**Lutra lutra**, Eurasian Otter

Assessment by: Roos, A., Loy, A., de Silva, P., Hajkova, P. & Zemanová, B.

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Taxonomy

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>Chordata</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Mustelidae</td>
</tr>
</tbody>
</table>

Taxon Name: *Lutra lutra* (Linnaeus, 1758)

Synonym(s):
- *Lutra nippon*
- *Viverra lutra* Linnaeus, 1758

Regional Assessments:
- Mediterranean
- Europe

Common Name(s):
- English: Eurasian Otter, Common Otter, European Otter, European River Otter, Old World Otter
- French: Loutre commune, Loutre de rivière, Loutre d’Europe
- Spanish: Nutria, Nutria Común

Taxonomic Notes:
Seven subspecies were reported by Pocock (1941) (1) *L. l. lutra* in Europe and northern Africa; (2) *L. l. nair* in southern India and Sri Lanka; (3) *L. l. monticola* in northern India (Himachal Pradesh, Sikkim and Assam) Nepal, Bhutan and Myanmar; (4) *L. l. kutab* in northern India - Kashmir; (5) *L. l. aurobrunnea* in Garhwal Himalayas in northern India and higher altitudes in Nepal; (6) *L. l. barang* in southeast Asia (Thailand, Indonesia and Malaysia); and (7) *L. l. chiensis* in southern China and Taiwan. Imaizumi and Yoshiyuki (1989) considered Japanese Otters a distinct species (*L. nippon*). It is treated separately by Wozencraft in Wilson and Reeder (2005), but that approach is not followed here pending further review.

Assessment Information

Red List Category & Criteria: Near Threatened ver 3.1

Year Published: 2015

Date Assessed: June 20, 2014

Justification:
The Eurasian Otter is considered to be Near Threatened due to an ongoing population decline, but at a rate no longer exceeding 30% over the past three generations or 23 years (generation length based on Pacifici et al. 2013). It nearly qualifies for a threatened listing under criterion A2cde. In recent years, there has been ample evidence that its population is recovering in western Europe and that viable subpopulations occur in the former USSR and many parts of south and southeast Asia. The information on Eurasian Otter occurrence in the Russian Federation especially in Siberia and in the Russian Far East is much improved. The Eurasian Otter is common on the Kamchatka Peninsula and is also on Chukotka Peninsula. There are a number of new records of Eurasian Otter from different parts of Russia, Kazakhstan and Mongolia (Dr. Alexander P. Saveljev, Department of Animal Ecology, Head, Russian
The species was listed on The IUCN Red List as Near Threatened in 2004 and 2008 based on declines in parts of the range, the lack of information from many parts of its range, and the sensitivity of the species to sudden changes in threats. The listings also took into account the status of subpopulations in the far east - China and Indo-China, where it was thought they might be declining because of possible over-exploitation.

This Near Threatened assessment is more of a precautionary listing, as it indicates that while the recovery in western Europe is genuine that the conservation actions for this species need to be sustained. Besides, there is still concern about what is happening in parts of its range in Asia due increasing habitat loss and poaching.

Previously Published Red List Assessments
2008 – Near Threatened (NT)
2004 – Near Threatened (NT)
2000 – Vulnerable (VU)
1996 – Lower Risk/least concern (LR/lc)

Geographic Range

Range Description:
The Eurasian Otter has one of the widest distributions of all Palaearctic mammals (Ando and Corbet 1966). Its range covers parts of three continents: Europe, Asia and Africa. Its current distribution in Europe is marked by a large corridor, stretching from central Denmark, via the western parts of Germany, the Netherlands, Belgium, Luxembourg, the eastern parts of France, Switzerland, the western parts of Austria to central Italy, where the otter is extinct or reduced to small and sometimes isolated subpopulations. Information for Russia, which forms a link between Europe and Asia, is fragmented. It seems that the otter is distributed throughout the country with the exception of the tundra and the northern regions with permanent frost. The southern border of the Eurasian Otter’s range in the Near and Middle East is formed by Israel, Jordan, Iraq and Iran. It is also reported from Morocco, Algeria and Tunisia in Africa north of Sahara. In south Asia the species has been reported from almost all countries especially from the Himalayan river systems in Pakistan, Afghanistan, India, Nepal, Bhutan and Myanmar and eastwards throughout Southeast Asia to Japan where it believed to be extinct.

There are several open questions about its occurrence in the Southeast Asian region. It seems that the Eurasian Otter reached the island of Sumatra but, did not reach the island of Java. Conroy et al. (1998) are not sure if the evidence of otters on the island of Borneo really relates to the Eurasian Otter. Its occurrence has been confirmed from South Korea, southern China, Viet Nam, Cambodia, Lao PDR, Myanmar and Bangladesh (Lekagul and McNeely 1988, Hussain 1999). In India it occurs in northern, northeast and southern India. Formerly widely distributed in Japan, it is now believed to be extinct (Ando et al. 2007). Once widespread in the rivers of northern Mongolia (Mallon 1985), along the rivers of Mongol Altai Mountain Range, and along the Halh River in Ikh Hyangan Mountain Range (Bannikov 1954, Dulamtseren 1970, Sokolov and Orlov 1980). It has also been reported from downstream of the
Tengis River in northern parts of Hövsgöl Mountain Range (Tsagaan 1975, 1977) and around the Eröö River Basin in western Hentii Mountain Range (Tsendjav 2005). The Eurasian Otter can also be found occasionally along the Tes River in northern Hangai.

**Country Occurrence:**

**Native:** Afghanistan; Albania; Algeria; Andorra; Armenia (Armenia); Austria; Azerbaijan; Bangladesh; Belarus; Belgium; Bhutan; Bosnia and Herzegovina; Bulgaria; Cambodia; China; Croatia; Czech Republic; Denmark; Estonia; Finland; France; Georgia; Germany; Gibraltar; Greece; Hong Kong; Hungary; India; Indonesia; Iran, Islamic Republic of; Iraq; Ireland; Israel; Italy; Japan; Jordan; Kazakhstan; Korea, Democratic People's Republic of; Korea, Republic of; Kyrgyzstan; Lao People's Democratic Republic; Latvia; Lebanon; Liechtenstein; Lithuania; Luxembourg; Macedonia, the former Yugoslav Republic of; Moldova; Mongolia; Montenegro; Morocco; Myanmar; Nepal; Netherlands; Norway; Pakistan; Poland; Portugal; Romania; Russian Federation; San Marino; Serbia (Serbia); Slovakia; Slovenia; Spain; Sri Lanka; Sweden; Switzerland; Syrian Arab Republic; Taiwan, Province of China; Tajikistan; Thailand; Tunisia; Turkey; Turkmenistan; Ukraine; United Kingdom; Uzbekistan; Viet Nam
Distribution Map

Lutra lutra

Range

- Extant (resident)

Compiled by:
IUCN (International Union for Conservation of Nature)
Population

In spite of several studies, the status of its population is not known from many parts of its range, particularly from North Africa and Asia. The overall estimate of the population in United Kingdom was around 10,395 individuals in 2004 (JNCC 2007). The status of its distribution has been reviewed by Conroy and Chanin (1998) which gives a complete picture of its occurrence, though information on its abundance is lacking in this review. As far as its abundance is concerned limited information is available so as to get a clear picture of its status. In Shetland, otters averaged 1/km of shore, but each otter used several, overlapping km of shore. An estimated nine adult female produced a mean of total 5.6 litters/year. The estimated juvenile female per 100 female attaining the first reproduction was 33.7 individuals in Shetland (Kruuk et al. 1989). In central Finland between 1985 and 2003 the temporal and spatial variation in the density of otter population was 52 otters, including 16 cubs in 11 litters in an area of 1,650 km² in 2002–2003. Harris et al. (1995) estimated the density of otters in England as one adult per 27 linear km of river (1/24 km in the ‘high density’ area of Scotland. However, such information is lacking from other range countries. There is absolutely no information about its population status in Asia where it is believed to be under tremendous pressure because of poaching.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The Eurasian Otter lives in a wide variety of aquatic habitats, including highland and lowland lakes, rivers, streams, marshes, swamp forests and coastal areas independent of their size, origin or latitude (Mason and Macdonald 1986). In Europe they are found in the brackish waters from the sea level up to 1,000 m in the Alps (Ruiz-Olmo and Gosalbez 1997) and above 3,500 m in the Himalayas (Prater 1971) or 4,120 m in Tibet (Mason and Macdonald 1986). In the Indian sub-continent, Eurasian Otters occur in cold hill and mountain streams. During summer (April - June) in the Himalayas they may ascend up to 3,660 m. These upward movements probably coincide with the upward migration of the carp and other fish for spawning. With the advent of winter the otters come down to lower altitudes (Prater 1971). In a study conducted in Thailand in Huai Kha Khaeng where the Eurasian, Smooth-coated and Small-clawed Otters live sympatrically, Kruuk et al. (1994) found that the Eurasian Otters used rapidly flowing upper parts of the river. In Sri Lanka the Eurasian Otter was living in the headwaters of all the five river systems but not in the estuaries (de Silva 1996).

In most parts of its range, its occurrence is correlated with bank side vegetation showing importance of vegetation to otters (Mason and Macdonald 1986). Otters in different regions may depend upon differing features of the habitat, but to breed, they need holes in the river bank, cavities among tree roots, piles of rock, wood or debris. The Eurasian Otters are closely connected to a linear living space. Most portion of their activity is concentrated to a narrow strip on either side of the interface between water and land (Kruuk 1995). Otter distribution in coastal areas especially the location of holts, is strongly correlated with the presence of freshwater (Kruuk et al. 1989, Beja 1992).

Within the group home range, shared by resident adult females, each had her own core area. Resident males had larger home ranges in more exposed parts of the coast which overlapped with other males and with at least two female group ranges. Male and female transients moved through group ranges, relegated to less favoured holts, habitat and food. In freshwater home ranges are longer for both sexes (Kruuk 1995). Erlinge (1969) suggested that males were hierarchical and territorial, influenced by sexual
factors, while female ranges were influenced by food and shelter requirements of the family group. Green et al. (1984) and Kruuk (1995) found that adult males spent most of their time along the main rivers, whereas adult females occupied tributaries or lakes, as they did in Austria (Kranz 1995). Rosoux (1995) found no sexual differences in habitat utilization and considerable overlaps in range. Young animals usually occupied peripheral habitat, but Green and Green (1983) found differences between immature and mature young males, the later having access to all available habitat and the other restricted to marginal habitat, supplemented by visits to the main river when vacant, temporally or spatially. While males generally have larger ranges than females in the same habitat, sizes vary according to the type and productivity of the habitat, and methods of measuring ranges vary from study to study.

Like most Lutra species, fish is the major prey of Eurasian Otters sometimes exceeding more than 80% of their diet (Erlinge 1969, Webb 1975, Ruiz-Olmo and Palazon 1997). In addition to fish a whole range of other prey items have been recorded in their diet in variable proportions. These include aquatic insects, reptiles, amphibians, birds, small mammals, and crustaceans (Jenkins et al. 1980, Adrian and Delibes 1987, Skaren 1993). In a study conducted in Sri Lanka, Silva (1996) reported that the overall diet of the Eurasian otters consisted of 81.2% of crab, 37.5% fish and 8.7% frog. In addition to these the diet also included small quantities of water snakes, birds, small mammals and insects.

The percentage of crab in the diet of the Eurasian Otters in Sri Lanka varied from 72% to 85%, and fish from 25-31%. There was significant seasonal variation in the diet in different habitats. The relative importance of fish in the diet was significantly higher in the reservoirs and lakes than the rivers and streams. Crabs were more important to otters inhabiting streams than those inhabiting rivers and lakes. Crabs were eaten more than fish during the monsoon (de Silva 1997). However, in Huai Kha Kheng, Thailand 76% of the spraint had fish, 64% amphibians and 7% crab (Kruuk et al. 1994). The Eurasian Otter is capable of taking fish as large as 9 kg (Chanin 1985), however, many studies in Europe have revealed that the fish consumed by the Eurasian Otters are relatively small with a median length of 13 cm (Kruuk 1995).

The Eurasian Otter is largely solitary and the adult otters tend not to associate with other adults except for reproduction. The family group of mother and offspring is the most important unit of otter society. In Shetland, where several adult animals used the same stretch of coast, encounters between adults were rare (Kruuk 1995) and the species was strikingly non-social. Kranz (1995) found evidence of social group formation beyond the occasional associations of two or more family groups, which suggests that under some circumstances otters of all ages and sexes may form temporary mutually tolerant gatherings.

In most of its range the Eurasian Otter is predominantly nocturnal (Green et al. 1984). The exception is Shetland, where otters were entirely diurnal (Kruuk 1995). Green et al. (1984) found that activity was largely circumscribed by the solar rhythm so that the duration of activity varied through the year with night length. The reverse situation was found in Shetland with activity restricted by the day length (Kruuk 1995). Some workers have found a break in activity in the middle of longer nights or days and single peak around midnight or midday in shorter nights or days, although up to four activity periods per night has been recorded. Kruuk (1995) links otter activity to that of prey species, with the favoured marine species more vulnerable in daylight and those in freshwater easier to catch at night. In coastal habitats, tidal patterns influence otter activity, with significant preference shown for feeding at low tide, both in Shetland and on the Scottish west coast (Kruuk 1995).
The Eurasian Otter attains sexual maturity at around 18 months in males and 24 months in the case of females, but in captivity it is usually three to four years (Reuther 1991). They are non-seasonally polyoestrous (Trowbridge 1983), mating in captivity has been observed at all times of the year (Reuther 1999). The gestation period is approximately 63-65 days, the litter size varies from 1 to 5, and the life expectancy is around 17 years (Acharjyo and Mishra 1983).

**Systems:** Terrestrial, Freshwater, Marine

**Use and Trade** *(see Appendix for additional information)*

Animals are hunted for their pelts and for use as food.

**Threats** *(see Appendix for additional information)*

The aquatic habitats of otters are extremely vulnerable to man-made changes. Canalization of rivers, removal of bank side vegetation, dam construction, draining of wetlands, aquaculture activities and associated man-made impacts on aquatic systems are all unfavourable to otter populations (Reuther and Hilton-Taylor 2004). In south and southeast Asia, the decrease in prey species from wetlands and water ways had reduced the population to an unsustainable threshold leading to local extinctions. Poaching is one of the main causes of its decline in south and southeast Asia, and possibly also in north Asia.

Pollution is major threat to the otters in western and central Europe, the main pollutants posing a danger to otters are the organochlorines dieldrin (HEOD) and DDT/DDE, polychlorinated biphenyls (PCBs) and the heavy metal mercury. Coastal populations are particularly vulnerable to oil spills. Acidification of rivers and lakes results in the decline of fish biomass and reduces the food resources of the otters. The same effects are known to result from organic pollution by nitrate fertilizers, untreated sewage, or farm slurry.

In addition, major causes of mortality from range countries are drowning and road kills. Fyke nets set for eels or for fish as well as creels set for marine crustaceans have a great attraction to otters and a high risk to those that successfully try to enter these traps.

A further potential threat is strangulation by transparent, monofilament drift net. A potential risk comes from traps designed to kill other species, especially underwater cages constructed to drown muskrats. Illegal hunting is still a problem in many parts of their distribution range. In several European countries political pressure especially by fishermen has resulted in granting of licenses for killing otters (Reuther and Hilton-Taylor 2004).

There is an ongoing discussion about the problem of reintroduction of otters. In recent years it is feared that it may contaminate the genetic structure of the native population (Mason 1992, Reuther 1998).

**Conservation Actions** *(see Appendix for additional information)*

The Eurasian Otter is strictly protected under international legislation and conventions. It is listed on Appendix I of CITES, Appendix II of the Bern Convention, Annexes II and IV of the EU Habitats and Species Directives. It is also listed as an endangered species in many of its range countries in Asia such as India, Pakistan, Bangladesh, Myanmar, Thailand. The species was listed as Critically Endangered in the

http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T12419A21935287.en
Mongolian Red Book (Shagdarsuren et al. 1987).

A European Breeding Programme (EEP) for self-sustaining captive populations was started in 1985. Monitoring programmes have been established in many range states in Europe. Several reintroduction programmes have been initiated in Europe such as in UK, Sweden and Netherlands which have been successful in restoring otters back into their former habitats.

Credits

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Bibliography


of Natural Habitats and of Wild Fauna and Flora (92/43/EEC).


Citation


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## Appendix

### Habitats

(https://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Season</th>
<th>Suitability</th>
<th>Major Importance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Forest -&gt; 1.5. Forest - Subtropical/Tropical Dry</td>
<td></td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td>1. Forest -&gt; 1.6. Forest - Subtropical/Tropical Moist Lowland</td>
<td></td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td>1. Forest -&gt; 1.7. Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level</td>
<td></td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td>1. Forest -&gt; 1.8. Forest - Subtropical/Tropical Swamp</td>
<td></td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td>4. Grassland -&gt; 4.6. Grassland - Subtropical/Tropical Seasonally Wet/Flooded</td>
<td></td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks</td>
<td></td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.3. Wetlands (inland) - Shrub Dominated Wetlands</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.4. Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands</td>
<td></td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.5. Wetlands (inland) - Permanent Freshwater Lakes (over 8ha)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.6. Wetlands (inland) - Seasonal/Intermittent Freshwater Lakes (over 8ha)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.8. Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 8ha)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.9. Wetlands (inland) - Freshwater Springs and Oases</td>
<td></td>
<td>Unknown</td>
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<tr>
<td>5. Wetlands (inland) -&gt; 5.10. Wetlands (inland) - Tundra Wetlands (incl. pools and temporary waters from snowmelt)</td>
<td></td>
<td>Marginal</td>
<td></td>
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<tr>
<td>5. Wetlands (inland) -&gt; 5.11. Wetlands (inland) - Alpine Wetlands (includes temporary waters from snowmelt)</td>
<td></td>
<td>Marginal</td>
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<td>5. Wetlands (inland) -&gt; 5.13. Wetlands (inland) - Permanent Inland Deltas</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Wetlands (inland) -&gt; 5.14. Wetlands (inland) - Permanent Saline, Brackish or Alkaline Lakes</td>
<td></td>
<td>Marginal</td>
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http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T12419A21935287.en
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<th>Major Importance?</th>
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<tr>
<td>5. Wetlands (inland) -&gt; 5.15. Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Lakes and Flats</td>
<td>-</td>
<td>Marginal</td>
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<tr>
<td>5. Wetlands (inland) -&gt; 5.16. Wetlands (inland) - Permanent Saline, Brackish or Alkaline Marshes/Pools</td>
<td>-</td>
<td>Marginal</td>
<td>-</td>
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<tr>
<td>5. Wetlands (inland) -&gt; 5.17. Wetlands (inland) - Seasonal/Intermittent Saline, Brackish or Alkaline Marshes/Pools</td>
<td>-</td>
<td>Marginal</td>
<td>-</td>
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<tr>
<td>12. Marine Intertidal -&gt; 12.5. Marine Intertidal - Salt Marshes (Emergent Grasses)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>15. Artificial/Aquatic &amp; Marine -&gt; 15.1. Artificial/Aquatic - Water Storage Areas (over 8ha)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>15. Artificial/Aquatic &amp; Marine -&gt; 15.2. Artificial/Aquatic - Ponds (below 8ha)</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>15. Artificial/Aquatic &amp; Marine -&gt; 15.3. Artificial/Aquatic - Aquaculture Ponds</td>
<td>-</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
<tr>
<td>15. Artificial/Aquatic &amp; Marine -&gt; 15.7. Artificial/Aquatic - Irrigated Land (includes irrigation channels)</td>
<td>-</td>
<td>Marginal</td>
<td>-</td>
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<tr>
<td>15. Artificial/Aquatic &amp; Marine -&gt; 15.8. Artificial/Aquatic - Seasonally Flooded Agricultural Land</td>
<td>-</td>
<td>Marginal</td>
<td>-</td>
</tr>
<tr>
<td>15. Artificial/Aquatic &amp; Marine -&gt; 15.9. Artificial/Aquatic - Canals and Drainage Channels, Ditches</td>
<td>Resident</td>
<td>Suitable</td>
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**Use and Trade**

(http://www.iucnredlist.org/technical-documents/classification-schemes)

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<th>End Use</th>
<th>Local</th>
<th>National</th>
<th>International</th>
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<tbody>
<tr>
<td>Food - human</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Wearing apparel, accessories</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Threats**

(http://www.iucnredlist.org/technical-documents/classification-schemes)
1. Residential & commercial development -> 1.1. Housing & urban areas
   Ongoing
   Stresses: 1. Ecosystem stresses -> 1.1. Ecosystem conversion
               1. Ecosystem stresses -> 1.2. Ecosystem degradation

1. Residential & commercial development -> 1.2. Commercial & industrial areas
   Ongoing
   Stresses: 1. Ecosystem stresses -> 1.1. Ecosystem conversion
               1. Ecosystem stresses -> 1.2. Ecosystem degradation

1. Residential & commercial development -> 1.3. Tourism & recreation areas
   Ongoing
   Stresses: 1. Ecosystem stresses -> 1.1. Ecosystem conversion
               1. Ecosystem stresses -> 1.2. Ecosystem degradation

2. Agriculture & aquaculture -> 2.4. Marine & freshwater aquaculture -> 2.4.3. Scale Unknown/Unrecorded
   Ongoing
   Stresses: 1. Ecosystem stresses -> 1.1. Ecosystem conversion
               1. Ecosystem stresses -> 1.2. Ecosystem degradation

4. Transportation & service corridors -> 4.1. Roads & railroads
   Ongoing
   Stresses: 2. Species Stresses -> 2.1. Species mortality

4. Transportation & service corridors -> 4.3. Shipping lanes
   Ongoing
   Stresses: 1. Ecosystem stresses -> 1.1. Ecosystem conversion
               1. Ecosystem stresses -> 1.2. Ecosystem degradation

5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)
   Ongoing
   Stresses: 2. Species Stresses -> 2.1. Species mortality

5. Biological resource use -> 5.2. Gathering terrestrial plants -> 5.2.2. Unintentional effects (species is not the target)
   Ongoing
   Stresses: 1. Ecosystem stresses -> 1.2. Ecosystem degradation

5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale)
   Ongoing
   Stresses: 2. Species Stresses -> 2.1. Species mortality

5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.5. Persecution/control
   Ongoing
   Stresses: 2. Species Stresses -> 2.1. Species mortality

6. Human intrusions & disturbance -> 6.1. Recreational activities
   Ongoing
   Stresses: 2. Species Stresses -> 2.2. Species disturbance

7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.4. Abstraction of surface water (unknown use)
   Ongoing
   Stresses: 1. Ecosystem stresses -> 1.1. Ecosystem conversion
               1. Ecosystem stresses -> 1.2. Ecosystem degradation
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.11. Dams (size unknown)

Stresses:
1. Ecosystem stresses -> 1.1. Ecosystem conversion
1. Ecosystem stresses -> 1.2. Ecosystem degradation


Stresses:
1. Ecosystem stresses -> 1.2. Ecosystem degradation

9. Pollution -> 9.1. Domestic & urban waste water -> 9.1.3. Type Unknown/Unrecorded

Stresses:
1. Ecosystem stresses -> 1.2. Ecosystem degradation


Stresses:
1. Ecosystem stresses -> 1.2. Ecosystem degradation

9. Pollution -> 9.2. Industrial & military effluents -> 9.2.3. Type Unknown/Unrecorded

Stresses:
1. Ecosystem stresses -> 1.2. Ecosystem degradation

9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.4. Type Unknown/Unrecorded

Stresses:
1. Ecosystem stresses -> 1.2. Ecosystem degradation

9. Pollution -> 9.5. Air-borne pollutants -> 9.5.1. Acid rain

Stresses:
1. Ecosystem stresses -> 1.2. Ecosystem degradation

Conservation Actions in Place
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Conservation Actions in Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Place Research, Monitoring and Planning</td>
</tr>
<tr>
<td>Action Recovery plan: No</td>
</tr>
<tr>
<td>Systematic monitoring scheme: No</td>
</tr>
<tr>
<td>In-Place Land/Water Protection and Management</td>
</tr>
<tr>
<td>Occur in at least one PA: Yes</td>
</tr>
<tr>
<td>In-Place Species Management</td>
</tr>
<tr>
<td>Successfully reintroduced or introduced beningly: Yes</td>
</tr>
<tr>
<td>Subject to ex-situ conservation: Yes</td>
</tr>
<tr>
<td>In-Place Education</td>
</tr>
<tr>
<td>Subject to recent education and awareness programmes: Yes</td>
</tr>
<tr>
<td>Included in international legislation: Yes</td>
</tr>
<tr>
<td>Subject to any international management/trade controls: Yes</td>
</tr>
</tbody>
</table>

http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T12419A21935287.en
Conservation Actions Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Conservation Actions Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Land/water management -&gt; 2.1. Site/area management</td>
</tr>
<tr>
<td>2. Land/water management -&gt; 2.3. Habitat &amp; natural process restoration</td>
</tr>
<tr>
<td>3. Species management -&gt; 3.2. Species recovery</td>
</tr>
<tr>
<td>4. Education &amp; awareness -&gt; 4.1. Formal education</td>
</tr>
<tr>
<td>4. Education &amp; awareness -&gt; 4.2. Training</td>
</tr>
<tr>
<td>5. Law &amp; policy -&gt; 5.1. Legislation -&gt; 5.1.3. Sub-national level</td>
</tr>
<tr>
<td>5. Law &amp; policy -&gt; 5.4. Compliance and enforcement -&gt; 5.4.2. National level</td>
</tr>
<tr>
<td>5. Law &amp; policy -&gt; 5.4. Compliance and enforcement -&gt; 5.4.3. Sub-national level</td>
</tr>
</tbody>
</table>

Research Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Research -&gt; 1.1. Taxonomy</td>
</tr>
<tr>
<td>1. Research -&gt; 1.2. Population size, distribution &amp; trends</td>
</tr>
<tr>
<td>1. Research -&gt; 1.3. Life history &amp; ecology</td>
</tr>
<tr>
<td>1. Research -&gt; 1.5. Threats</td>
</tr>
<tr>
<td>1. Research -&gt; 1.6. Actions</td>
</tr>
</tbody>
</table>

Additional Data Fields

<table>
<thead>
<tr>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower elevation limit (m): 0</td>
</tr>
<tr>
<td>Upper elevation limit (m): 4120</td>
</tr>
<tr>
<td>Lower depth limit (m): 10</td>
</tr>
<tr>
<td>Upper depth limit (m): 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habitats and Ecology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuing decline in area, extent and/or quality of habitat: Yes</td>
</tr>
<tr>
<td>Generation Length (years): 7.6</td>
</tr>
<tr>
<td>Movement patterns: Not a Migrant</td>
</tr>
</tbody>
</table>
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