# *Lutra sumatrana* - (Gray, 1865)

ANIMALIA - CHORDATA - MAMMALIA - CARNIVORA - MUSTELIDAE - *Lutra* - *sumatrana*

**Common Names:** Hairy-nosed Otter (English), Loutre de Sumatra (French), Nutria de Sumatra (Spanish; Castilian)
**Synonyms:** No Synonyms

**Taxonomic Note:**
*Lutra sumatrana* was first described by Raffles in 1822 as *Lutra barang*; by Gray in 1865 as *Barangia sumatrana*; and *Lutra lovii* by Gunther 1876. Pohle (1919) identified three species *L. sumatrana* in Sumatra, Malay Penisula and Thailand, *L. lovii* and *L. brunnea* in Borneo. Pocock 1941 compiled three species to *L. sumatrana* including in Vietnam. Recent genetic studies have confirmed it as a single species related to *Lutra lutra* (Koepfli *et al.* 2008).

| Red List Status |
| --- |
| EN - Endangered, A2cde+3cde (IUCN version 3.1) |

# Red List Assessment

## Assessment Information

**Date of Assessment:** 2020

**Reviewed:** 21/01/2020

**Assessor(s):** NA

**Reviewer(s):** Hussain, S.A., Duplaix, N.

**Contributor(s):** NA

**Facilitators/Compilers:** Sayanti Basak

## Assessment Rationale (Justification)

Hairy-nosed Otter originally ranged from Myanmar to Vietnam and also to Sumatra Island, and their range is estimated to be shrinking in each country (Sasaki et al., 2009). Its populations are under rapid decline across mainland Southeast Asia, through habitat destruction and degradation, trade-driven illegal hunting (Poole 2003, Shepherd and Nijman 2014, Gomez *et al.* 2019) and human-otter conflict. This species is considered to be Endangered due to past and ongoing population declines. The species is suspected to have declined by at least 50% or more in the past three generations (30 years based on Pacifici *et al.* 2013) due to habitat destruction and degradation, pollution, bycatch and prey depletion due to over fishing, and illegal hunting. It is anticipated that the current rate of decline will continue into the future and further threaten this species. The most important habitat is assumed to be peat-swamp forests in Thailand, Vietnam, Borneo, and Indonesia, flooded forests in Cambodia. They are observed in mangrove and tropical forest. These habitats have been destroyed for development in large scale. In its entire range the Hairy-nosed Otter is under increasing pressure due to extensive poaching. In Cambodia, around the Tonle Sap Lake and other places, poaching of otters and other wildlife is common. In Vietnam, otters are hunted for illegal wildlife trade, for meat and medicinal use. Wildlife trade involving *Lutra sumatrana* as pets was recorded several times in Indonesia. In Borneo, the destruction of forests for palm oil plantantions, and, soon, the anticipated transfer of the capital of Indonesia to Kalimantan does not augur well for the future of this species. The principal threat to the fauna of the Southeast Asia is the burgeoning human population, and resultant pressure of this growth on natural resources. Lack of adequate prey species and suitable undisturbed habitat are putting additional pressures on all wildlife species including the Hairy-nosed Otter. A combination of all these factors may lead to the extinction of the species unless appropriate conservation measures are taken soon. Owing to the past and ongoing threats faced by the species, it can be concluded that there is a suspected reduction in the species' population by ≥ 50%, (criterion A2) due to an inferred decline in its area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality (subcriteria c, d, and e). Also, the exacerbation of these threats, due to lack or failure of adequate conservation measures, may lead to an accelerated decline in population by at least 50% over the next 30 years, further supporting the categorisation of the species as Endangered under criteria A2cde+3cde.

## Reasons for Change

**Reason(s) for Change in Red List Category from the Previous Assessment:** No change.

# Distribution

## Geographic Range

The Hairy-nosed Otter is the rarest and least known among the five species of otters occurring in Asia. It is endemic to Southeast Asia. The type specimen came from Sumatra. Once believed to be extinct, the Hairy-nosed Otter has been rediscovered in many parts of Southeast Asia. In southern Thailand it has been reported from Pru Toa Daeng Peat Swamp Forest, Narathiwat (Kanchanasaka 2000), Hala Bala Wildlife sanctuary, Narathiwat (Sasaki pers.comm.), Thale Noi, Phattalung and Bor Lor, Nakhon Sri Thammarat (Tantipisanuh et al. unpublished). From Viet Nam it has also been reported from U Minh Thuong Nature Reserve (Nguyen *et al.* 2001) and U Minh Ha National Park (Dong, 2006) in Mekong Delta and from Cambodia it has been reported from Tonle Sap wetlands, Bassac Marsh along Mekong River, Cardamom Mt. and three areas along coast, Peam Krasop wildlife sanctuary, Donf Peng Mutiple Use Area and Ream National park (Heng et al. 2016, Willcox et al. 2016). It has been reported from Malaysia at Keda (Salahshour 2016), Pahang (Baker 2013), Selangor (Tan 2015) and at Trengganu, Perak, Johor in 2010, Sabah (Sasaki pers.comm.). In Sabah, Malaysia, this species was confirmed at three areas, *viz*. Deramakot Forest Reserve (Wilting et al. 2010), Tabin Wildlife Reserve (Ishigami et al. 2017) and Danum Valley Conservation Area (Wai pers.comm.). In Brunei, a road killed otter was confirmed in 1997 (Sasaki *et al.* 2009). It has been recently reported in Southern Sumatra, (Lubis 2005, Latifiana and Pickles 2013) and in Southern Central Kalimantan (Huda et al. 2019), East Kalimantan (Reza pers. comm.) in Indonesia. In Myanmar, one old skin from the northern mountain area was kept in British Museum of Natural History (Sasaki *et al.* 2009, Duckworth and Hills 2008) and a skin of a hairy-nosed otter were confirmed at a market in Mong La, Shan State (Shepherd and Nijman 2014). The hairy-nosed otter ranges from Myanmar, Thailand, Cambodia, Viet Nam, Malaysia, Brunei and Indonesia. It is thought to occur in Lao PDR.

## Area of Occupancy (AOO)

**Estimated area of occupancy (AOO) - in km2:** NA

**Continuing decline in area of occupancy (AOO):** NA

**Extreme fluctuations in area of occupancy (AOO):** NA

## Extent of Occurrence (EOO)

**Estimated extent of occurrence (EOO) - in km2:** NA

**Continuing decline in extent of occurrence (EOO):** NA

**Extreme fluctuations in extent of occurrence (EOO):** NA

## Locations Information

**Number of Locations:** NA

**Continuing decline in number of locations:** NA

**Extreme fluctuations in the number of locations:** NA

## Very restricted AOO or number of locations (triggers VU D2)

**Very restricted in area of occupancy (AOO) and/or # of locations:** NA

## Elevation / Depth / Depth Zones

**Elevation Lower Limit (in metres above sea level):** 0

**Elevation Upper Limit (in metres above sea level):** 300

**Depth Lower Limit (in metres below sea level):** NA

**Depth Upper Limit (in metres below sea level):** NA

**Depth Zone:** Shallow photic (0-50m)

## Map Status

| Map Status | How the map was created, including data sources/ methods used: | Please state reason for map not available: | Data Sensitive ? | Justification | Geographic range this applies to: | Date restriction imposed: |
|---|---|---|---|---|---|---|
| Done | - | - | - | - | - | - |

## Biogeographic Realms

**Biogeographic Realm:** Indomalayan

## Occurrence

## Countries of Occurrence

| Country | Presence | Origin | Formerly Bred | Seasonality |
|---|---|---|---|---|
| Brunei Darussalam | Possibly Extant | Native | - | Resident |
| Cambodia | Extant | Native | - | Resident |
| Indonesia | Extant | Native | - | Resident |
| Lao People's Democratic Republic | Presence Uncertain | Native | - | - |
| Malaysia | Extant | Native | - | Resident |
| Myanmar | Extant | Native | - | Resident |
| Thailand | Extant | Native | - | Resident |
| Viet Nam | Extant | Native | - | Resident |
| | | | | |

# Population

There is no population estimate of Hairy-nosed otter across its range.

## Population Information

**Current Population Trend:** Decreasing

**Number of mature individuals (=population size):** NA

**Extreme fluctuations? (in # of mature individuals):** NA

| Severely fragmented? | Justification |
|---|---|
| No | - |

**Continuing decline in mature individuals?** NA

**Continuing decline % in mature individuals within 1 generation or 3 years, whichever is longer (up to max. of 100 years in the future):** NA

**Continuing decline % in mature individuals within 2 generations or 5 years, whichever is longer (up to max. of 100 years in the future):** NA

**Continuing decline % in mature individuals within 3 generations or 10 years, whichever is longer (up to max. of 100 years in the future):** NA

**Extreme fluctuations in the number of subpopulations:** NA

**Continuing decline in number of subpopulations:** NA

**All individuals in one subpopulation:** NA

**Number of mature individuals in largest subpopulation:** NA

**Number of Subpopulations:** NA

## Population Reduction - Past

| Percent Change in past | Reduction or Increase | Qualifier | Justification |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 50% | Reduction | Inferred | - |

| Basis? |
|---|
| c) a decline in area of occupancy, extent of occurrence and/or quality of habitat, d) actual or potential levels of exploitation, e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites) |

| Reversible? |
|---|
| Depends on the causes of population decline. |

| Understood ? |
|---|
| Yes |

| Ceased ? |
|---|
| No |

## Population Reduction - Future

**Percent Change in future:** NA

**Future Population Reduction Basis:** NA

## Population Reduction - Ongoing

**Both: Percent Change over any 10 year or 3 generation period, whichever is longer, and must include both past and future, future can't go beyond 100 years:** NA

**Both Population Reduction Basis:** NA

**Causes of both (past and future) reduction reversible?** Depends on the cause of reduction.

**Causes of both (past and future) reduction understood?** Yes

**Causes of both (past and future) reduction ceased?** No

## Quantitative Analysis

**Probability of extinction in the wild within 3 generations or 10 years, whichever is longer, maximum 100 years:** NA

**Probability of extinction in the wild within 5 generations or 20 years, whichever is longer, maximum 100 years:** NA

**Probability of extinction in the wild within 100 years:** NA

# Habitats and Ecology

The species were reported in peat swamp forests at Pru Toa Daeng, Thailand (Kanchanasaka *et al.* 1998), and U Minh Thuong and Ha National Parks in Viet Nam (Nguyen *et al.* 2001, Dang, 2006). In Vietnam, the species has recovered after the Vietnam War. Road killed otters were also found near peat swamp forests in southern Sumatra, Indonesia (Lubis 2005), at Tumpat in Kelantan, Pekan and Muazam in Pahang, (Sasaki pers.comm.) between Sungei Besar and Tanjung Malim, Selangor, Malaysia (Tan 2015). Peat swamp forests are assumed to be one of the most important habitats for this species.

In seasonally flooded forests of the Tonle Sap Lake, the species expands its range to the interiors of the Lake's forested area at high water level, and shrinks to the shore at low water level (Heng 2007, Willcox *et al.* 2016.).

Tropical forests were also their habitat, at Taman Negara in Pahang (Baker 2013), at Ulu Muda forest reserve in Keda in 2016 (Salahshour 2016) in Malaysia, and Hala Bala in Thailand (Sasaki pers.comm.),

The species was reported at low land wetland including *Melaleuca* and disturbed secondary forests, at Thale Noi in Phattalung, at Bor Lor in Nakhon Sri Thammarat, Thailand (Wanlop pers.comm.), at Bassac Marsh along Mekong River, Cambodia (Heng et al. 2016). It inhabits along coastal areas near mangroves in Southern Sumatra, in Indonesia (Latifiana and Pickles 2013), Peam Krasop wildlife sanctuary, Dong Peng Multiple Use Area, Ream National park, Cambodia (Heng et al. 2016), Deramakot Forest Reserve (Wilting et al. 2010), near Tabin Wildlife Reserve (Ishigami et al. 2017) and Danum Valley Conservation Area (Tantipisanuh et al. unpublished) in Sabah, Malaysia.

Road killed otters were reported in oil palm plantations, at Potian in Johor, Tasek Bera and near Chenor in Pahang, Malaysia, near Dungun in Terengganu, near abandoned mining ponds at Gopeng in Perak and Paya Indah, in Selangor (Sasaki pers.comm.) tropical forest also. The species was found near oil palm and mangrove in Southern Central Kalimantan (Huda et al. 2019).

At altitude, about 900 m and in mountains, two skins from the northern Myanmar were reported (Sasaki *et al.* 2009, Duckworth and Hills 2008, Shepherd and Nijman 2014). At Cardamom Mt. in Cambodia, the species were found (Long 2000, Heng et al. 2016). Though Wayre (1974, 1978) considered that the species mainly inhabited above 300 m, mountain areas are not considered as the main, but subsidiary habitats.

Heng et al. (2016) reported that species is cathemeral, although showing trends toward more crepuscular or nocturnal behaviour in Cambodia.

The Hairy-nosed Otter principally predates on fish (85.5%) followed by water snakes. They also supplement their diet with frogs, lizards, turtles, crabs, possibly small mammals and insects (Kanchanasaka and Duplaix 2011). Fish belonging to the families Channidae, Belontiidae, Anabantidae, Notopteridae, Synbranchidae, Clariidae, Nandidae, were identified in spraint samples from Thailand. The main prey identified were Three-spot Gourami (*Trichogaster trichopterus*), Common Climbing Perch (*Anabas testudineus*), and snakeheads (*Channa* spp.) (Kanchanasaka and Duplaix 2011).

Kanchanasaka *et al.* (2003) found that gestation was around two months as with other otters, and cubs were seen in December to February, and one family observed consisted of both parents and a cub. Based on camera trapping in Cambodia, mating season of hairy-nosed otter could be during between November and March, and pregnant female was recorded in March and from one to three cubs were observed with female (Heng et al. 2016). In Malaysia, a pregnant female bearing two fetuses was road killed in May (Sasaki pers. comm.).

## IUCN Habitats Classification Scheme

| Habitat | Season | Suitability | Major Importance? |
|---|---|---|---|
| 1.6. Forest -> Forest - Subtropical/Tropical Moist Lowland | Resident | Suitable | Yes |
| 1.7. Forest -> Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level | - | Unknown | - |
| 1.8. Forest -> Forest - Subtropical/Tropical Swamp | Resident | Suitable | Yes |
| 3.6. Shrubland -> Shrubland - Subtropical/Tropical Moist | - | Unknown | - |
| 4.6. Grassland -> Grassland - Subtropical/Tropical Seasonally Wet/ Flooded | - | Unknown | - |
| 5.1. Wetlands (inland) -> Wetlands (inland) - Permanent Rivers/ Streams/Creeks (includes waterfalls) | Resident | Suitable | Yes |
| 5.2. Wetlands (inland) -> Wetlands (inland) - Seasonal/ Intermittent/Irregular Rivers/Streams/Creeks | Resident | Suitable | Yes |
| 5.3. Wetlands (inland) -> Wetlands (inland) - Shrub Dominated Wetlands | Resident | Suitable | Yes |
| 5.4. Wetlands (inland) -> Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands | Resident | Suitable | Yes |
| 5.5. Wetlands (inland) -> Wetlands (inland) - Permanent Freshwater Lakes (over 8ha) | - | Unknown | - |
| 5.6. Wetlands (inland) -> Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha) | - | Unknown | - |
| 5.7. Wetlands (inland) -> Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha) | Resident | Suitable | Yes |
| 5.8. Wetlands (inland) -> Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha) | Resident | Suitable | Yes |

| | | | |
|---|---|---|---|
| 5.9. Wetlands (inland) -> Wetlands (inland) - Freshwater Springs and Oases | - | Unknown | - |
| 5.13. Wetlands (inland) -> Wetlands (inland) - Permanent Inland Deltas | - | Unknown | - |
| 5.14. Wetlands (inland) -> Wetlands (inland) - Permanent Saline, Brackish or Alkaline Lakes | - | Unknown | - |
| 5.15. Wetlands (inland) -> Wetlands (inland) - Seasonal/ Intermittent Saline, Brackish or Alkaline Lakes and Flats | - | Unknown | - |
| 5.16. Wetlands (inland) -> Wetlands (inland) - Permanent Saline, Brackish or Alkaline Marshes/Pools | - | Unknown | - |
| 5.17. Wetlands (inland) -> Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Marshes/Pools | - | Unknown | - |
| 9.10. Marine Neritic -> Marine Neritic - Estuaries | - | Unknown | - |
| 12.5. Marine Intertidal -> Marine Intertidal - Salt Marshes (Emergent Grasses) | - | Unknown | - |
| 13.4. Marine Coastal/Supratidal -> Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes | - | Unknown | - |
| 13.5. Marine Coastal/Supratidal -> Marine Coastal/Supratidal - Coastal Freshwater Lakes | Resident | Suitable | Yes |
| 15.1. Artificial/Aquatic & Marine -> Artificial/Aquatic - Water Storage Areas (over 8ha) | - | Unknown | - |
| 15.2. Artificial/Aquatic & Marine -> Artificial/Aquatic - Ponds (below 8ha) | - | Unknown | - |
| 15.3. Artificial/Aquatic & Marine -> Artificial/Aquatic - Aquaculture Ponds | - | Unknown | - |
| 15.6. Artificial/Aquatic & Marine -> Artificial/Aquatic - Wastewater Treatment Areas | - | Unknown | - |
| 15.7. Artificial/Aquatic & Marine -> Artificial/Aquatic - Irrigated Land (includes irrigation channels) | - | Unknown | - |
| 15.8. Artificial/Aquatic & Marine -> Artificial/Aquatic - Seasonally Flooded Agricultural Land | - | Unknown | - |
| 15.9. Artificial/Aquatic & Marine -> Artificial/Aquatic - Canals and Drainage Channels, Ditches | Resident | Suitable | No |

## Continuing Decline in Habitat

| Continuing decline in area, extent and/or quality of habitat? | Qualifier | Justification |
|---|---|---|
| Yes | Inferred | - |

## Life History

| Generation Length | Justification | Data Quality |
|---|---|---|
| 10 | Based on Pacifici et al. 2013 | good |

## Movement Patterns

**Movement Patterns:** Not a migrant.

**Congregatory:** NA

## Systems

**System:** Terrestrial, Freshwater (=Inland waters), Marine

# Use and Trade

## General Use and Trade Information

**Species not utilized:** False

**No use/trade information for this species:** False

Otters are hunted for the illegal wildlife trade in skins, and also for their meat and for medical use.

| Subsistence: | Rationale: | Local Commercial: | Further detail including information on economic value if available: |
|---|---|---|---|
| Yes | - | - | - appears for sale on internet sites |

**National Commercial Value:** Yes

**International Commercial Value:** No

| End Use | Subsistence | National | International | Other (please specify) |
|---|---|---|---|---|
| 1. Food - human | true | true | - | - |
| 3. Medicine - human & veterinary | true | true | - | - |
| 10. Wearing apparel, accessories | true | true | - | - |

**Is there harvest from captive/cultivated sources of this species?** No

**Trend in level of total offtake from wild sources:** Increasing

**Trend in level of total offtake from domesticated sources:** Not domesticated

**Harvest Trend Comments:** NA

## Non- Consumptive Use

**Non-consumptive use of the species?** True

**Explanation of non-consumptive use:** The species may serve as a subject for research, and/or for tourism.

# Threats

Confirmed locations for the species have gradually increased as scientific awareness increases. Their main habitats are lowland wetland forests including peat-swamp, tropical, *Melaleuca* and secondary forests. These habitats have been under severe threat by anthropogenic activities such as clearing of forests to grow plantations of oil palm and food crops such as rice, corn and soya bean.

The species has been found at markets in Cambodia (Long 2000, Poole 2003) and Myanmar (Shepherd and Nijman 2014). Information on the illegal trading of the species through the internet and social media was found from 2012 to 2013 one at Central Kalimantan, two East Kaliantan and two South Kalimantan, Indonesia, some of which were for sale (Reza and Aadrean, unpublished, Gomez *et al.* 2019). The density of the species is lower than Small-clawed and Smooth-coated otters, hence the effect of poaching is far greater as compared to the other two otter species. In Cambodia and Viet Nam, poaching of otters and other wildlife is a common practice. Otters are hunted for illegal wildlife trade, and also for meat and medicinal use.

Populations in Viet Nam are known only from two small national parks that are under intense pressure from the surrounding dense human population. Though there are other areas within the Mekong Delta that could contain other populations, with Mui Ca Mau the notable example, most are too small in size and suffering from similar problems to U Minh Ha and U Minh Thuong National Park. Interactive effects of large-scale changes to Mekong river system because of dams – impacts on Tonle Sap hydrology, fisheries etc – can be assumed to be having an impact on the habitat of otters, therefore directly affecting the species.

In Thailand, the species is susceptible to incidental drowning due to fish traps and road kills. The species disappeared from Klong Saeng Wildlife Sanctuary and Khao Sok National park after the construction of a dam (Wright et al. 2008).

Cianfrani et al. 2018 suggests the species is sensitive to precipitation seasonality, but climate change induced range expansion may be beneficial to the species. However, the species may subsequently be subjected to disadvantages in terms of increased human footprint, fragmentation, increased pollution, and susceptibility to diseases.

The natural low density of this shy and elusive species, its terrestrial ecology and its dependence on ecosystems that are often the first to be converted into agricultural land makes it extremely vulnerable to extinction.

The principal threat to the fauna of Southeast Asian region is the burgeoning human population, and resultant biomass demand which puts pressure on natural resources. Unavailability of adequate prey species and suitable habitat are putting additional pressure on all wildlife species including Hairy-nosed Otter.

# Threats Classification Scheme

**No past, ongoing, or future threats exist to this species.** False

**The threats to this species are unknown.** False

| Threat | Timing | Timing Score | Scope | Severity | Impact Score | Impact category |
|---|---|---|---|---|---|---|
| 1.1. Residential & commercial development -> Housing & urban areas | Ongoing | 3 | 2 | 3 | 8 | High |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 2.1.1. Agriculture & aquaculture -> Annual & perennial non-timber crops -> Shifting agriculture | Ongoing | 3 | 2 | 3 | 8 | High |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 2.1.2. Agriculture & aquaculture -> Annual & perennial non-timber crops -> Small-holder farming | Ongoing | 3 | 2 | 3 | 8 | High |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 2.1.3. Agriculture & aquaculture -> Annual & perennial non-timber crops -> Agro-industry farming | Ongoing | 3 | 2 | 3 | 8 | High |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 2.2.1. Agriculture & aquaculture -> Wood & pulp plantations -> Small-holder plantations | Ongoing | 3 | 2 | 3 | 8 | High |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 2.2.2. Agriculture & aquaculture -> Wood & pulp plantations -> Agro-industry plantations | Ongoing | 3 | 2 | 3 | 8 | High |

| | | | | | | |
|---|---|---|---|---|---|---|
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 2.4.3. Agriculture & aquaculture -> Marine & freshwater aquaculture -> Scale Unknown/ Unrecorded | Ongoing | 3 | 2 | 2 | 7 | Medium |
| Stresses: | 1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 4.1. Transportation & service corridors -> Roads & railroads | Ongoing | 3 | 1 | 1 | 5 | Low |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects<br>2. Species stresses-> 2.1. Species mortality | | | | | |
| 5.1.1. Biological resource use -> Hunting & trapping terrestrial animals -> Intentional use (species is the target) | Ongoing | 3 | 3 | 3 | 9 | High |
| Stresses: | 2. Species stresses-> 2.1 Species mortality | | | | | |
| 5.1.2. Biological resource use -> Hunting & trapping terrestrial animals -> Unintentional effects (species is not the target) | Ongoing | 3 | 2 | 2 | 7 | Medium |
| Stresses: | 2. Species stresses-> 2.1 Species mortality<br>2. Species stresses -> 2.3. Indirect species effects -> 2.3.2. Competition | | | | | |
| 5.3.4. Biological resource use -> Logging & wood harvesting -> Unintentional effects: (large scale) [harvest] | Ongoing | 3 | 2 | 2 | 7 | Medium |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation | | | | | |
| 7.2.11 Dams (size unknown) | Ongoing | 3 | 1 | 1 | 5 | Low |
| Stresses: | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 9.1.1. Pollution -> Domestic & urban waste water -> Sewage | Ongoing | 3 | 3 | 3 | 9 | High |
| Stresses: | 1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 9.1.3. Pollution -> Domestic & urban waste water -> Type Unknown/Unrecorded | Ongoing | 3 | 2 | 2 | 7 | Medium |
| Stresses: | 1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 9.3.2. Pollution -> Agricultural & forestry effluents -> Soil erosion, sedimentation | Ongoing | 3 | 2 | 3 | 8 | High |
| Stresses: | 1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 9.3.4. Pollution -> Agricultural & forestry effluents -> Type Unknown/Unrecorded | Ongoing | 3 | 2 | 1 | 6 | Medium |

| | | | | | | |
|---|---|---|---|---|---|---|
| Stresses: | 1. Ecosystem stresses-> 1.2. Ecosystem degradation<br>1. Ecosystem stresses-> 1.3. Indirect ecosystem effects | | | | | |
| 11.2. Climate change and severe weather-> Droughts | Future | 1 | 2 | 3 | 6 | Medium |
| Stresses | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation | | | | | |
| 11.4. Climate change and severe weather-> Storms and flooding | Future | 1 | 2 | 3 | 6 | Medium |
| Stresses | 1. Ecosystem stresses-> 1.1. Ecosystem conversion<br>1. Ecosystem stresses-> 1.2. Ecosystem degradation | | | | | |

# Conservation

*Lutra sumatrana* is listed on Appendix II of the CITES. It is legally protected in all the range countries. In Thailand all otter species have been protected since 1961 under the Wild Animals Preservation and Protection Act and are listed as endangered species in the Thailand Red Data Book (Nabhitabhata and Chanard 2005). In Viet Nam, otters are protected and their hunting and use is strictly banned under the Government Decree 32/2006. In Cambodia, the Hairy-nosed Otter is listed as Rare and is considered fully protected under the Law on Forestry 2002. In Malaysia, different levels of protection are accorded to otters. The Hairy-nosed Otter is protected in Peninsular Malaysia under the Wildlife Conservation Act 2010. In Sabah, the Hairy-nosed Otter is protected under the Wildlife Conservation Enactment 1997. In Sarawak all otter species are listed as protected animals under the First Schedule [Section 2(1)] PART II] of the Wild Life Protection Ordinance, 1998. In Indonesia, the Hairy-nosed Otter is protected under Law Number 7, 1999. It is not protected under Myanmar's Protection of Wildlife and Wild plants and Conservation of Natural Areas Law because the species was not recognized as occurring in Myanmar (Than Zaw et al. 2008).

## Conservation Actions In- Place

**Action Recovery Plan:** NA

**Systematic monitoring scheme:** NA

**Conservation sites identified:** NA

| Occur in at least one PA | Note |
|---|---|
| Yes | - |

**Percentage of population protected by PAs (0-100):** NA

**Area based regional management plan:** NA

**Invasive species control or prevention:** NA

**Harvest management plan:** NA

**Successfully reintroduced or introduced benignly:** NA

**Subject to ex-situ conservation:** NA

**Subject to recent education and awareness programmes:** NA

| Included in international legislation | Note |
|---|---|
| Yes | CITES Appendix II |

| Subject to any international management/trade controls | Note |
|---|---|
| Yes | CITES Appendix II |

## Important Conservation Actions Needed

| Conservation Actions | Note |
|---|---|
| 1.1. Land/water protection -> Site/area protection | - |
| 1.2. Land/water protection -> Resource & habitat protection | - |
| 2.1. Land/water management -> Site/area management | - |
| 2.3. Land/water management -> Habitat & natural process restoration | - |
| 3.2. Species management -> Species recovery | - |
| 3.4.1. Species management -> Ex-situ conservation -> Captive breeding/artificial propagation | - |
| 4.1. Education & awareness -> Formal education | - |
| 4.2. Education & awareness -> Training | - |
| 4.3. Education & awareness -> Awareness & communications | - |
| 5.1.3. Law & policy -> Legislation -> Sub-national level | - |
| 5.4.2. Law & policy -> Compliance and enforcement -> National level | - |
| 5.4.3. Law & policy -> Compliance and enforcement -> Sub-national level | - |
| 6.1. Livelihood, economic & other incentives -> Linked enterprises & livelihood alternatives | - |

## Research Needed

| Research | Note |
|---|---|
| 1.1. Research -> Taxonomy | - |
| 1.2. Research -> Population size, distribution & trends | - |
| 1.3. Research -> Life history & ecology | - |
| 1.4. Research -> Harvest, use & livelihoods | - |
| 1.5. Research -> Threats | - |
| 1.6. Research -> Actions | - |
| 2.1. Conservation Planning -> Species Action/Recovery Plan | - |
| 3.1. Monitoring -> Population trends | - |

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