPS) and Conservation International (CI), Washington, DC.

<sup>76</sup> Vo Dinh Son, Suchinda Malaivijitnond, Shunji Gotoh, Cao Quoc Tri, Nguyen Van Hung, Le Van Hoang, Tran Cong Trang, and Yuzuru Hamada (2009) Report on Present Distribution and Status of Macaques in Vietnam. Laboratory Primate Newsletter **48**(1): 10-14

<sup>77</sup> Ministry of Science and Technology (2007). Vietnam Red Data Book, Part I. Animals. Hanoi: Natural Science and Technology Publishing House

<sup>78</sup> Van Sung, C. (1998) Status of Primate Fauna and Conservation in Vietnam [online] Available at: <http://coombs.anu.edu.au/~vern/iebr.html> [Accessed 09 August 2010]

<sup>79</sup> Nguyen Manh Ha, Vu Van Dung, Nguyen Van Song, Hoang Van Thang, Nguyen Huu Dung, Pham Ngoc Tuan, Than Thi Hoa and Doan Canh (2007). Report on the review of Vietnam's wildlife trade policy. *eres/jpd/unep/cites/iued*, Hanoi, Vietnam

### *A rapid expansion of facilities*

In Vietnam, two large breeding facilities in the south hold several thousand animals<sup>10 80</sup>. Field research conducted by the BUAV in 2006 revealed that the company which owns these two facilities also had links to 'satellite farms' close to the Cambodian border near Ho Chi Minh City. New facilities were also under construction, with permission apparently having already been granted by the authorities to use wild-caught animals as breeding 'stock' to establish these farms.

In addition to being a major exporter, Vietnam is also a significant importer of *M. fascicularis* from surrounding countries. Since 2004, Vietnam has imported 18,405 live *M. fascicularis* from Lao PDR, Cambodia and Myanmar. It has been stated in a report on Vietnam's wildlife trade policy funded by the CITES Secretariat that '*if domestic demand cannot be met by the supply from captive breeding and artificial propagation, activities may stimulate the demand for illegally harvested and traded products involving the species*<sup>81</sup> .

### *Illegal trade*

Evidence points to an illegal (and therefore unrecorded) trade in wild-caught *M. fascicularis* that is likely to have a big impact on populations. A more recent media story highlighted that Forest Rangers in the central province of Phu Yen sold 96 *M. fascicularis* seized from smugglers to a breeding farm in Dong Hoa District instead of releasing them into the wild<sup>81</sup> .

According to a 2008 investigative report, *M. fascicularis* have been exported to farms in Vietnam from Cambodia and Lao PDR<sup>12</sup>. The report stated that one farm acted simply as a holding facility for imported primates from these two countries that were then re-exported to China. *M. fascicularis* were apparently taken by boat along the River Dong, moved into larger boats and then transported via the Saigon River to China<sup>14</sup> .

## **CONCLUSION**

*Based on the evidence presented, the SSN Primate Working Group requests that the CITES Animals Committee, at its upcoming meeting, categorize M. fascicularis as a 'species of urgent concern' for all exporting countries in its discussions under agenda item 12 regarding Resolution Conf. 12.8 (Rev. CoP13) on Review of Significant Trade in specimens of Appendix-II species.*

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<sup>80</sup> BUAV (2006) *Monkey Business. The Factory Farming of Monkeys for the UK Research Industry. Unpublished report* British Union for the Abolition of Vivisection).

<sup>81</sup> Vietnam Net Bridge. Rangers sell smuggled monkeys instead of letting them go. 14 June 2010 [online] Available at: [www.english.vietnamnet.vn/social/201001/Rangers-sell-smuggled-monkeys-instead-of-letting-them-go-888632/](http://www.english.vietnamnet.vn/social/201001/Rangers-sell-smuggled-monkeys-instead-of-letting-them-go-888632/) [Accessed 29 June 2010]