

Aonyx cinereus - (Illiger, 1815)

ANIMALIA - CHORDATA - MAMMALIA - CARNIVORA - MUSTELIDAE - *Aonyx cinereus*

Common Names: Asian Small-clawed Otter (English), Kurzkralotten (German), Loutre cendrée (French), Nutria Cenicienta (Spanish; Castilian), Nutria Inerme Asiatica (Spanish; Castilian), Oriental Small-clawed Otter (English), Small-clawed Otter (English), Zwergotter (German), Berang-berang cakar kecil (Indonesia)

Synonyms: *Lutra cinerea* Illiger, 1815; *Amblonyx cinereus* (Illiger, 1815); *Aonyx cinerea* (Illiger, 1815).

Change *Aonyx 'cinerea'* to *Aonyx 'cinereus'*. '*cinerea*' is adjectival and '*onyx*' is masculine, so the species-group name should be in the form '*cinereus*'. Add as synonym '*Aonyx cinerea* (Illiger, 1815) [orth. error]

Taxonomic Note:

The spelling of the species epithet in *Aonyx cinerea* (Illiger, 1815) was incorrect; the genus name '*Aonyx*' is masculine and hence the adjectival species name '*cinerea*' should be changed to have a masculine ending. The species is now correctly named as *A. cinereus* (Illiger, 1815). Also referred to as *Amblonyx cinereus* (Illiger, 1815), *Amblonyx concolor* Rafinesque, 1832 and *Amblonyx cinerea* Pocock 1941. Two subspecies were reported (Pocock 1941) (1) *A. c. concolor* in northeast India, Myanmar extending to Sumatra and (2) *A. c. nirnai* in the hill ranges of southern India (Hussain *et al.* 2011).

Red List Status

VU - Vulnerable, A2cde+3cde (IUCN version 3.1)

Red List Assessment

Assessment Information

Date of Assessment: 19/02/2020

Reviewed? 05/03/2020

Assessor(s): Wright, L., de Silva, P., Chan, B. & Reza Lubis, I.

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

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Assessment Rationale

The species has undergone a dramatic decline in China with only three records from 2006 to the present (Li and Chan 2017). In India, its distribution range has decreased, for example, in the Sundarbans (Sanyal 1991). In Cambodia, it is only found near Virachey National Park (Heng *et al.* 2016). Given the extent of loss of habitat that is occurring in south and southeast Asia and the intensity of poaching the reduction in population has been observed in many parts of its range (Hussain 1993, Melisch *et al.* 1996, Meena 2001, Hussain 2002, Gonzalez 2010, Hussain *et al.* 2011). Massive destruction of wetland forests in Indonesia has reduced the species' habitat (Margono *et al.* 2014), and also habitat conversion to oil palm plantations in Sabah. The threats to Small-clawed Otter are prominent in its western range so much so that over the last 60 years its range has shrunk considerably moving west to east from Himachal Pradesh to Assam (Hussain *et al.* 2011). Likewise, in Indochina, the range of the species is shrinking, and hunting appears to play a major role in its rapid decline in the eastern end of its global range.

Although quantitative data on population sizes and trends are lacking, it is suspected that the global population of the Asian Small-clawed Otter has declined by >30% over the past 30 years (three generations based on Pacifici *et al.* 2013). Further aggravation of the ongoing threats to the species, due to lack or failure of adequate conservation and protective measures, may lead to a suspected future decline in population by at least 30% over the next 30 years. In view of these, the species has been listed as Vulnerable under criterion A2cde+3cde.

Reasons for Change

Reason(s) for Change in Red List Category from the Previous Assessment: NA

Distribution

Geographic Range

The Asian Small-clawed Otter has a large distribution range, extending from India in South Asia eastwards through Southeast Asia to Palawan (Philippines), Taiwan and southern China (Mason and Macdonald 1986, Wozencraft 1993, Hussain 2000, Hussain *et al.* 2011). In India it occurs in West Bengal, Assam and Arunachal Pradesh as well as in southern Indian hill ranges of Coorg (Karnataka), Ashambu, Nilgiri and Palni hills (Tamil Nadu) and some places in Kerala (Pocock 1941, Prater 1971, Hussain 2000, Hussain *et al.* 2011). It used to occur in the Western Himalayan foothills (Himachal Pradesh) but recent surveys have not found its evidence (Hussain 2002, Hussain *et al.* 2011). Its presence has recently been confirmed from several survey sites in Odisha in eastern India (Mohapatra *et al.* 2014). This species inhabits in Malay peninsula, Sumatra including small islands in eastern part of Sumatra, Java and Borneo. It also occurs in all parts of Borneo Sabah, Sarawak and Kalimantan up to 1300 m on Usun Apau, Sarawak (Payne *et al.* 2005). There were records that small-clawed otter populations had established in the wild in England after escaping from captivity (Jefferies 1990, 1991).

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): 2000
 Depth Lower Limit (in metres below sea level): 0
 Depth Upper Limit (in metres below sea level): 0
 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
Bangladesh	Extant	Native	-	Resident
Bhutan	Extant	Native	-	Resident
Brunei Darussalam	Extant	Native	-	Resident
Cambodia	Extant	Native	-	Resident
China	Extant	Native	-	Resident
India	Extant	Native	-	Resident
India -> Arunachal Pradesh	Extant	Native	-	Resident
India -> Assam	Extant	Native	-	Resident
India -> Himachal Pradesh	Extant	Native	-	Resident
India -> Karnataka	Extant	Native	-	Resident
India -> Kerala	Extant	Native	-	Resident
India -> Tamil Nadu	Extant	Native	-	Resident
India -> West Bengal	Extant	Native	-	Resident
Indonesia	Extant	Native	-	Resident
Indonesia -> Sumatra	Extant	Native	-	Resident
Indonesia -> Java	Extant	Native	-	Resident

Indonesia -> Kalimantan	Extant	Native	-	Resident
Lao People's Democratic Republic	Extant	Native	-	Resident
Malaysia	Extant	Native	-	Resident
Myanmar	Extant	Native	-	Resident
Nepal	Extant	Native	-	Resident
Philippines	Extant	Native	-	Resident
Singapore	Extant	Native	-	Resident
Taiwan, Province of China	Extant	Native	-	Resident
Thailand	Extant	Native	-	Resident
United Kingdom	Extant	Introduced	-	Resident
United Kingdom -> Great Britain	Extant	Introduced	-	Resident
Viet Nam	Extant	Native	-	Resident

Population

In most of their range the Asian Small-clawed Otter is sympatric with Smooth-coated and Eurasian otters. In India, all three species occur in the Western Ghats and in northeast India where the small-clawed otters occur in small groups of two to four individuals. In the Western Ghats, similar occupancy has been recorded in protected areas as well as in tea and coffee plantations (Prakash *et al.* 2012). They were once common in the mangroves of East Calcutta and Sundarbans (Sanyal 1991). The Asian Small-clawed Otters occur in freshwater and peat swamp forests, rice fields, lakes, streams, reservoirs, canals, mangrove and along the coast (Sivasothi and Nor 1994). In Malaysia and Indonesia, they occur in coastal wetlands, and along the banks of paddy fields (Shariff 1985; Nor 1989; Melisch *et al.* 1996). Comparable data from Java, Myanmar, and India revealed that the Asian Small-clawed Otters have a high climatic and trophic adaptability in south and southeast Asian tropics, occurring from coastal wetlands up to mountain streams (Melisch *et al.* 1996).

A reliable population estimate of the Asian Small-clawed Otter is lacking. Around 15 individuals were seen in a group in Malaysia (Wayre 1978), four to eight in coastal Sabah (Mason and Macdonald 1986) and two to four in India. In south China and Cambodia, the population seems to be very small and declining.

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?	Qualifier	Justification
Yes	Inferred	-

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
30%	Reduction	Inferred	-

Basis?

a) direct observation, 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 reason of population reduction.

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? No

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 typical habitats of the Asian Small-clawed Otter in west Java are wetland systems having pools and stagnant water, including shallow stretches, with depth less than 1 m. These habitats are represented by freshwater swamps, meandering rivers, mangroves and tidal pools. In Western Ghats, India, the species prefers high-altitude areas with stream pools (Perinchery et al. 2011). In southern Western Ghats, India, the species occupied narrow, fast flowing and rocky streams, with dense vegetation and tall grasses on both sides of the bank which provide adequate escape cover (Raha and Hussain 2016). Irrigated rice fields with many crab species (*Brachyura*) or golden-apple snails (*Pomacea canaliculata*) are extensively used by the Small-clawed Otter if vegetation cover is ample. These can act as suitable man-made habitats (Melisch et al. 1996; Aadreaan and Usio 2017). The small-clawed otter was common in rice fields adjacent to mangroves along coastal areas in Peninsular Malaysia (Shariff, 1985; Nor, 1989). In Sabah, they were found to occur in riparian reserves within oil palm plantations neighbouring lowland dipterocarp rainforests (Laws, 2016). In Laos, this species was found along main rivers of Nakai-Nam Theun National Protected Area that is dominated by old growth, dry-evergreen forest (Coudrat, 2016). In Thailand, the rapid-flowing upper areas of the Huay Kha Khaeng are dominated by *Lutra lutra*, the slowly meandering river near the dam and the dam itself were used by *Lutrogale perspicillata* while the Asian Small-clawed Otter occurred mostly in the middle sections, but also at the upper reaches. When different otter species occurred in the same site there was evidence of difference in use of the habitats. Signs of the of Small-clawed Otter were found wandering further away from the river than the two other species, between patches of reeds and river debris where crabs were more likely to be found (Kruuk et al. 1994).

In west Java, its presence is positively correlated with slow flowing and stagnant broad rivers and smaller streams, depicting a distinct decline in preference from slow to deep-water bodies. On the other hand, they also use shallow fast-flowing mountain creeks narrower than 5 m, particularly when the course of the streams includes natural pools. In rice fields, they chose slow-flowing irrigation channels narrower than 2 m and with a varied, moderate or low vegetation structure. Like Smooth-coated Otter, the Asian Small-clawed Otter avoids

bare and open areas that do not offer any shelter (Melisch *et al.* 1996). It prefers pond areas and rice fields over rivers, whereas it uses mangroves and lakes in proportion to their availability (Melisch *et al.* 1996). In riverine systems it prefers moderate and low vegetation structure, though their presence was also observed from banks with poor vegetation cover. Neither in ponds nor in rice field areas did they show preference for any of the vegetation structure categories, though poor nor bare structural conditions were the least favoured both in riverine and pond areas and along the rice fields.

The Small-clawed Otter is adapted to feed on invertebrates as evident from the last two upper teeth (pm4 and m3) which are larger in size for crushing the exoskeleton of crabs and other hard shelled prey. The Small-clawed Otter feeds mainly on crabs, snails and other molluscs, insects and small fish such as gouramis and catfish (Pocock 1941, Wayre 1978, Hon *et al.* 2010). They supplement their diet with rodents, snakes and amphibians.

During a study in Malaysia, Foster-Turley (1992) examined 328 scats and found that around 80.8% of the scats consisted of crabs, 77.8% fish, 12.5% insects and 4.0% snails. This is the first study in which quantitative information on the diet of wild small-clawed otter was made. This study revealed that though the small-clawed otter is adapted for an invertebrate diet, it supplements its diet with large quantity of fish. Apart from crabs, the major prey item for small-clawed otter was the mudskipper (*Gobioides*). This was recorded in the 48% of the scats. The other important prey was *Trichogaster spp.* and *Anabantidae* fish, which were represented in 27.4% scats. As evident from the scats the major fish prey were *Trichogaster spp.* 20.7%, *Anabis testudineus* 5.2%, *Clarius spp.* 2.4% and *Channa striatus* 1.5%. Apart from these the small-clawed otter in Malaysia also fed on snakes, frogs and insects. Foster-Turley (1992) also examined the diet composition at four different times of the year coinciding with different water levels in the rice fields and concluded that the diet of the small-clawed otter was significantly different at different times of the year. Only the relatively rare dietary components of rodents, snails and snakehead fish (*Clarius spp.*) showed no significant difference among seasons. Crabs were always the most prevalent food items, but the frequency of occurrence in scats varied from 70.4% to 93.2%. Similarly, though the mudskippers were the second most important food items, they were consumed in significantly different quantities in different seasons ranging from 27.3% to 63.6%. The amount of *Trichogaster*, *Anabis* and the *Anabantidae* also varied considerably. This difference in the use of these prey are most likely due to difference in the life cycle and availability of these prey at different times of the year.

Preliminary analysis of the small-clawed otter spraints from west Java showed their preference for crabs in both natural and man-made habitats (Melisch *et al.* 1996). In 87% of all collected spraints, crabs formed the dominant prey. Remaining part of the spraints consisted of fish bones and scales, ribs and vertebrae, unidentified mammalian hair, shrimps, insects and snake scales. In the Huay Kha Khaeng, Thailand almost 90% of the spraints of small-clawed otter contained remains of crabs *Potamon smithianus*, whereas 5% scats contained each of Fish and Amphibians. Apart from this, in few spraints, evidences of rodents and other arthropods were also found. Kruuk *et al.* (1994) estimated the preference for various size classes of crabs eaten by small-clawed otter. Of the 92 scats, 14 scats had crabs of size 10-14 cm, 42 scats had 15-19 cm, 26 had 20-24 cm, 12 had 25-29 cm, 4 had 30-34 and 1 had 40-44 cm. The size distribution of crabs taken by small-clawed otter was similar to what was available, and there was not much evidence for selection of specific size. In west Java a preliminary estimate of preferred size confirmed an average of 3-4 cm carapace width (Melisch *et al.* 1996).

The sexual behaviour of small clawed otter has been observed in as young as 18 months old. In captivity, successful breeding has been reported for 2.1 year females and 2.8 year males. The youngest animal to reproduce was a female of 13 months captive born at Bronx Zoo, and the oldest was a 15 years male at the National Zoo, USA (Foster-Turley and Engfer 1988). The duration of oestrous cycle in females ranges from 28 to 30 days, with breeding occurring the year round (Lancaster 1975). Some facilities report this cycle extending to "every few months" with older animals. Oestrus lasts from one to thirteen days. Behavioural signs of the onset of oestrus may include increased rubbing and marking.

In captivity, mating usually takes place in the water, but has also been observed on land on a few occasions. In most cases the exact gestation period could not be ascertained but it is believed to be around 60-86 days (Lancaster 1975, Sobel 1996). The litter size ranges from 2-7. Life span in captivity is around 11 years (Crandall 1964).

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	Resident	Suitable	Yes
1.8. Forest -> Forest - Subtropical/Tropical Swamp	Resident	Suitable	Yes
1.9. Forest -> Forest - Subtropical/Tropical Moist Montane	-	Unknown	-

3.6. Shrubland -> Shrubland - Subtropical/Tropical Moist	-	Unknown	-
4.6. Grassland -> Grassland - Subtropical/Tropical Seasonally Wet/ Flooded	Resident	Suitable	Yes
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	No
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)	-	Suitable	No
5.6. Wetlands (inland) -> Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha)	-	Suitable	No
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)	-	Suitable	No
5.9. Wetlands (inland) -> Wetlands (inland) - Freshwater Springs and Oases	-	Marginal	-
5.13. Wetlands (inland) -> Wetlands (inland) - Permanent Inland Deltas	Resident	Suitable	Yes
5.14. Wetlands (inland) -> Wetlands (inland) - Permanent Saline, Brackish or Alkaline Lakes	-	Marginal	-
5.15. Wetlands (inland) -> Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Lakes and Flats	-	Marginal	-
5.16. Wetlands (inland) -> Wetlands (inland) - Permanent Saline, Brackish or Alkaline Marshes/Pools	-	Marginal	-
5.17. Wetlands (inland) -> Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Marshes/Pools	-	Marginal	-
9.10. Marine Neritic -> Marine Neritic - Estuaries	-	Suitable	Yes
12.5. Marine Intertidal -> Marine Intertidal - Salt Marshes (Emergent Grasses)	Resident	Suitable	Yes
13.4. Marine Coastal/Supratidal -> Marine Coastal/Supratidal - Coastal Brackish/Saline Lagoons/Marine Lakes	-	Suitable	No
13.5. Marine Coastal/Supratidal -> Marine Coastal/Supratidal - Coastal Freshwater Lakes	-	Suitable	No
15.2. Artificial/Aquatic & Marine -> Artificial/Aquatic - Ponds (below 8ha)	-	Marginal	-
15.3. Artificial/Aquatic & Marine -> Artificial/Aquatic - Aquaculture Ponds	-	Marginal	-
15.7. Artificial/Aquatic & Marine -> Artificial/Aquatic - Irrigated Land (includes irrigation channels)	Resident	Suitable	Yes
15.8. Artificial/Aquatic & Marine -> Artificial/Aquatic - Seasonally Flooded Agricultural Land	Resident	Suitable	No

15.9. Artificial/Aquatic & Marine -> Artificial/Aquatic - Canals and Drainage Channels, Ditches	Resident	Suitable	No
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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

Age at maturity: female or unspecified
2 Years

Age at Maturity: Male
2 Years

Movement Patterns

Movement Patterns: The species is not migratory

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

For information on Use see Threats.

Subsistence:	Rational:	Local Commercial:	Further detail including information on economic value if available:
Yes	-	-	-

National Commercial Value: Yes

International Commercial Value: Yes

End Use	Subsistence	National	International	Other (please specify)
1. Food - human	true	true	-	-
9. Construction or structural materials	true	-	-	-
10. Wearing apparel, accessories	true	-	-	-
Pet trade	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? (Yes)

Explanation of non-consumptive use: The species may be serve as the subject of in-situ research, promoting tourism, and as a flagship species for wetland conservation

Threats

Threats to Small-clawed Otter is similar to that of Smooth-coated and Eurasian otters. Throughout Asia, the potential threat to its continued survival is destruction of its habitats due to changing land use pattern in the form of developmental activities. In many parts of Asia, the habitats have been reduced due to reclamation of peat swamp forests and mangroves, aquaculture activities along the intertidal wetlands and loss of hill streams. In India the primary threats are loss of habitats due to tea and coffee plantations along the hills, in the coastal areas it is the loss of mangroves due to aquaculture and increased human settlements and siltation of smaller hill streams due to deforestation. Increased influx of pesticides into the streams from the plantations reduces the quality of the habitats. The threat posed by poaching is still very significant in many parts of India, and SE Asia and will certainly count as a major threat that needs to be constantly monitored. Poaching for pelt has been reported from across the Western Ghats in south India (Prakash *et al.* 2012). The growing threat to Small-clawed otters is the illegal pet trade. Small-clawed otters are charismatic and popular attractions in zoos and increasingly in Asian pet shops, pet fairs, and even in coffee shops (Gonzalez 2010, Aadrean 2013, Gomez and Bouhuys 2018). Currently, many of the pet trade has moved online and is difficult to control (Gomez and Bouhuys 2018). In addition, conflict with fish farmers or fishermen also appear as an actual threat.

Another important threat to Asian Small-clawed Otter is reduction in prey biomass due to over-exploitation, which has rendered its remaining natural habitats unsustainable. Pollution is probably the single most important factor causing decline in the population of many fish species (Dehadrai and Ponniah 1997). Reduction in prey biomass affects otter population, and organochlorine pesticides and heavy metal contamination interferes with their normal physiology leading to a decline in population. The threats to Small-clawed Otter is prominent in its western range so much so that since last 60 years its range has shrunk considerable moving west to east from Himachal Pradesh to Assam (Hussain *et al.* 2011).

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 1. Ecosystem stresses->1.2 Ecosystem degradation 1. Ecosystem stresses->1.2 Indirect ecosystem effects					
2.1.1. Agriculture & aquaculture -> Annual & perennial non-timber crops -> Shifting agriculture	Ongoing	3	2	2	7	Medium
Stresses:	1. Ecosystem stresses->1.1 Ecosystem conversion 1. Ecosystem stresses->1.2 Ecosystem degradation					
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 1. Ecosystem stresses->1.2 Ecosystem degradation					
2.4.3. Agriculture & aquaculture -> Marine & freshwater aquaculture -> Scale Unknown/ Unrecorded	Ongoing	3	1	1	5	Low
Stresses:	1. Ecosystem stresses->1.3 Indirect ecosystem effects					
4.1. Transportation & service corridors -> Roads & railroads	Ongoing	3	2	3	8	High
Stresses:	1. Ecosystem stresses->1.3 Indirect ecosystem effects					

5.1.1. Biological resource use -> Hunting & trapping terrestrial animals -> Intentional use (species is the target)	Ongoing	3	2	3	8	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					
5.1.3. Biological resource use -> Hunting & trapping terrestrial animals -> Persecution/control	Ongoing	3	1	1	5	Low
Stresses:	2. Species stresses-> 2.1. Species mortality					
5.3.5. Biological resource use -> Logging & wood harvesting -> Motivation Unknown/Unrecorded	Ongoing	3	2	2	7	Medium
Stresses:	1. Ecosystem stresses-> 1.1. Ecosystem conversion 1. Ecosystem stresses-> 1.2. Ecosystem degradation					
5.4.4. Biological resource use -> Fishing & harvesting aquatic resources -> Unintentional effects: (large scale) [harvest]	Ongoing	3	2	3	8	High
Stresses:	1. Ecosystem stresses-> 1.2. Ecosystem degradation 2. Species stresses-> 2.1. Species mortality 2. Species stresses -> 2.3. Indirect species effects -> 2.3.2. Competition					
7.2.11. Natural system modifications -> Dams & water management/use -> Dams (size unknown)	Ongoing	3	2	2	7	Medium
Stresses:	1. Ecosystem stresses-> 1.1. Ecosystem conversion 1. Ecosystem stresses-> 1.2. Ecosystem degradation 1. Ecosystem stresses-> 1.3. Indirect ecosystem effects					
9.1.1. Pollution -> Domestic & urban waste water -> Sewage	Ongoing	3	2	3	8	High
Stresses	1. Ecosystem stresses-> 1.2. Ecosystem degradation 1. Ecosystem stresses-> 1.3. Indirect ecosystem effects					
9.3.4. Pollution -> Agricultural & forestry effluents -> Type Unknown/Unrecorded	Ongoing	3	2	2	6	Medium
Stresses:	1. Ecosystem stresses-> 1.2. Ecosystem degradation 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 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 1. Ecosystem stresses-> 1.2. Ecosystem degradation					

Conservation

From 1977 to 2019, The Asian Small-clawed Otter had been listed on CITES Appendix II. However, most range countries are not able to control the clandestine trade leading to extensive poaching. Recently, CITES has up-listed this species to Appendix I. However, over the range of its distribution, the small-clawed otter is still not protected in Indonesia, Cambodia, Malaysia (except Sabah and Sarawak), Brunei Darussalam and Nepal (Duplaix and Savage, 2018). In India, the species is protected under Schedule II Part II of the Indian Wild Life (Protection) Act, 1972. The Asian Small-clawed Otter was once common in the streams and wetlands of south and Southeast Asia but is now restricted to a few protected areas. Creation of networks of Protected Areas, identification of sites as wetlands of national and international importance under the Ramsar Convention has, to some extent, halted the degradation of its habitat.

Over the years the IUCN SSC Otter Specialist Group has developed a cadre of biologists across Asia to conduct field surveys and to popularise otter conservation by promoting otters as ambassadors of the wetlands. However, concerted efforts to conserve this species are needed. For the long-term survival of the species, policy-based action, research on factors affecting its survival, habitat-based action on creation and where required expansion of protected areas, and communication and awareness building actions are needed.

Conservation Actions In- Place

Action Recovery Plan	Not e
No	-

Systematic monitoring scheme	Not e
No	-

Conservation sites identified	Not e
Yes, over part of range	-

Occur in at least one PA	Not e
Yes	-

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

Area based regional management plan	Not e
Yes	-

Invasive species control or prevention	Not e
Not Applicable	-

Harvest management plan	Not e
No	-

Successfully reintroduced or introduced benignly	Not e
No	-

Subject to ex-situ conservation	Not e
Unknown	-

Subject to recent education and awareness programmes	Not e

Yes	-
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Included in international legislation	Note
Yes	CITES Appendix I

Subject to any international management/trade controls	Note
Yes	CITES Appendix I

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	-
4.2. Education & awareness -> Training	-
4.3. Education & awareness -> Awareness & communications	-
5.1.3. Law & policy -> Legislation -> Sub-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	-
2.3. Conservation Planning -> Harvest & Trade Management Plan	-
3.1. Monitoring -> Population trends	-

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