

2018

INTEGRATED LEARNING PROGRAMME, ILP

IASBABA



ENVIRONMENT: PART 2

Integrated Learning Programme 2018 is a step towards 'Enabling a person located at the most remote destination a chance at cracking AIR 1 in UPSC/IAS'

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ANIMAL DIVERSITY OF INDIA

The Red data book

- The Red Data Book is the state document established for documenting rare and endangered ***species of animals, plants and fungi*** as well as some local sub-species that exist within the territory of the state or country. This book provides central information for studies and monitoring programmes on rare and endangered species and their habits.
- It is a **loose-leaf volume of information** on the status of many kinds of species.
- This volume is **continually updated**.



- **Issued by** - International Union for Conservation of Nature (**IUCN**) located in Morges, Switzerland.
- **1st issued in** – 1966

It contains **information for endangered animals and plants**.

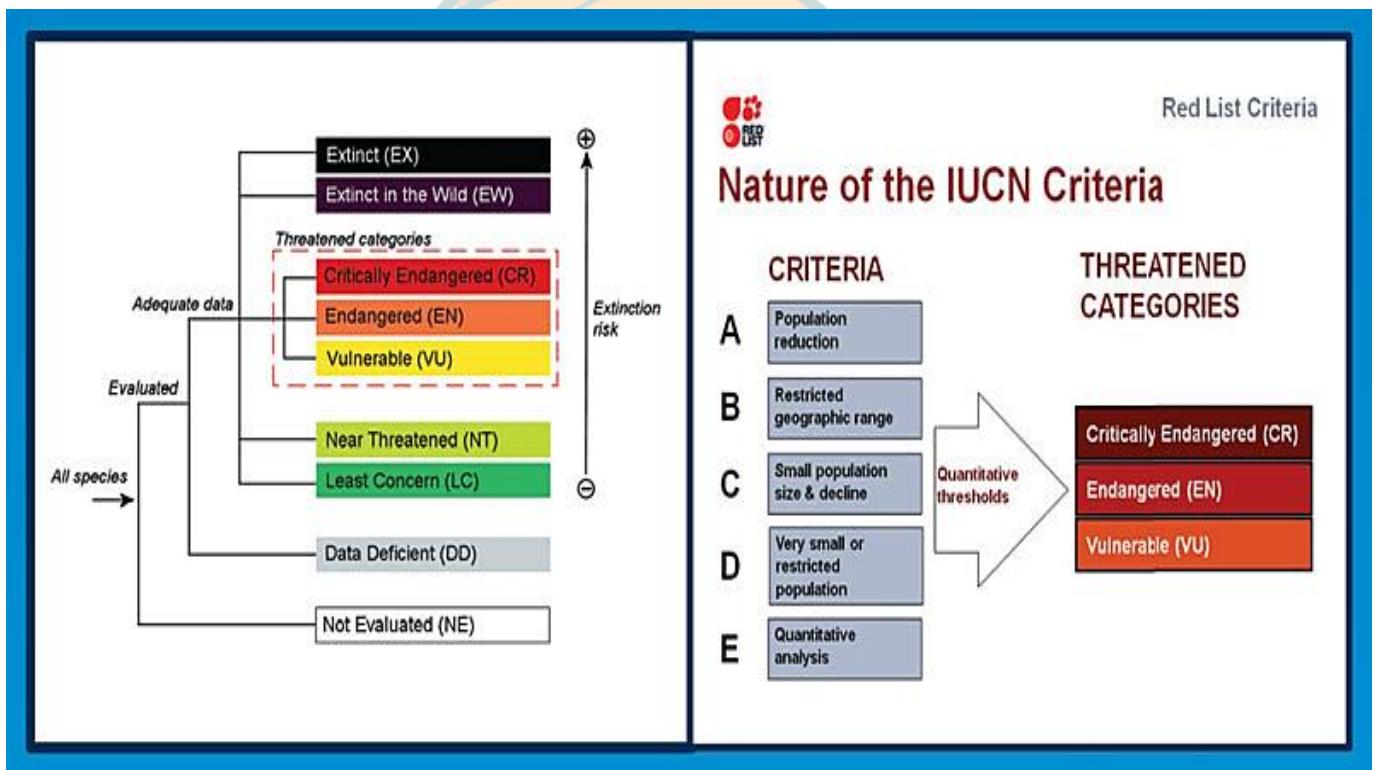
- Information for mammals and birds are more extensive than for other groups of animals and plants, coverage is also given to less prominent organisms facing extinction.
- **Pink pages in this publication** include the critically endangered species. As the status of the species changes, new pages are sent to the subscribers.
- **Green pages** are used for those species that were formerly endangered, but have now recovered to a point where they are no longer threatened.
- With passing time, the number of pink pages continue to increase. There are pitifully few green pages.

IUCN classification of conservation priority



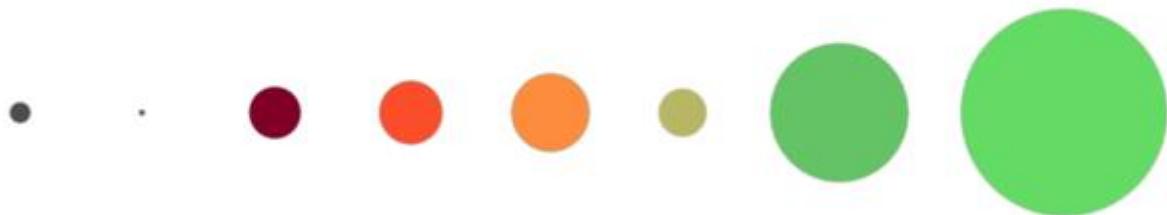
International Union for Conservation of Nature (IUCN) is a membership Union uniquely composed of both government and civil society organizations. It provides public, private and non-governmental organizations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together.

- The organization is best known for compiling and publishing the IUCN Red List, which assesses the conservation status of species worldwide.
- Headquarter** - Gland, Switzerland.



Species are classified by the IUCN Red List into 9 groups, set through criteria such as rate of decline, population size, area of geographic distribution, and degree of population and distribution fragmentation.

Extinct 868	Extinct in Wild: 78	Critically Endangered 5176	Endangered 7705	Vulnerable 11654	Near Threatened 4406	Least Concern 36952	All Species 82065
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1. Extinct (EX)



- No known individuals remaining.
- When there is no reasonable doubt that the **last individual has died**.
- A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual.

2. Extinct in the Wild (EW)

- Known only to **survive in captivity, or as a naturalized population outside its historic range**.
- A taxon is presumed Extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual.

3. Critically Endangered (CR)

- **Extremely high risk of extinction** in the wild.
- A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria for Critically Endangered.

Criteria

- Reduction in population (**> 90%** over the last **10 years**),
- Reduction in Population size (number less than **50** mature individuals)
- Quantitative analysis showing the probability of extinction in wild in at least **50%** in their **10 years**)
- It is therefore considered to be facing an **extremely high risk of extinction** in the wild.

4. Endangered (EN)

- If it meets following criteria –

Criteria

- Reduction in population (**> 70%** over the last **10** years),
- Population size estimated to number less than **250** mature individuals)
- Quantitative analysis showing the probability of extinction in wild in at least **20%** in their **20** years)
- It is therefore considered to be facing a **very high risk of extinction** in the wild.

5. Vulnerable (VU)

- If it meets following criteria –

Criteria

- Reduction in population (**> 50%** over the last **10** years),
- Population size estimated to number fewer than **250** mature individuals)
- Quantitative analysis showing the probability of extinction in wild in at least **20%** in their **20** years)
- It is therefore considered to be facing a **very high risk of extinction** in the wild.

6. Near Threatened (NT)

- A taxon is Near Threatened when it has **not qualified for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying** for or is likely to qualify for a threatened category in the near future.

7. Least Concern (LC)

- A taxon is Least Concern when it has **not qualified for Critically Endangered, Endangered or Vulnerable or Near Threatened**.
- Widespread and abundant taxa are included in this category.

8. Data Deficient (DD)

- Not enough data to make an assessment of its risk of extinction.
- Data Deficient is therefore not a category of threat.
- Listing of taxa in this category indicates that **more information is required** and acknowledges the possibility that future research will show that threatened classification is appropriate.

9. Not Evaluated (NE)

- A taxon has not yet been evaluated against the criteria.

Quick revision

CRITERIA => ↓ CATEGORY	A Population trend % decline	B Geographic distribution Area in km ²	C & D Population size Number of mature individuals	E Extinction % probability
EXTINCT				
EX: Extinct	Certainty that the last wild individual has died			
EW: Extinct in the Wild	Certainty that the last wild individual has died, but captive individuals persist			
THREATENED				
CR: Critically Endangered	$\geq 80^{A2/3/4}$ to $\geq 90^{A1}$	$< 10^{B2}$ to $< 100^{B1}$	$< 50^{D1}$ to $< 250^{C}$	≥ 50 in 10yr or 3ge ^C
EN: Endangered	$\geq 50^{A2/3/4}$ to $\geq 70^{A1}$	$< 500^{B2}$ to $< 5,000^{B1}$	$< 250^{D1}$ to $< 2,500^{C}$	≥ 20 in 20yr or 5ge ^C
VU: Vulnerable	$\geq 30^{A2/3/4}$ to $\geq 50^{A1}$	$< 2,000^{B2}$ to $< 20,000^{B1}$	$< 1,000^{D1}$ to $< 10,000^{C}$ or $< 20\text{km}^{D2}$ or ≤ 5 sites ^{D2}	≥ 10 in 100 yr
NOT THREATENED				
NT: Near Threatened	Close to qualifying among threatened categories			
LC: Least Concern	Widespread and abundance taxa			
UNKNOWN STATUS				
DD: Data Deficient	Not enough information to assess extinction risk			
NE: Not Evaluated	Not assessed against criteria			
REGIONAL (in addition to global categories)				
RE: Regionally Extinct	Extinct regionally but not elsewhere			
NA: Not Applicable	Individuals are vagrant, outside their natural range or introduced for no conservation purposes			

Superindexes indicate codes for criteria A to D and sub-criteria 1 to 4 — yr = years, ge = generations



IUCN Red List Categories version 3.1

EX

Extinct

There is no doubt that the last individual in the taxon (a species or group or species) has died.

EW

Extinct in the Wild

The only living individuals in the taxon are living in captivity or were born in captivity.

CE

Critically Endangered

Evidence shows that the taxon has an extremely high risk of extinction in the wild.

EN

Endangered

Evidence shows that the taxon has a very high risk of extinction in the wild.

VU

Vulnerable

Evidence shows that the taxon has a high risk of extinction in the wild.

NT

Near Threatened

The taxon is not in a threatened category (Critically Endangered, Endangered, or Vulnerable), but is likely to move into a threatened category in the near future.

LC

Least concern

The taxon is not in a threatened category. It is widespread and abundant.

DD

Data deficient

The taxon has been well studied, but there is not enough information about its distribution and population to decide what category it belongs in.

NE

Not evaluated

The taxon has not been studied to decide what category it belongs in.

Mammals – Critically Endangered

1. Pygmy Hog (*Porcula salvania*)

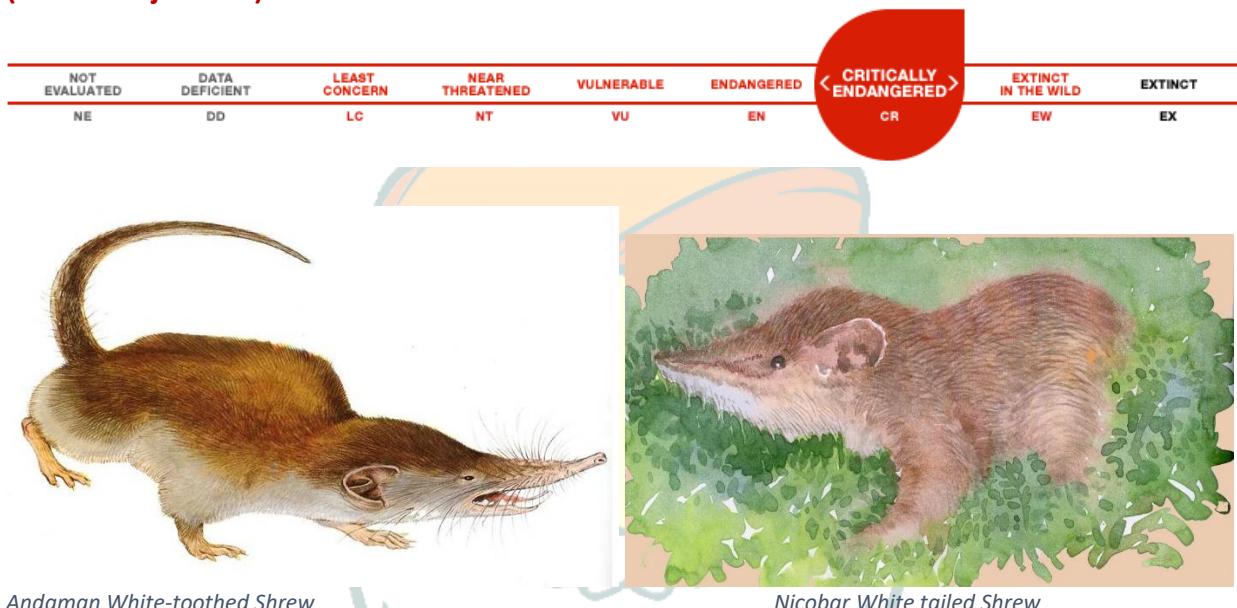


Figure Pygmy hog and it's nest

- World's smallest wild pig
- This species constructs a nest throughout the year.
- **Geographic range** - In past found in northern West Bengal and north-western Assam but likely to have occurred in tall, wet alluvial grasslands extending in a narrow belt south of the Himalayan foothills from north-western Uttar Pradesh and southern Nepal to Assam. Now confined to a very few locations in and around Manas National Park in north-western Assam
- Most useful indicators of the management status of grassland habitats which are crucial for the survival of other endangered species such as Indian Rhinoceros, Swamp Deer, Wild Buffalo, Hispid Hare, Bengal Florican and Swamp Francolin.
- **Habitat** - Relatively undisturbed, tall 'terai' grasslands.

- Because pygmy hog falls in critically endanger group, **Pygmy -hog-sucking Louse** (*Haematopinus oliveri*), a parasite that feeds only on Pygmy Hogs will also fall in the same risk category of critically endangered as its survival is linked to that of the host species.
- Threats** - loss and degradation of grasslands, dry-season burning, livestock grazing, afforestation of grasslands and Hunting for wild meat.

2. Andaman White-toothed Shrew (*Crocidura andamanensis*), Jenkin's Andaman Spiny Shrew (*Crocidura jenkinsi*) and the Nicobar White tailed Shrew



- Both are endemic to India.
- They are usually active by twilight or in the night and have specialized habitat requirements.
- Habitat** - Leaf litter and rock crevices.
- Distribution** -
 - Andaman White-toothed Shrew - Mount Harriet in the South Andaman Islands.
 - Jenkin's Andaman Spiny Shrew - Wright Myo and Mount Harriet in the South Andaman Islands.
 - The Nicobar White-tailed Shrew - southern tip of Greater Nicobar Island and area between Campbell Bay National Park to the Galathea River in the Andaman and Nicobar Islands.
- Threats** - Habitat loss due to selective logging, natural disasters such as the tsunami and drastic weather changes.

3. Kondana Rat (*Millardia kondana*)

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX



- Nocturnal burrowing rodent
- Found – only in India.
- It is sometimes known to build nests.
- **Habitat** -Tropical and subtropical dry deciduous forests and tropical scrub.
- **Distribution** - Known only from the small Sinhagharh Plateau (near Pune, Maharashtra).
- **Threats** - habitat loss, overgrazing of vegetation and disturbance from tourism and recreational activities.

4. The Large Rock Rat or Elvira Rat (*Cremnomys elvira*)

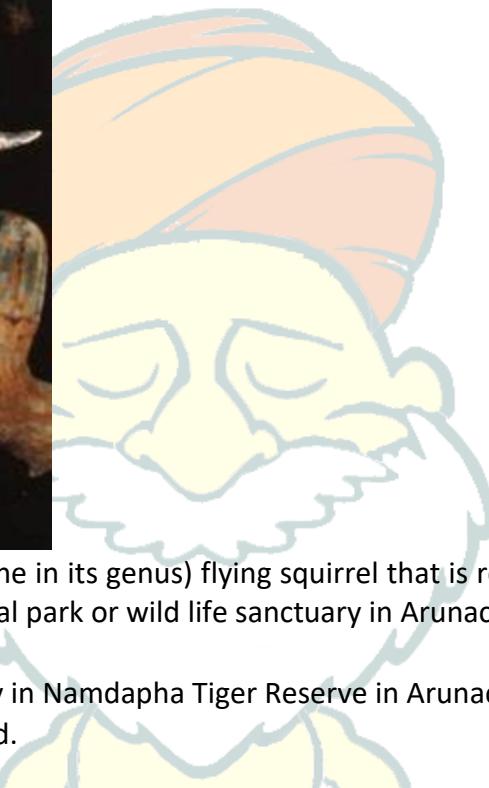
NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX



- It is a **medium sized, nocturnal and burrowing rodent**.
- Endemic to India.

- **Habitat** - Tropical dry deciduous shrub land forest, seen in rocky areas.
- **Distribution** - Known only from Eastern Ghats of Tamil Nadu.
- **Threats** - Major threats are habitat loss, conversion of forests and fuel wood collection.

5. The Namdapha Flying Squirrel (*Biswamoyopterus biswasi*)



- It is a unique (the only one in its genus) flying squirrel that is restricted to a single valley in the Namdapha National park or wild life sanctuary in Arunachal Pradesh.
- **Habitat** - Tropical forest.
- **Distribution** - Found only in Namdapha Tiger Reserve in Arunachal Pradesh.
- **Threats** - Hunted for food.

Consider the following:

1. Black-necked crane
2. Cheetah
3. Flying squirrel
4. Snow leopard



Which of the above are naturally found in India?

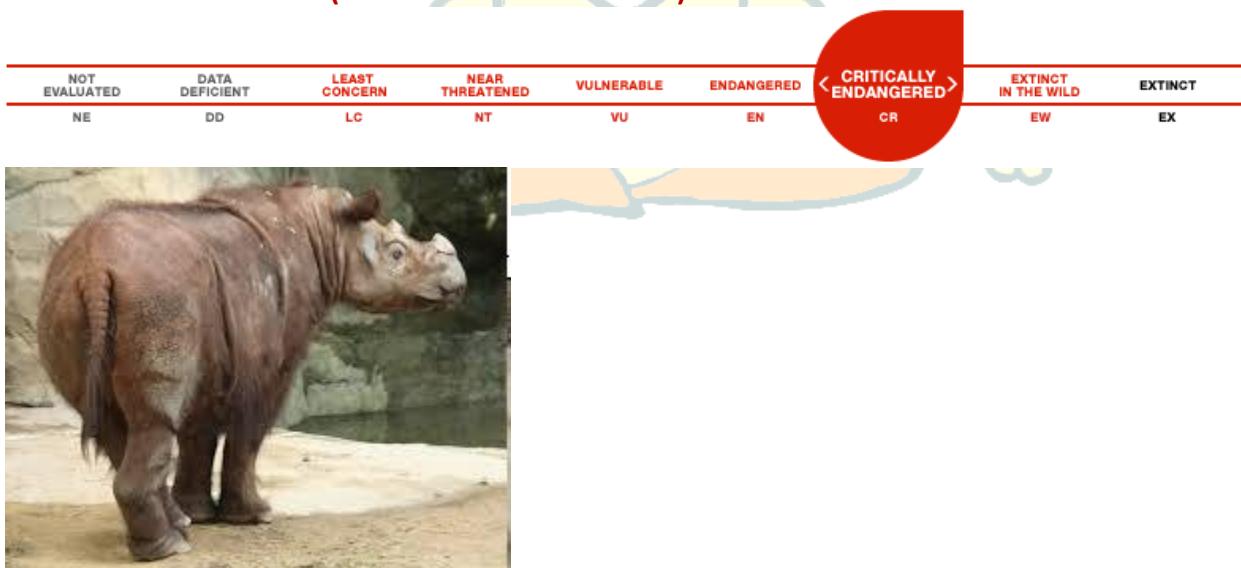
- a) 1, 2 and 3 only
- b) 1, 3 and 4 only
- c) 2 and 4 only
- d) 1, 2, 3 and 4

6. Malabar Civet (*Viverra civettina*)



- One of the world's rarest mammals.
- Endemic to India.
- 1st reported from Travancore, Kerala.
- Nocturnal nature
- Found exclusively in the Western Ghats.
- **Habitat** - Wooded plains and hill slopes of evergreen rainforests.
- **Habitat/distribution** - Western Ghats.
- **Threats**: Deforestation and commercial plantations are major threats.

7. Sumatran Rhinoceros (*Dicerorhinus sumatrensis*)



- Smallest and most endangered of the 5 rhinoceros' species.
- Now regionally extinct in India, once occurred in the foothills of the Himalayas and north-east India.
- The Javan Rhinoceros (*Rhinoceros sondaicus*) is also believed to be extinct in India and only a small number survive in Java and Vietnam.
- **Threat** - Poaching, loss of habitat.

8. Kashmir stag/hangul (*Cervus elaphus hanglu*)



- It is subspecies of Red Deer which is native to India.
- **Habitat** - Dense riverine forests, high valleys, and mountains of the Kashmir valley and northern Chamba in Himachal Pradesh.
- **State animal of Jammu and Kashmir.**
- **Threat** - habitat destruction, over-grazing by domestic livestock, and poaching.

9. Himalayan Brown/Red Bear (*Ursus arctos isabellinus*)





- India's largest animals in the Himalayas, omnivores.
- **Distribution** - Nepal, Tibet, north India, and north Pakistan.
- **Threats** - loss of suitable habitat and persecution by humans.

Mammals – Endangered

1. Dhole/ Asiatic wild dog or Indian wild dog (*Cuon alpinus*)



- India contains the largest numbers of Dholes.
- **Geographic range** - High populations in the Western Ghats and central Indian forests. Eastern Ghats have low population. Dholes are also found in the northeastern states but decreasing in this region due to a decreasing prey base and retaliatory killings from livestock predation. Other places - Terai region, Sikkim, Tso Kar in Ladakh.
- **Threats** - Depletion of prey base, Habitat loss and transformation, Persecution (retaliatory killings due to livestock predation), Disease and pathogens

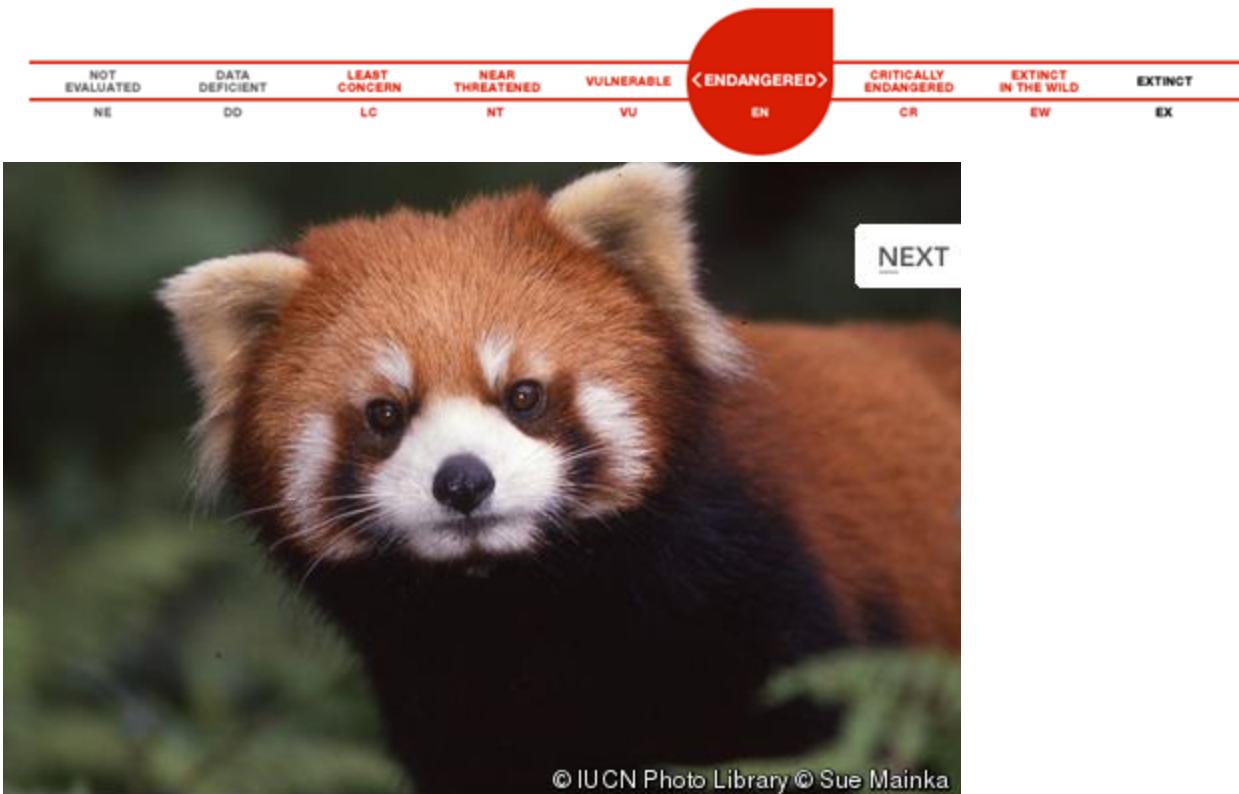
2. Eld's deer/ thamin or brow – antlered deer (*Pantolia eldii*)



- Indigenous to south asia.
- **Distribution** – Keibul Lamjao National park, Manipur
- **Threats** – poaching, hunting for food, development activities
- The species have a fragmented distribution and are therefore at risk from inbreeding and loss of genetic variation.



3. Red panda (*Ailurus fulgens*)



- Earlier in vulnerable category but now in Endangered category
- Population has plausibly declined by 50% over the last three generations.
- **Geographic range** - Sikkim, West Bengal and Arunachal Pradesh
- **Threats** - habitat loss and fragmentation, habitat degradation, and physical threats.
 - They all are compounded by the region's increasing human population, climate change, natural disasters, inadequate enforcement of laws and regulations, mostly low political will and interest, political instability (in some regions), trans-boundary issues facilitating poaching, illegal collection of non-timber forest products, and Red Panda trade (skins and other body parts) and the movement of cattle herders/grazers during the breeding season.

4. Golden langur (*Trachypithecus geei*)





- Primate, is an Old World monkey
- **Distribution** - small region of western Assam and in the neighboring foothills of the Black Mountains of Bhutan.
- **Status** - endangered.

5. Himalayan / White-bellied Musk Deer



- **Habitat/distribution** - Kashmir, Kumaon and Sikkim.
- They lack antlers, but they possess a pair of enlarged canines that grow continuously. (see image)
- **Status** - endangered
- **Threat** - poaching & illegal trade for its musk

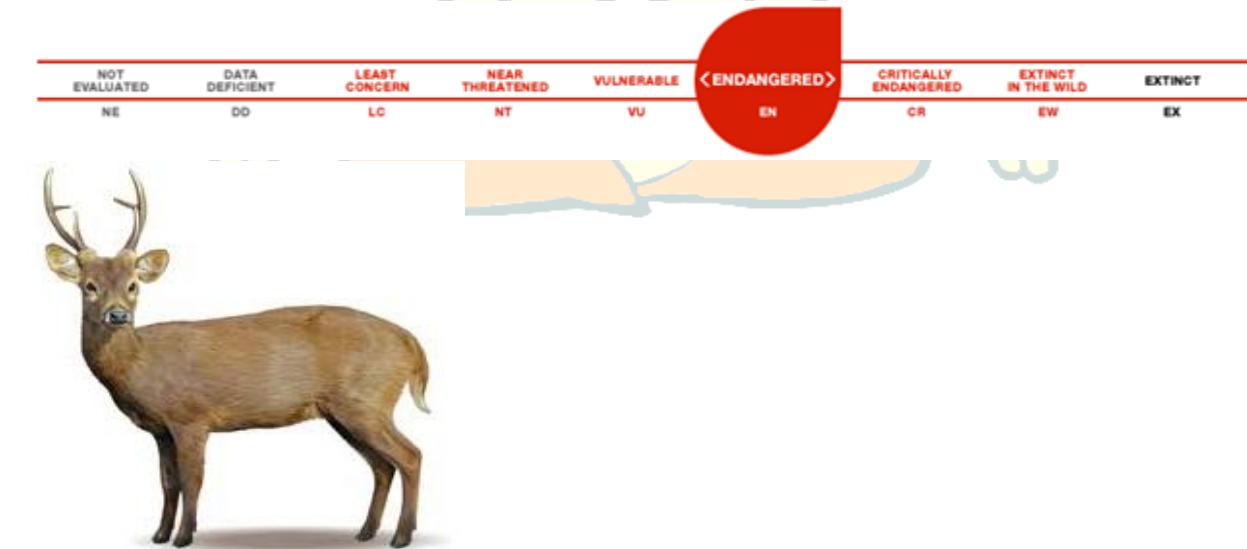
- Deer musk is a substance with a persistent odor obtained from a gland of the male musk deer (Only males produce the musk). The substance has been used as a perfume fixative, incense material, and medicine.

6. Hисpid hare/ Assam rabbit (*Caprolagus hispidus*)



- Habitat/distribution** - southern foothills of the central Himalayas.
- Status** - endangered.
- Habitat** - highly fragmented due to increasing agriculture, flood control, and human development.

7. Hog deer



- **Status** - endangered
- **Habitat/distribution** - northern India.
- **Why it is named so?** The hog deer runs through the forests with its head hung low (hog-like manner) so that it ducks under obstacles instead of leaping over them like most other deer do.

8. Lion-tailed macaque/ wanderoo (*Macaca silenus*)



- Endemic to the Western Ghats.
- **Status** - endangered.
- Avoid human presence.
- Do not live, feed or travel through plantations.
- **Habitat** - southwest India in pockets of evergreen forests, called **sholas**, in the Western Ghats range. Today, they only live in mountain forests scattered across 3 Indian states - Karnataka, Kerala, and Tamil Nadu.

In which of the following States is lion tailed macaque found in its natural habitat?

1. Tamil Nadu
2. Kerala
3. Karnataka
4. Andhra Pradesh



Select the correct answer using the codes given below.

- a) 1, 2 and 3 only
- b) 2 only
- c) 1, 3 and 4 only
- d) 1, 2, 3 and 4

- **Threat** - habitat fragmentation due to spread of agriculture and tea, coffee, teak and cinchona, construction of water reservoirs and human settlements to support such activities.
- **Captive breeding** - aringnar anna zoological park, Chennai and in Mysore Zoo.

9. Nilgiri langur/ Nilgiri leaf monkey (*Trachypithecus johnii*)



- **Status** - endangered
- **Threat** - Habitat degradation, development activities, introduction of exotic tree species.
- **Habitat/distribution** - hilly areas of Western Ghats in Tamil Nadu and Kerala.
- Tropical wet evergreen, semi-evergreen and riparian forests.

10. Nilgiri tahr

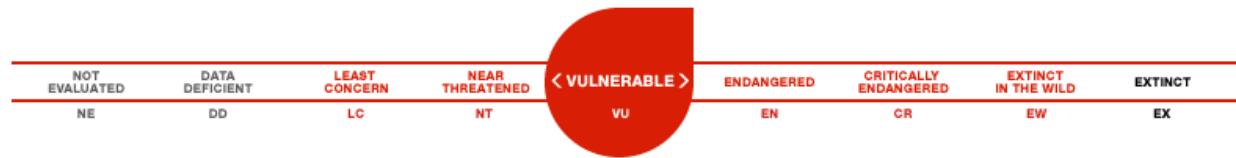


- Largest of the 3 tahr species.
- Inhabit montane grasslands of western ghats.
- State animal of Tamil nadu.
- **Status - Endangered**
- **Shoals forest (stunted evergreen forests) are typically avoided by tahr.**
- **Threats** - habitat loss, overgrazing, illegal hunting.



Mammals – Vulnerable

1. Gaur



- The **gaur (Bos gaurus)**, also called **Indian bison**, is a large bovine native to South Asia and Southeast Asia.
- Largely confined to evergreen forests or semi-evergreen and moist deciduous forests, but also occur in deciduous forest areas at the periphery of their range.
- The domesticated form of the gaur, *Bos frontalis*, is called **gayal or mithun**.
- **Threats** - poaching for trade to supply international markets, hunting, and specific hunting for home consumption.

2. Great Indian one horn Rhinoceros



- **Habitat** - Found only in the tall grasslands and forests in the foothills of the Himalayas.
- **National Parks** - Kaziranga National Park, pabitora wildlife sanctuary, Manas National Park, Assam
- **Status in the Wild** - Endangered
- **Threat** - Oriental belief that its horn, among other parts, has medicinal properties.

3. Four-horned antelope, Chousingha



- The four-horned antelope (*Tetracerus quadricornis*), or chousingha, is a small antelope found in India and Nepal.

- They must drink water regularly in order to survive.
- **Distribution** - Mostly occur in open, dry, deciduous forests in hilly terrain. Mudumalai National Park, Gir National Park and foothills of the Himalayas in the north to the Deccan Plateau in the south.
- **Threats** - loss of its natural habitat due to agricultural expansion and hunting.
- **It is protected under Schedule I the Wildlife Protection Act of 1972**

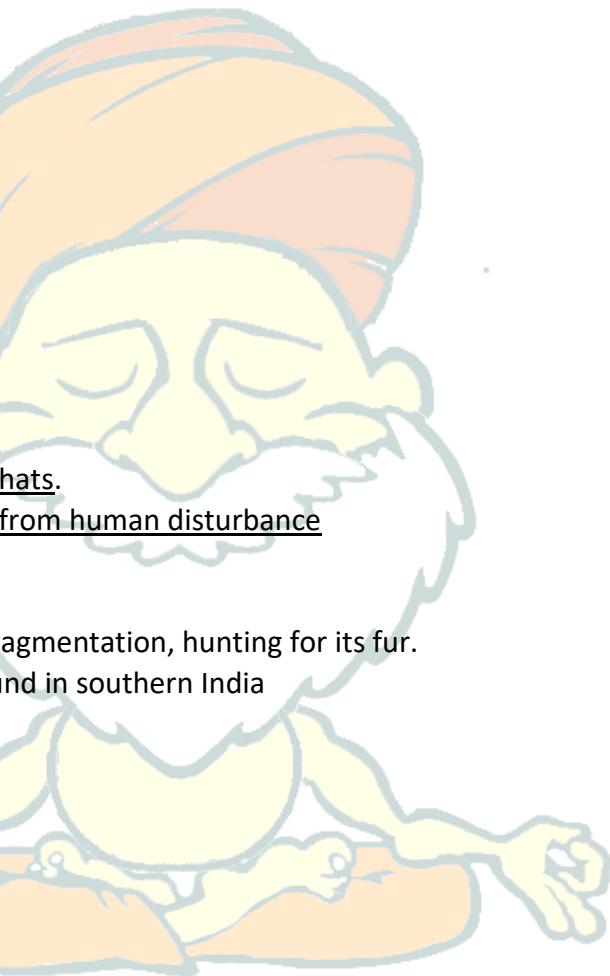
4. Takin



- The takin, also called **cattle chamois or gnu goat**, is a goat-antelope found in the **eastern Himalayas**.
- **Distribution** - Mountainous regions in the Himalayan Mountains (Dihang-Dibang Biosphere Reserve, Arunachal Pradesh) and western China.
- **Threats** - Largely due to overhunting and the destruction of their natural habitat.

5. Nilgiri marten

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX

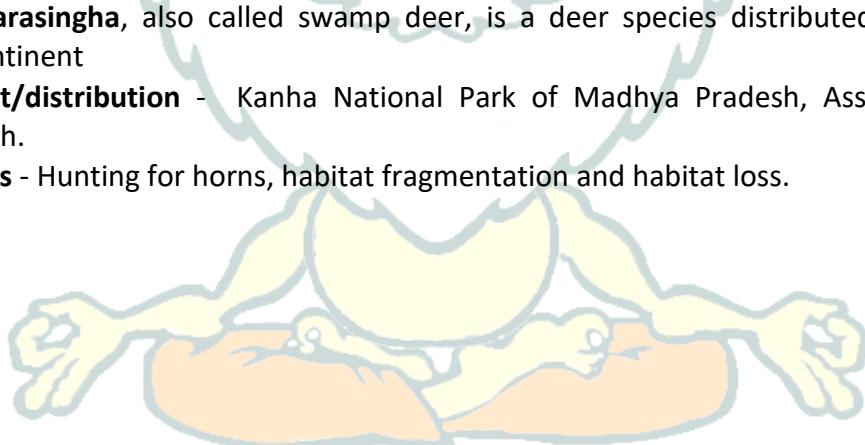


- Endemic to the Western Ghats.
- Inhabits areas that are far from human disturbance.
- Semi-arboreal lifestyle.
- Carnivorous animal.
- **Threat** - habitat loss and fragmentation, hunting for its fur.
- Only species of marten found in southern India

6. Barasingha or swamp deer (*Rucervus duvaucelii*)



- The **barasingha**, also called swamp deer, is a deer species distributed in the Indian subcontinent
- **Habitat/distribution** - Kanha National Park of Madhya Pradesh, Assam, and Uttar Pradesh.
- **Threats** - Hunting for horns, habitat fragmentation and habitat loss.



7. Oriental small-clawed otter/ Asian small-clawed otter (*Aonyx cinerea*)



© Elliott Neep / www.flpa-images.co.uk

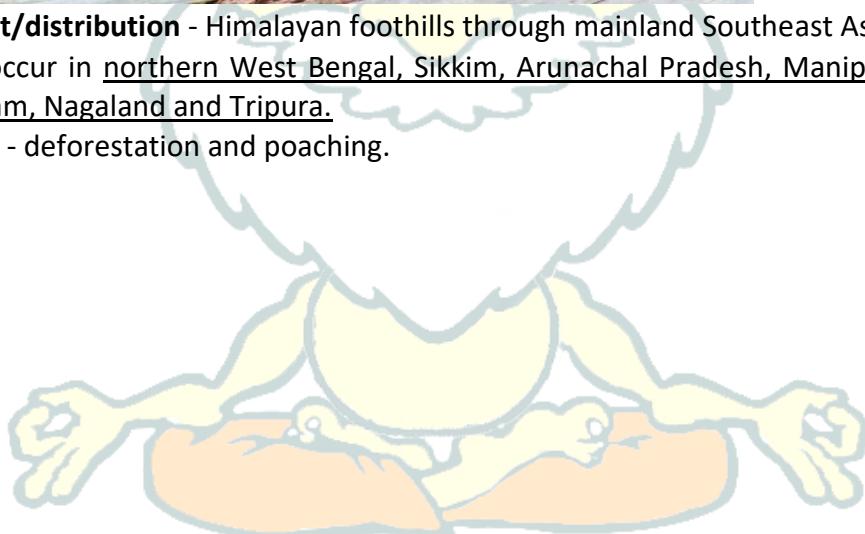
- Otter - any of 13 living species of semiaquatic mammals which feed on fish and shellfish, and also other invertebrates, amphibians, birds and small mammals.
- Smallest otter species in the world.
- Lives in - mangrove swamps and freshwater wetlands.
- **Geographic distribution** - Arunachal Pradesh, Assam, Himachal Pradesh, Karnataka, Kerala, Tamil Nadu, West Bengal
- **Threat** - habitat loss, pollution and hunting.

8. Clouded leopard (*Neofelis nebulosa*)

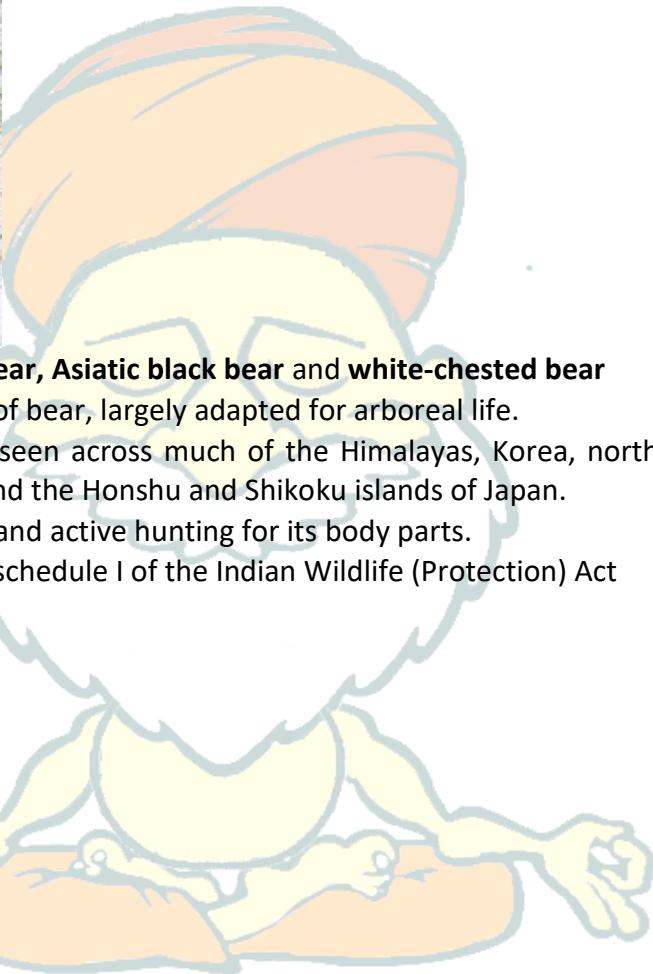
NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX



- **Habitat/distribution** - Himalayan foothills through mainland Southeast Asia into China,
- They occur in northern West Bengal, Sikkim, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.
- **Threat** - deforestation and poaching.



9. Asian black bear/ moon beat or white-chested bear (*Ursus thibetanus*)



- Also known as **moon bear**, **Asiatic black bear** and **white-chested bear**
- Medium-sized species of bear, largely adapted for arboreal life.
- **Habitat/distribution** - seen across much of the Himalayas, Korea, northeastern China, the Russian far east and the Honshu and Shikoku islands of Japan.
- **Threat** - deforestation and active hunting for its body parts.
- **Conservation** – Under schedule I of the Indian Wildlife (Protection) Act

Mammals – Near Threatened

Wild ass/ khur (*Equus hemionus*)



- The Indian wild ass or Baluchi wild ass (*Equus hemionus khur*) also called as the ghudkhur in the local Gujarati language.
- **Distribution** - Mostly occurs in Rann of Kutch region and Rajasthan (only jalore district)
- Population steadily increasing.
- Today, its last refuge lies in – **Indian Wild Ass Sanctuary, Little Rann of Kutch**.
- **Threat** – Diseases, habitat degradation due to salt activities, Invasive species Prosopis juliflora shrub, and encroachment and grazing by the Maldhari.

Marbled cat (*Pardofelis marmorata*)



- **Habitat** - northern India and Nepal, through south-eastern Asia to Borneo and Sumatra.
 - In India - Sikkim, Darjeeling, moist tropical forest.
- Arboreal in nature.
- **Threats** - hunting, habitat destruction for marbled cat and its prey.

Blackbuck (Yes Salman Bhai's one :P)



- **Distribution** - In the Indian subcontinent, the blackbuck can also be found in deserts (in the northwestern region), coastal areas, mountains (in the northern- northeastern region)
- **Habitat** - Grass land.
- **Threat** - excessive hunting for meat and sporting trophies, as well as habitat loss.

Himalayan tahr

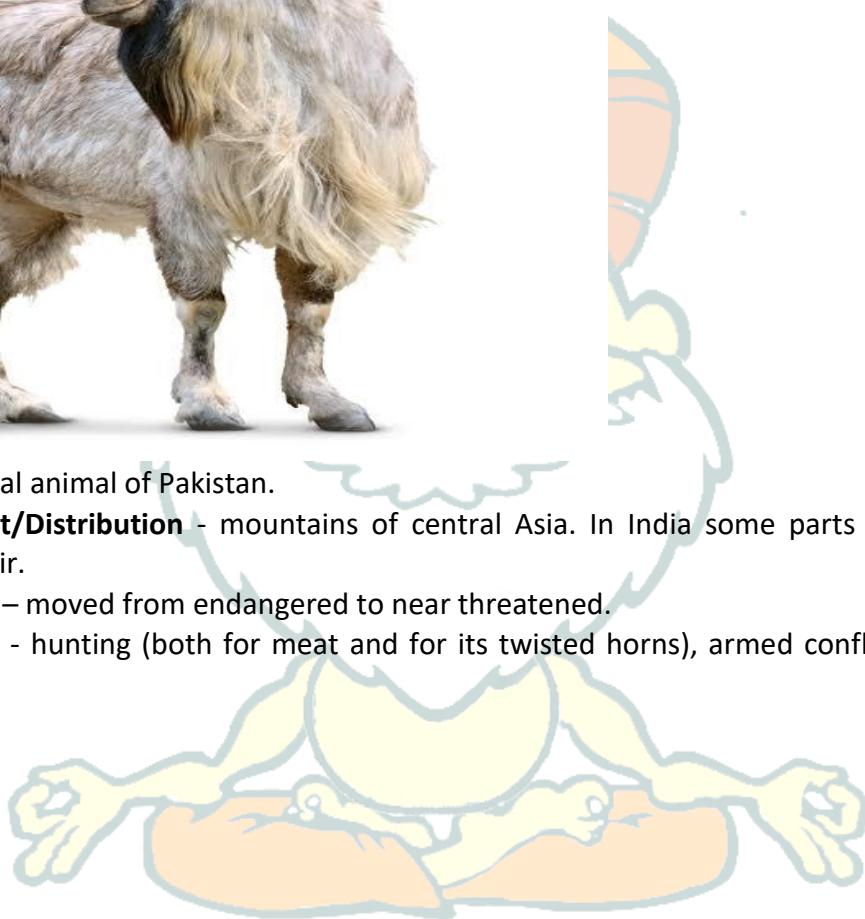


- **Habitat** - Himalayas.
- **Threats** - The major threats in China are uncontrolled hunting and deforestation. In India, Himalayan tahr is sometimes hunted for meat, and there is apparently significant competition with livestock for summer grazing in some areas.

Markhor (*Capra falconeri*)



- National animal of Pakistan.
- **Habitat/Distribution** - mountains of central Asia. In India some parts of Jammu and Kashmir.
- **Status** – moved from endangered to near threatened.
- **Threat** - hunting (both for meat and for its twisted horns), armed conflict and habitat loss



Marine Mammals - Endangered

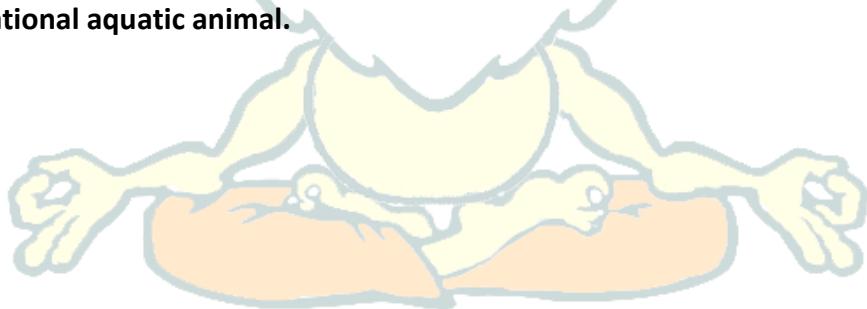
Freshwater/river dolphin

- **Habitat/distribution** - India, Bangladesh, Nepal and Pakistan which is split into two subspecies, the Ganges river dolphin and Indus river dolphin.

I. Ganges river dolphin



- **Habitat/distribution** - Ganges and Brahmaputra rivers and their tributaries in Bangladesh, India and Nepal.
- **Our national aquatic animal.**



Key Facts

A

Common Name

Ganges river dolphin, blind dolphin, Ganges dolphin, Ganges susu, Gangetic dolphin, hihu, side-swimming dolphin, South Asian River Dolphin, Indus River Dolphin ; Plataniste du Gange (Fr); Delfín del Ganges (Sp)

Aa

Scientific Name

Platanista gangetica



Status

IUCN: Endangered



Population

1,200-1,800 individuals



Habitat

Ganga and Brahmaputra river system



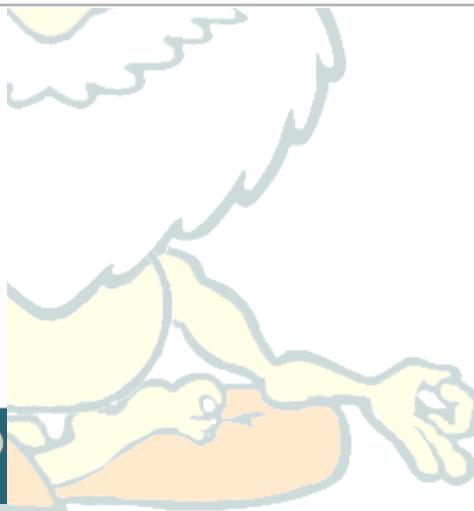
Length

About 2,5 m



Skin colour

Greyish brown



Q. Other than poaching, what are the possible reasons for the decline in the population of Gangas River Dolphins?

1. Construction of dams and barrages on rivers
2. Increase in the population of crocodiles in rivers.
3. Getting trapped in fishing nets accidentally
4. Use of synthetic fertilizers and other agricultural chemicals in crop-fields in the vicinity of rivers



Select the correct answer using the code given below.

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1, 3 and 4 only
- d) 1, 2, 3 and 4

Q. Which one of the following is the national aquatic animal of India?

- a) Saltwater crocodile
- b) Olive ridley turtle
- c) Gangetic dolphin
- d) Gharial



II. Indus River dolphin



- **Other names** - Indus River Dolphin, Indus Blind Dolphin, side-swimming dolphin
- **Habitat/Distribution** - Indus river in Pakistan and its Beas and Sutlej tributaries.
- Population declining.
- Very adversely affected by human use of the river systems

- **Status** – endangered.
- **Threats** – Reduced prey base because of reckless fishing, Deforestation (cause sedimentation in river), construction of cross-river structures such as dams and barrages and water pollution.

Marine Mammals – Vulnerable

Dugong

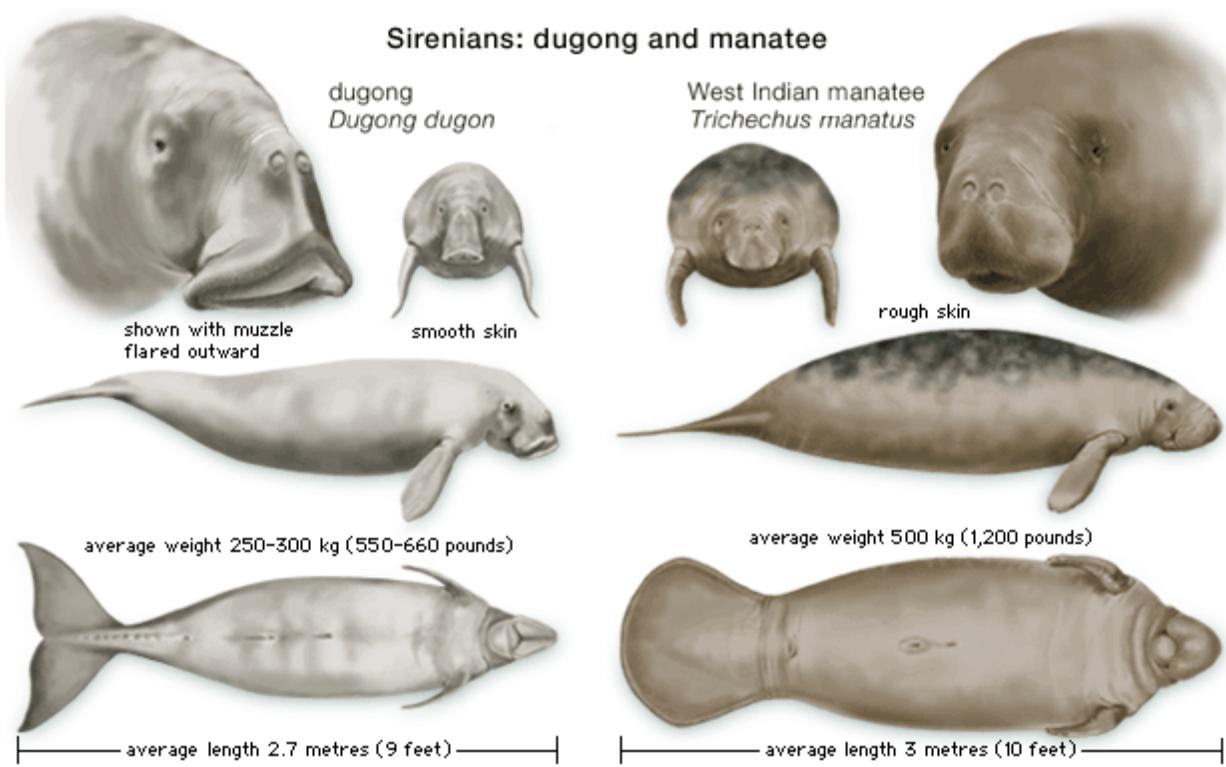


- Also known as **Sea cow**. Fourteen sea grass species are found in the marine waters in the country of which 13 are found in the Gulf of Mannar and Palk Bay areas
- **Threat** - hunting (meat and oil), habitat degradation, and fishing-related fatalities.
- Dugongs are **cousins of manatees** and share a similar plump appearance, but have a dolphin fluke-like tail.
- Unlike manatees, which use freshwater areas, the **dugong is strictly a marine mammal**.
- Dugongs graze peacefully on sea grasses

Manatees



Sirenians: dugong and manatee



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- Manatees are **large, fully aquatic, mostly herbivorous marine mammals.**
- **Habitat** - India seas [near shore waters of Gulf of Mannar, Gulf of Kachchh and Andaman and Nicobar Islands], Caribbean Sea, Gulf of Mexico, the Amazon Basin, and West Africa
- **Threat** - Coastal development, red tide, hunting.
- **They use freshwater areas.**
- Dugongs are cousin of Manatees.

With reference to 'dugong', a mammal found in India, which of the following statements is/are correct?

1. It is a herbivorous marine animal.
2. It is found along the entire coast of India.
3. It is given legal protection under Schedule I of the Wildlife (Protection) Act, 1972.

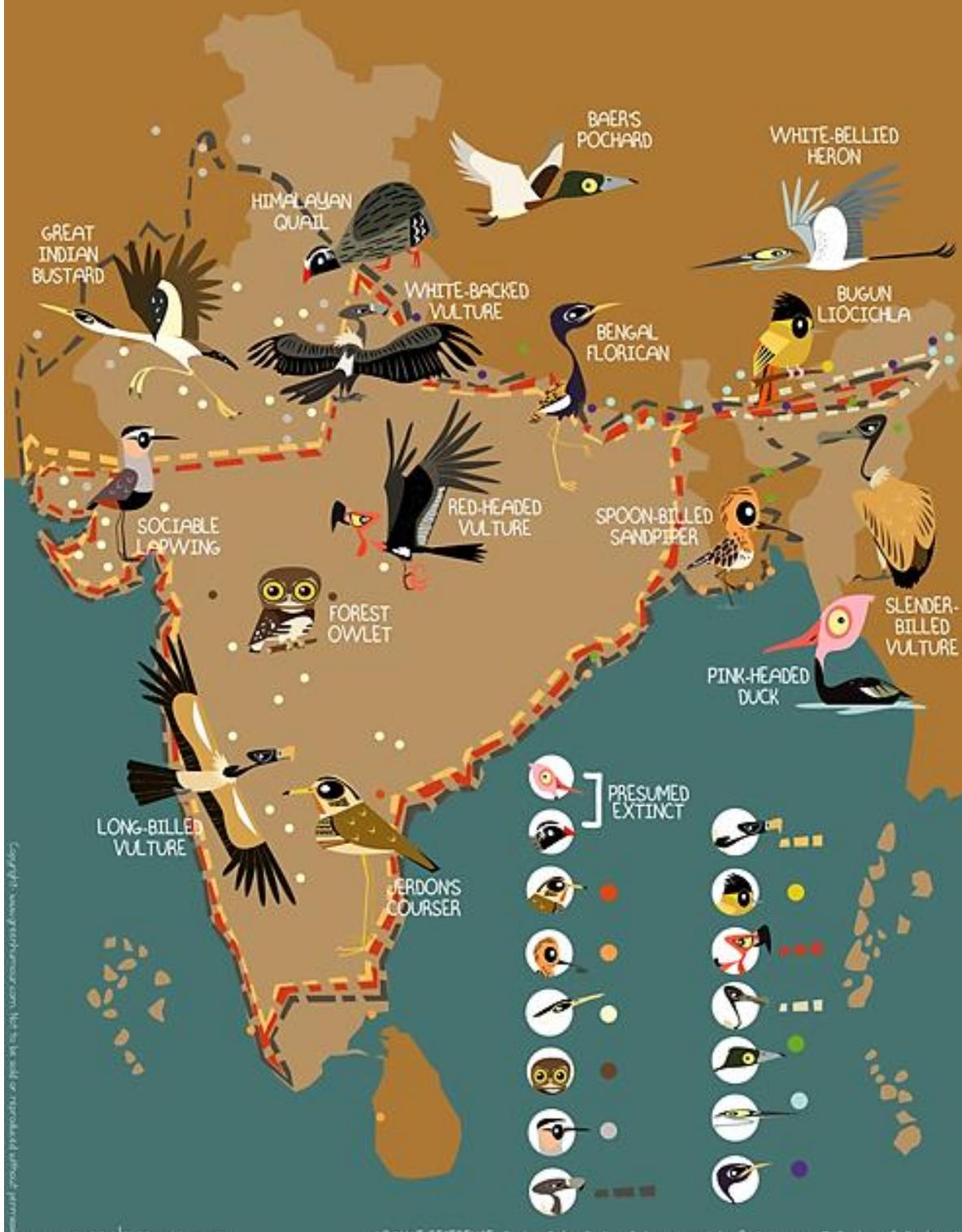
Select the correct answer using the code given below.

- (a) 1 and 2
- (b) 2 only
- (c) 1 and 3
- (d) 3 only



Birds – critically endangered

CRITICALLY ENDANGERED BIRDS OF INDIA



Jerdon's Courser (*Rhinoptilus bitorquatus*)



- Nocturnal bird
- Found only in - northern part of **Andhra Pradesh** in peninsular India [Sri Lankamaleswara Wildlife Sanctuary].
- **Habitat** - Undisturbed scrub jungle with open areas.
- **Distribution** - Jerdon's Courser is endemic to Andhra Pradesh.
- **Threats** - Clearing of scrub jungle, creation of new pastures, growing of dry land crops, illegal trapping of birds, plantations of exotic trees, quarrying and the construction of the River Canals.

Forest Owlet (*Heteroglaux blewitti*)



- **Habitat** - Dry deciduous forest.
- **Distribution** - South **Madhya Pradesh**, in north-west **Maharashtra** and northcentral Maharashtra.
- **Threats** - Logging operations, burning and cutting of trees damage roosting and nesting trees of the Forest Owlet.

White-bellied Heron (*Ardea insignis*)



- Extremely rare bird
- **Distribution** - found in five or six sites in **Assam** and **Arunachal Pradesh**, one or two sites in Bhutan, and a few in Myanmar.
- **Habitat** - Rivers with sand or gravel bars or inland lakes.
- **Threats** - Loss and degradation of lowland forests and wetlands through direct exploitation and disturbance by humans.

Bengal Florican (*Houbaropsis bengalensis*)





- A rare bustard species that is very well known for its **mating dance**.
- **Habitat** - Grasslands occasionally interspersed with scrublands.
- **Distribution** - Native to - Cambodia, India and Nepal.
 - In India - Uttar Pradesh, Assam and Arunachal Pradesh.
- **Threats** – conversion of bird's grassland habitat for various purposes including agriculture is mainly responsible for its population decline.

Himalayan Quail (*Ophrysia superciliosa*)



- Also known as **Mountain quail**.
- This species was known from only 2 locations in the western Himalayas in Uttarakhand, north-west India.

- **Habitat** - tall grasslands and scrub on steep hillsides.
- **Distribution** – Western Himalayas.
- **Threats** - Indiscriminate hunting during the colonial period along with habitat modification.

Pink- headed Duck (*Rhodonessa caryophyllacea*)



- Males have a deep pink head and neck from which the bird derives its name.
- **Habitat** - Overgrown still-water pools, marshes and swamps in lowland forests and tall grasslands.
- **Distribution** - Recorded in India, Bangladesh and Myanmar. Maximum records are from northeast India.
- **Threats** - Wetland degradation and loss of habitat, along with hunting are the main causes of its decline.

Sociable Lapwing (*Vanellus gregarius*)



- Winter migrant to India.
- Included in critically endangered list because of a sudden and rapid population decline.
- **Habitat** - Fallow fields and scrub desert.
- **Distribution** - central Asia, Asia Minor, Russia, Egypt, India, Pakistan.
 - In India - north and north-west of the country.
- **Threats** - Conversion of habitat to arable land, illegal hunting and proximity to human settlements.

Spoon Billed Sandpiper (*Eurynorhynchus pygmeus*)



- It requires highly specialized breeding habitat, a constraint that has always kept its population scarce.
- India is home to some of the last existing wintering grounds of this species.
- **Habitat** - Coastal areas with sparse vegetation. No breeding records further inland than 7 km from the seashore.
- **Distribution** - West Bengal, Orissa, Kerala and Tamil Nadu.
- **Threats** - Habitat degradation and land reclamation. Human disturbance also leads to high incidence of nest desertion.

Siberian Crane (*Grus leucogeranus*)



- It is a large, strikingly majestic migratory bird that breeds and winters in wetlands.
- They are known to winter at Keoladeo National Park, Rajasthan.
- **Habitat** - Wetland areas.
- **Distribution** - Keoladeo National Park in Rajasthan.
- **Threats** - Pesticide pollution, wetland drainage, development of prime habitat into agricultural fields, and to some extent, hunting.

Reptiles – Critically Endangered

Gharial (*Gavialis gangeticus*)



- Most uniquely evolved crocodilian in the world, a specialized, river-dwelling, fish-eater.
- **Habitat** - Clean rivers with sand banks.
- **Distribution** - Only viable population in the National Chambal Sanctuary, spread across three states of Uttar Pradesh, Rajasthan and Madhya Pradesh in India.
- Small non-breeding populations exist in Son, Gandak, Hoogly and Ghagra rivers. Now extinct in Myanmar, Pakistan, Bhutan and Bangladesh.
- **Threats** - The combined effects of dams, barrages, artificial embankments, change in river course, pollution (not only endanger taxa but also use of their water for human consumption), sand mining, riparian agriculture and ingress of domestic and feral livestock caused irreversible loss of riverine habitat and consequently of the gharial.

Consider the following fauna of India:

1. Gharial
2. Leatherback turtle
3. Swamp deer



Which of the above is/are endangered?

- a) 1 and 2 only
- b) 3 only
- c) 1, 2 and 3
- d) None

Hawksbill Turtle (*Eretmochelys imbricata*)



- Heavily exploited species
- Migratory nature and nesting occurs in about 70 countries across the world. Maturation is slow and is estimated between 25 - 40 years.
- **Habitat** - Nesting occurs on insular, sandy beaches.
- **Distribution** - In India - Andaman and Nicobar Islands, the coast of Tamil Nadu and Orissa.

- **Threats** - Turtle shell trade, egg collection, slaughter for meat, oil pollution and destruction of nesting and foraging habitats.

Leatherback Turtle (*Dermochelys coriacea*)



- Largest of the living sea turtles, weighing as much as 900 kg.
- Adult leatherback turtles - excellent swimmers.
- Primary food – Jellyfish.
- **Habitat** - Tropical and subtropical oceans.
- **Distribution** - Found in tropical and temperate waters of the Atlantic, Pacific, and into Indian Oceans.
- **Threats** - High sea fishing operations, harvesting of eggs, destruction of nests by wild predators and domesticated species such as cats, dogs and pigs.
 - Artificial lighting disorients hatchlings and adults and causes them to migrate inland rather than towards the sea.
 - Threats to habitat include construction, mining and plantation of exotics.

Four - toed River Terrapin or River Terrapin (Batagur baska)



River terrapins of different age cohorts: (from top to bottom) hatchling of about a week old, one-year-old and two years old.

- Omnivorous
- **Habitat** - Freshwater rivers and lakes.
- **Distribution** - Bangladesh, Cambodia, India, Indonesia and Malaysia.
- **Threats** - Use of flesh for medicinal purposes, demand for eggs, which are considered a delicacy

Red-crowned Roofed Turtle or the Bengal Roof Turtle (*Batagur kachuga*)

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
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- Restricted to the Ganga basin.
- Males have a bright red coloration during the breeding season.
- **Habitat** - Deep, flowing rivers but with terrestrial nest sites.
- **Distribution** - Found in India, Bangladesh and Nepal. In India it resides basically in the watershed of the Ganga.
- **Threats** - Water development projects, water pollution, human disturbance and poaching for the illegal wildlife market.



Reptiles - Near Threatened

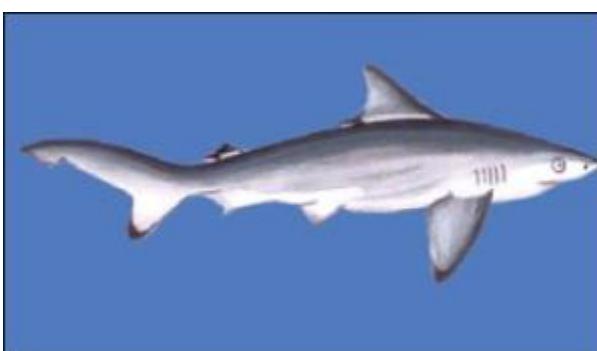
Sispara day gecko (*Cnemaspis sisparensis*)



- It is a large **gecko** which dwells usually in forests, it is largely insectivorous and nocturnal.
- **Distribution** - Endemic to Western Ghats, and found in Sispara, Nilgiris, Kavalai near Cochin.
- **Threats** - Habitat conversion and modification.

Critically Endangered – Fish

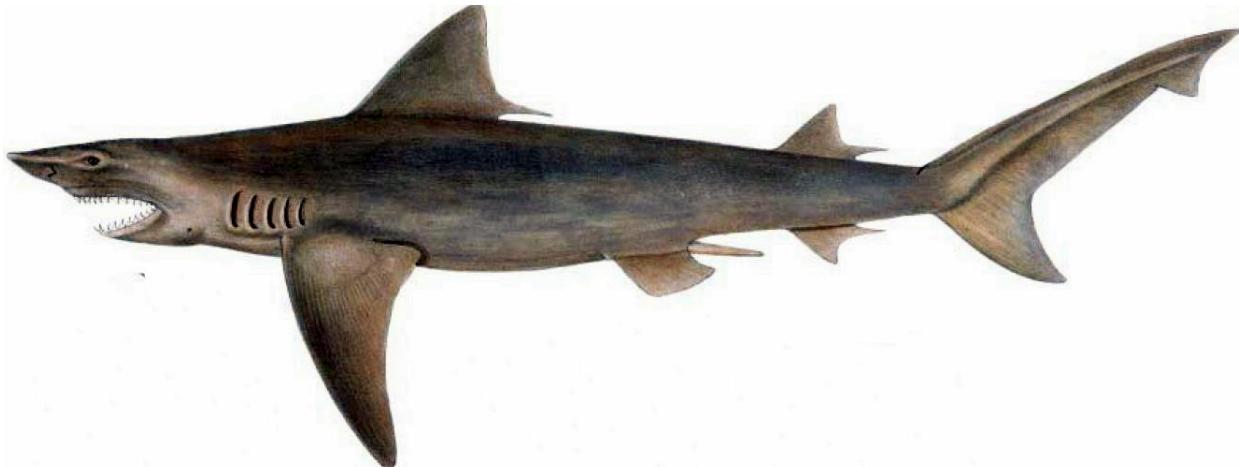
The Pondicherry Shark (*Carcharhinus hemiodon*)



- It is a marine fish which occurs inshore on continental and insular shelves.
- Very rare and little-known species.

- **Habitat/distribution** - Indian Ocean - from Gulf of Oman to Pakistan, India and possibly Sri Lanka.
- Also been recorded at the mouth of the Hooghly river.
- **Threats** - Large, expanding, and unregulated commercial fisheries in inshore localities and habitats.
 - Its populations are considered to have been severely depleted as a result of continued exploitation.

The Ganges Shark (*Glyptis gangeticus*)



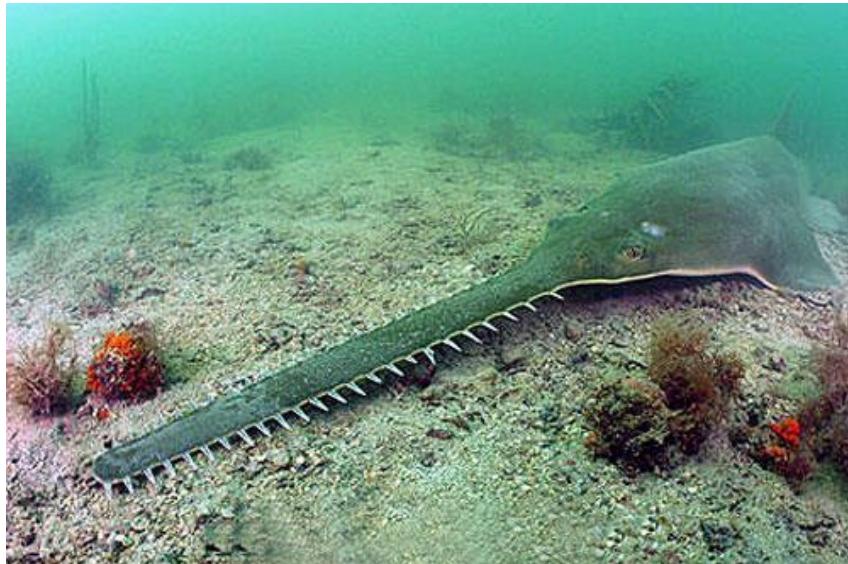
- It is a uniquely adapted fish-eating shark.
- The small eyes suggest that it is adapted to living in turbid water, while the slender teeth of the species suggest that it is primarily a fish-eater.
- **Habitat/distribution** - It occurs in India and possibly in Pakistan. The Ganga river system and Hooghly river mouth are its known habitats.
- **Threats** - Major fisheries targeting sharks.
 - Other probable threats - overfishing, pollution, increasing river use and construction of dams and barrages.
 - A few jaws of the species were found to have been traded in the international market during recent years, which testifies that the species is not extinct.

The Knife-tooth Sawfish (*Anoxypristes cuspidata*)



- It has a long narrow snout with blade-like teeth and a shark-like body.
- Can withstand a range of salinity conditions.
- Found in - shallow coastal waters and estuaries.
- **Distribution** - Widespread in western part of the Indo-Pacific region, including Red Sea.
- **Threats** - Principal threat to all sawfish are fisheries. Their long tooth studded saw, makes them extraordinarily vulnerable to entanglement in any sort of net gear.
- When sawfish are caught in by catch, they often end up being traded because of the very high value of their products (meat is high quality and fins and saws extremely valuable in international trade).

Large-tooth Sawfish (*Pristis microdon*)



- Heavy-bodied sawfish.
- Have short but massive saw.

- It is seen seasonally and very occasionally caught along with the Bull Sharks and the Green Sawfish.
- **Habitat/distribution and habitat** - Western part of the Indo-Pacific (East Africa to New Guinea, Philippines and Vietnam to Australia).
- **In India** - Mahanadi river and very common in estuaries of the Ganga and Brahmaputra.
- **Threats** - Increasing demand for sawfish in aquaria. Principal threat to all sawfish are fisheries. Their long tooth studded saw, makes them extraordinarily vulnerable to entanglement in any sort of net gear.
- Major habitat changes include construction of dams over rivers, siltation, pollution from industries and mining.

Long-comb Sawfish or Narrow-snout Sawfish (*Pristis zijsron*)



- Heavily exploited by humans.
- Found in shallow water.
- It inhabits muddy bottoms and also enters estuaries.
- **Habitat / distribution and habitat** - Indo-Pacific region including Australia, Cambodia, China, India, Indonesia and Malaysia.
- **Threats** - This species has been damaged intensively, both as a target species and as incidental by catch in commercial, sport or shark-control net fisheries, as well as for aquarium display.

Was in news- [Click Here](#)

Note- The sawfish is included in Schedule I of the Indian Wildlife (Protection) Act 1972

Spiders - Critically Endangered

Rameshwaram Ornamental or Rameshwaram Parachute Spider (*Poecilotheria hanumavilasumica*)

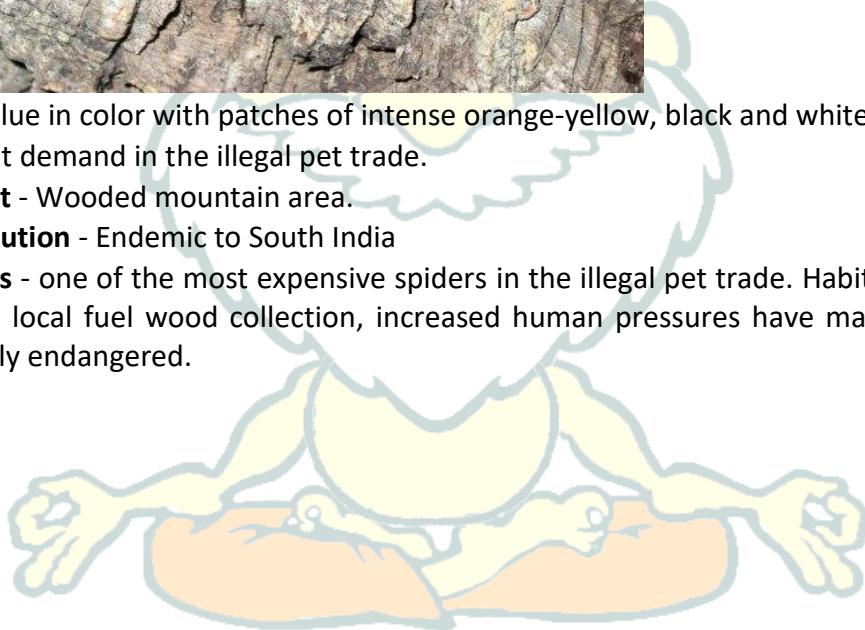


- Only found in India.
- The species is **semi-social**, which means they live partly in groups.
- **Habitat** - Arboreal and tend to live in hiding.
- **Distribution** - Endemic to India.
- Spread along the coastal savannah, tropical lowland rain forests and montane forests.
- **Threats** - habitat alteration and degradation.

Gooty Tarantula, Metallic Tarantula or Peacock Tarantula (*Poecilotheria Metallica*)



- Steel blue in color with patches of intense orange-yellow, black and white.
- In great demand in the illegal pet trade.
- **Habitat** - Wooded mountain area.
- **Distribution** - Endemic to South India
- **Threats** - one of the most expensive spiders in the illegal pet trade. Habitat degradation due to local fuel wood collection, increased human pressures have made this species critically endangered.



Corals – Critically Endangered

Fire corals (*Millepora boschmai*)



- More closely related to jellyfish than corals. On contact, one usually feels a burning-sensation similar to a sting from a jellyfish.
- Scientific name derived from several yellow green or brown color small pores on the surface of corals.
- **Habitat** - found in murky inshore waters and display tolerance for siltation. They often are found in clear offshore sites.
- **Distribution** - Indonesia, Gulf of Chiriqui, Panama Pacific Province. Possibly extinct from Australia, India, Indonesia, Malaysia, Panama, Singapore and Thailand.
- **Threats** - Collected for decoration and jewellery trade.
 - Sensitive to temperature rise.
 - Completely disappeared from the majority of marine areas possibly because of growing global warming related bleaching effects.

Bird's Migration

- **Migration** refers to the **regular, recurrent and cyclical seasonal movement** of birds from one place to other.
- The distance of migration can be small or long.
- But at the end of the period the bird will eventually return to original place.

Reasons for migration

1. To avoid adverse factors (extreme climatic condition)
2. To manage food shortage
3. To manage shortage of water
4. To have a better breeding conditions
5. Less competition for safe nesting places

Migratory birds of India

Winter birds	Summer birds
Siberian Cranes, Greater Flamingo, Common Teal, Yellow Wagtail, White Wagtail, Northern Shoveler, Rosy Pelican, Wood Sandpiper, Spotted Sandpiper, Eurasian Pigeon, Black Tailed Godwit, Spotted Redshank Starling Blue throat, Long Billed Pipit.	Asian Koel, Black Crowned Night Heron, Eurasian Golden Oriole, Comb Duck, Blue Cheeked Bee Eater, Blue Tailed Bee- Eater, Cuckoos.

Wildlife diseases

Diseases	Casual organism	Animal susceptible
Tuberculosis	Mycobacterium spp	Deer, cat, primates, elephant
Anthrax	Bacillus anthrax	Gaur, cheetal, wild pig, barking deer
Rabies	Rabies virus	Tiger, lion, bear, mongoose, squirrel
Foot and mouth disease	FMD virus	Gaur, nilgai, chetal, sambar, yak, mithun
Rinder pest	Microbills virus	Deer, wild pig, wild buffalo
Trypanosomia	Trypanosomia virus	Tiger, elephant, sambar, macaque
Taxoplasmosis	Taxoplasmagondii	Rhesus macaque, civet cat

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