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-ANIMALS-1

Covering: Basic concepts- current- terms and application

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UPDATED RED LIST OF THREATENED SPECIES: The International Union for Conservation of Nature's (IUCN) has unveiled its updated Red List of Threatened

Affected Marine Species

Dugong



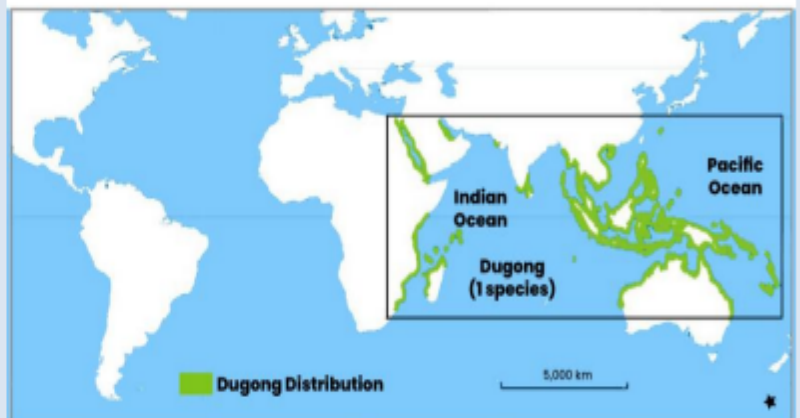
- Dugong populations in East Africa and New Caledonia have entered the IUCN Red List as **Critically Endangered** and **Endangered** respectively.
 - The species remains Vulnerable globally.

Protection Status of Dugong

- IUCN Status: Vulnerable
- Wild Life (Protection) Act, 1972: Schedule I
- CITES: Appendix I

- Threats include **unintentional capture in fishing gear** in East Africa and **poaching** in New Caledonia, and boat injuries and destruction of seagrass habitats in both locations.
- **Characteristics of dugong**
 - Also known as **Sea Cows**, they are the **only herbivorous marine mammals** and feed on seagrass.
 - The only member of the Order Sirenia found in India.
 - They **live in groups** and come to the **surface to breathe** with a distinct dolphin-like tail and have mammary glands.
- **Habitat and distribution:** Shallow coastal waters of the Indian and western Pacific Oceans.
 - In India, found in **Gulf of Mannar, Palk Bay, Gulf of Kutch and Andaman and Nicobar Islands**.
- **Conservation Measures in India:**
 - Listed under the **Species Recovery Programme** of India.
 - State animal of the Andaman and Nicobar Islands.
- Tamil Nadu government announced **India's first conservation reserve** for Dugongs in Palk Bay.

DUGONG DISTRIBUTION



Pillar

coral (*Dendrogyra cylindrus*)



- Pillar coral found throughout the Caribbean from the Yucatan Peninsula and Florida to Trinidad and Tobago, has moved from **Vulnerable** to **Critically Endangered**, after its population shrunk by over 80% across most of its range since 1990.
- Threats include **Stony Coral Tissue Loss Disease** and **bleaching** caused by increased sea surface temperatures and excess antibiotics, fertilisers and sewage.




Abalone



- **44%** of all **abalone** shellfish species enter the IUCN Red List as threatened with extinction.
 - Poaching threatens **Endangered perlemoen abalone** of South Africa.
 - Marine heatwaves have exacerbated abalone diseases worldwide, affecting the **Critically Endangered black abalone** in California and Mexico, and the **Vulnerable green ormer** (*H. tuberculata*), found from the English Channel to Northwest Africa and the Mediterranean.

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Details of some of New Threatened species in India

Species	Status	Description
White-cheeked Dancing Frog (Micrixalus candidus) 	Endangered	<ul style="list-style-type: none"> Only known from a small range with an extent of occurrence of 167 square kilometers (km²) in the Western Ghats of Karnataka, a biodiversity hotspot. Threatened due to loss of their habitat, pollution, changes in temperature, diseases, pests, invasive species.
Andaman Smoothhound shark (Mustelus andamanensis) 	Vulnerable	<ul style="list-style-type: none"> Shark is found in the Andaman Sea in the Eastern Indian Ocean off the coast of Myanmar, Thailand, and the Andaman and Nicobar Islands. It is subject to fishing pressure including trawl, longline, and gillnet.
Yellow Himalayan Fritillary (Fritillaria cirrhosa) 	Vulnerable	<ul style="list-style-type: none"> Mostly found in the Himalayas, it occurs in Bhutan, China, India, Myanmar, Nepal and Pakistan. Species is threatened due to unorganised harvest, over-extraction, unsustainable and premature harvesting of bulbs, coupled with illegal hidden markets. Medicinal uses: This is supposedly antiasthmatic, antirheumatic, febrifuge, galactagogue, haemostatic, ophthalmic and oxytocic.

Species during the COP15 biodiversity conference in Canada.

WREN BABBLER

- Birdwatchers have discovered a new songbird in Arunachal Pradesh which they have named Lisu wren babbler after Lisu community of state
- Bird has a whitish belly and songs were similar to that of Naga Wren Babb.
- Examples include Grey-bellied Wren Babbler and long-tailed wren-babbler.

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- They are 10 to 15 centimetres (4 to 6 inches) long, rather short tailed, and have a rather short and straight bill.
- Occur chiefly in southern Asia.

OLDEST KNOWN DNA

- In permafrost at northern edge of Greenland, scientists discovered oldest known fragments of DNA.
- DNA dates back at least two million years (nearly twice as old as mammoth DNA in Siberia that held previous record) and reveals that high Arctic was a much warmer, greener place—greener than many places on Earth are today.
- Paleontologists have found evidence of lush forests home to bears, beavers, and camel-like creatures in extreme northern latitudes.

ASOLA BHATTI SANCTUARY

- The Delhi Forest Department is in the process of procuring electric cycles and golf carts to enable visits to the Asola Bhatti Wildlife Sanctuary.
- An area of 1 km around the Asola Bhatti Wildlife Sanctuary in Gurugram and Faridabad is an Eco-sensitive zone.

ORAN LAND

- Residents from around 40 villages of Jaisalmer, Rajasthan have walked 225 kilometres to protect community-conserved sacred spaces known as ‘orans’
- The orans are among the last natural habitats of the great Indian bustard.
- Currently, the biodiversity hotspots are classified as wastelands.
- There are other orans like Mokla, Salkha, Kemde, which also spread across several hectares but are listed as wastelands
- These orans are hotspots of biodiversity with trees and flowers like rohida, bordi, kumbhat, and desi babool in large numbers.

PATHOGENS FROZEN IN PERMAFROST RESURFACE AS EARTH HEATS UP

- A new study finds that a warming planet is resulting in the loss of the Earth’s cryosphere and this could be resurrecting trapped pathogens, giving rise to potential public health threats.
- A 300-year-old frozen mummy from Siberia was found to contain the variola virus that causes smallpox

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Bodies exhumed from Alaska's permafrost contributed to understanding the 1918 Spanish flu virus genome

GREAT BARRIER REEF FROZEN FOR TRIAL

- In the latest lab trial, the world's first with Great Barrier Reef coral, scientists used the cryomesh to freeze coral larvae.
- A new material called "cryomesh" is helping the scientists in the effort. Coral is frozen using a special method called cryogenics.
- This permits the young animals to be stored until they can be unfrozen and placed in the wild.
- Cryogenically frozen coral reefs can be stored and later reintroduced to the wild to protect them against rising ocean temperatures

INTERNATIONAL CHEETAH DAY

- Social media fuels illegal trade in the species
- International Cheetah Day is celebrated on December 4 to raise awareness

about the need for helping cheetahs fight extinction

The fastest land animal in the world, Cheetah, declared extinct in India in 1952, will find a new home in the Kuno-Palpur National Park (KNP). African cheetahs are being brought under an intercontinental translocation project between India and Africa (mainly from South Africa and Namibia). It comes under the 'Action Plan for Introduction of Cheetah in India' under which 50 of these big cats will be introduced in the next five years.

These potential wildlife sanctuaries that would support cheetahs are: Kuno-Palpur (Area: 344 sqkm) Part of Kuno-Palpur Dry Deciduous Forests; Bhaugpur (Area: 2000sqm) & Sarhad region close to India-Pakistan border; and Sarhad (Area: 1,707sqm) Spreads over the southern area of Madhya Pradesh of India.

Cheetah relocation Sites

Cheetah

Asiatic Cheetah with red eyes

Cheetah Tear Marks Act Like Sunglasses: Cheetah primarily hunt during the day, unlike other big cats, the tear marks help to reflect away the sun's glare, making it easier for them to focus on hunting their prey.

Leopard

Small, rounded head with black 'tear marks'

Partially exposed claws

Jaguar

Relatively small, angular head

Large, rounded head

Small, densely packed rosettes

Large rosettes with central spot

Cheetah: IUCN (Asiatic- Critically Endangered; African-Vulnerable)

- African Cheetah are bigger in size as compared to Asiatic Cheetah, have darker color. Asiatic Cheetah (only 40-50 survive in Iran) usually have 'Red Eyes'.

Leopard: IUCN: Vulnerable

- India has about 12000 leopard (largest number in MP) and there has been "60% increase in the population count of leopards in India from 2014 estimates"

Jaguar: IUCN: Near Threatened

- The largest cat in the Americas, the jaguar has the strongest bite force of all wild cats, enabling it to bite directly through the skull of its prey. Melanistic (black) jaguars are common and are often called black panthers.
- A black panther is the melanistic colour variant of the leopard (*Panthera pardus*) and the jaguar (*Panthera onca*).

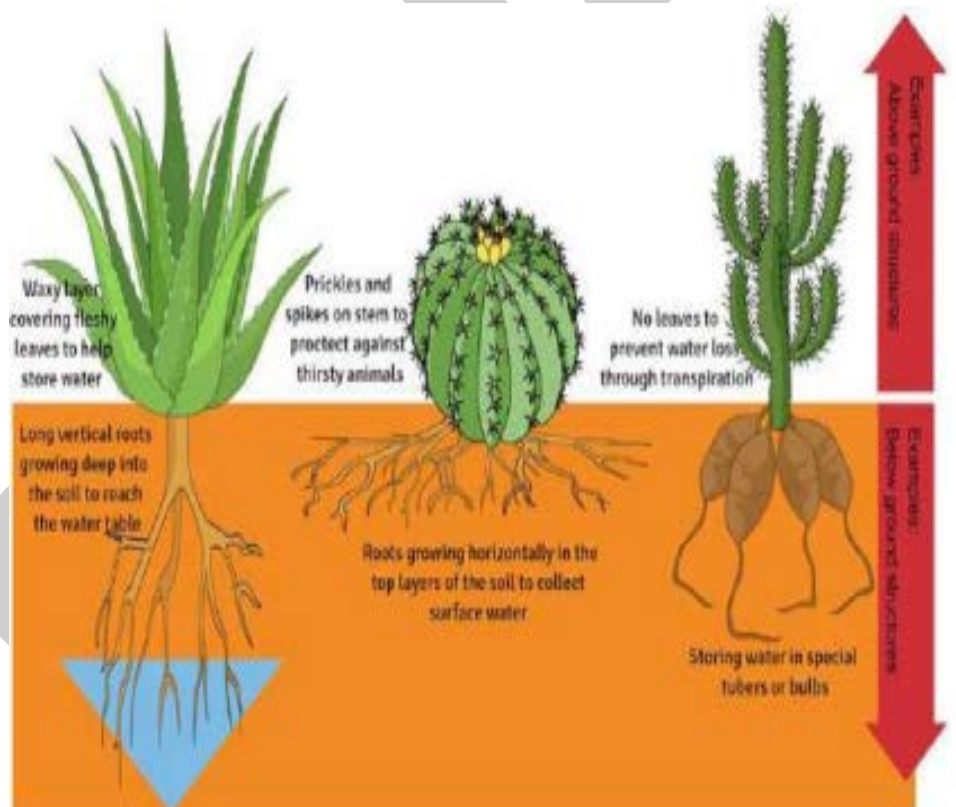
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THREE HIMALAYAN MEDICINAL PLANTS ENTER IUCN RED LIST

- *Meizotropis pellita* - 'critically endangered', known as Patwa, a perineal shrub, endemic to Uttarakhand, rich in antioxidants, and used in essential oils
- *Fritillaria cirrhosa*: 'vulnerable', perennial bulbous herb, used in China for treatment of bronchial disorders, pneumonia and cough suppressant
- *Dactylorhiza hatagirea*- 'endangered', a perennial tuberous species endemic to the Hindu Kush and Himalayan ranges of Afghanistan, Bhutan, China, India, Nepal, and Pakistan, extensively used in the Indian system of medicine to cure dysentery chronic fever, stomach ache etc.

CACTUS PLANTATION

- The government is promoting Cactus plantation and its economic usage.
- It is a xerophytic plant which grows at a slower pace & is adapted to grow in an arid and semi-arid climate
- Plantations of cacti will help in the restoration of degraded land
- Cactus can be used as– biofuel, food, fodder and in bio fertiliser production
- Contributing to employment and income generation for poor farmers.
- 30% of India's land is categorised as 'Degraded Land'.
- The Watershed Development component of PM Krishi Sinchayi Yojana (WDC-PMKSY) aims to restore degraded land under the Department of Land Resources



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INDIA'S DISAPPEARING DONKEYS

- A fall in demand as a beast of burden, and illegal meat and skin trade have caused a critical decline in donkey numbers.
- Donkey milk is more nutritious as it has a less fat content.
- IUCN: Near Threatened
- In traditional Chinese medicine, boiling donkey skin produces gelatine called ejiao, which can be consumed or mixed with cosmetic products to treat conditions such as insomnia, dry cough and poor blood circulation

Breed	Native region; characteristics	Use
Kachchhi	Kutch region of Gujarat; grey, white, brown or black in colour	For weed removal in farms and as pack animal during pastoralist migration. It can carry 80-100 kg and pull 200-300 kg on carts.
Halari	Saurashtra region of Gujarat; white in colour, docile temperament	As a pack animal during pastoralist migration and pull carts. It can walk around 30-40 km in a day
Sindhi	Barmer and Jaisalmer districts of Rajasthan; brown in colour	As pack animal to transport water, soil, earthenware, construction material, and fodder and to pull carts and for ploughing by small and marginal farmers. They can carry 1,000-1,500 kg.
Spiti	Cold desert areas of Himachal Pradesh; dark brown, brown or black in colour	For immediate transport of highly perishable cash crops and fruits, food grains and other items to far-flung areas; to fetch wood, logs and other minor forest produce; and to bring dung or manure from pastures to villages or fields.

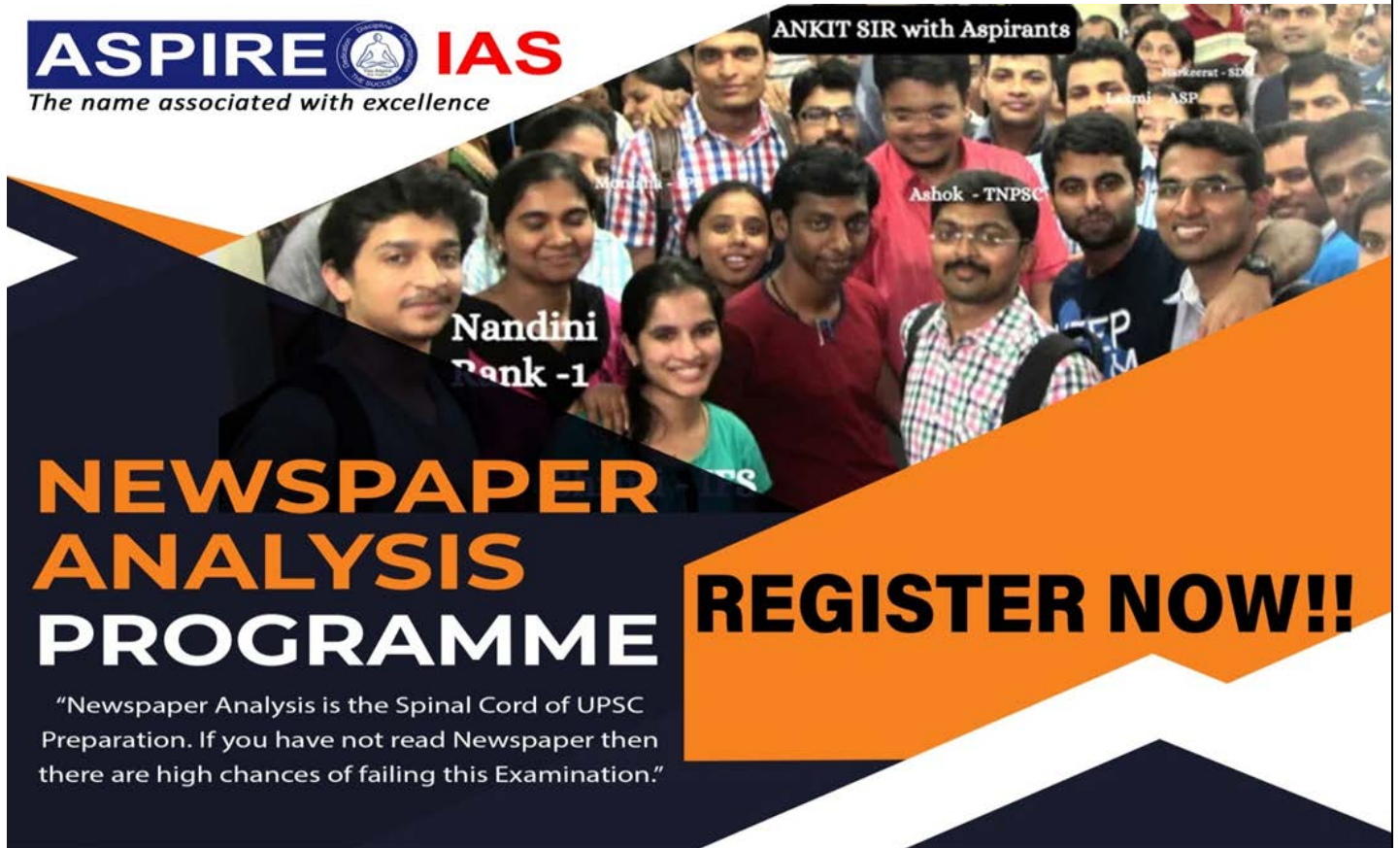
ORCAS

- Two cities in the United States formally declare their support for legal rights for a group of endangered orcas
- They are toothed whales and are generally found in temperate and tropical waters (from the Arctic to the Antarctic)
- They have long life spans and are highly social
- Orcas are found across the world and are also known as “killer whales”
- Technically, killer whales are the largest member of the dolphin family
- But because of their size, they are referred to as whales.
- As the top ocean predator, they kill other animals for survival.
- IUCN: Data deficient.

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IUCN UPDATED RED LIST OF THREATENED SPECIES

- White-cheeked Dancing Frog, Andaman Smooth hound shark and Yellow Himalayan Fritillary are under threat in India, as per the IUCN Red List unveiled during the COP15 biodiversity conference in Montreal

White-Cheeked Dancing Frog Status:

- Endangered
- It is Found only in the Western Ghats of Karnataka (endemic)
- Threat: Areca Nut and Coffee plantation, Pollution, Invasive species

Andaman Smooth hound Shark

- Status: Vulnerable
- Only found in the Andaman Sea (Endemic to India)
- Threat: Fishing pressure

Yellow Himalayan Fritillary plant

- Status – Vulnerable
- It is a large group of mostly-spring flowering plants in the lily family and occurs mostly in the Himalayas.
- It occurs in Bhutan, China, India, Myanmar, Nepal and Pakistan.
- Threats - It is harvested and traded in disguise with a new trade name 'Jangli lehsun'

SECRET BEHIND LONG LIFESPAN OF BANYAN, PEEPLE TREES

- Researchers at the Indian Institute of Science Education and Research (IISER) Bhopal have carried out whole genome sequencing of banyan and peepal trees
- The work helped in identifying 17 genes in the case of banyan and 19 genes of peepal with multiple signs of adaptive evolution (MSA) that play a pivotal role in the long-time survival
- Ficus religiosa or sacred fig is a species of fig native to the Indian subcontinent and Indochina
- The lifespan of the banyan tree is expected to be 200 - 500 years. Peepal trees, on the other hand, can survive up to 2500 years.

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MAMMALIAN EVOLUTION

- As per the study, Mammals may have evolved in Gondwana, the southern landmass formed from the supercontinent Pangaea millions of years, rather than its northern counterpart Laurasia
- Mammals are warm-blooded animals with hairs and vertebrates consisting of three groups:

Monotremes are primitive mammals that lay large eggs and have a common opening for the urogenital and digestive systems.



Marsupials are mammals whose young are born incompletely developed. They develop inside a pouch on the mother's belly.



Placentals carry the foetus until a late stage of development.

Placental Classification

Placentals are divided into about 19 different groups called orders. Below are the 9 major orders.



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- When Pangaea broke up, the northern continents of North America and Eurasia became separated from the southern continents of Antarctica, India, South America, Australia and Africa.
- The large northern continent is called Laurasia and the southern continent is called Gondwanaland

HIPPOPOTAMUS

- Deepening restrictions on Elephant ivory trafficking have led to an increase in the trade in hippopotamus teeth

Poachers are targeting hippos for giant teeth in place of Elephants' ivory



Hippo facts

- All hippos live in Africa - there are two types, the common hippo (population estimated at 115,000 to 130,000 in 2016) and the pygmy hippo (2,000-3,000)
- The common hippo was classified as "vulnerable to extinction" on the International Union for the Conservation of Nature (IUCN) red list in 2016
- The parts and products of an estimated 13,909 hippos were legally traded between 2009 and 2018 - three-quarters of them originated in Tanzania, Uganda, Zambia and Zimbabwe
- 770,000kg of hippo teeth were legally traded between 1975 and 2017 - the size of the illegal trade is unknown
- India does not have any hippos outside of zoos or similar confined areas.
- Nearly 5.9 million to 9,000 years ago, India was home to the hippopotamus. These entered Eurasia from Africa, then diversified in South Asia before going extinct.

Elephant and hippo tusks

How they compare



- Length up to 2m (6ft) long
- Elongated incisor tooth



- Length up to 50cm (1ft 6in)
- Lower canine tooth

- Hippo body parts can still be traded under the Convention on International Trade in Endangered Species (CITES), though all international sales require an export permit.
- The common hippo is listed in Appendix II of CITES meaning that it could be threatened with extinction unless trade is closely controlled.
- Worldwide population of the common hippo was between 115,000 and 130,000 - a drop of 30% since 1994 (IUCN Study)

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LION @ 47: VISION FOR 'AMRUTKAL'

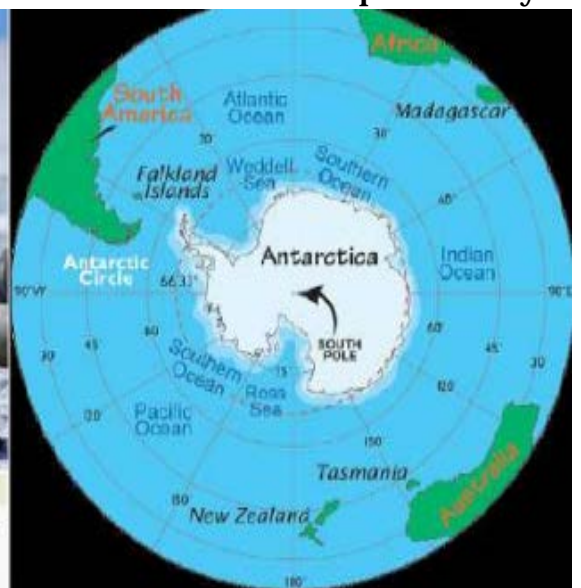
- Project Lion document titled "Lion @ 47: Vision for Amrutkal" has been prepared by Ministry of Environment, Forest and Climate Change
- The Project is being implemented in the Gir landscape in Gujarat which is the last home of the Asiatic lions.

Objectives:

- To secure & restore lions' habitats for managing its growing population
- Scale up livelihood generation and participation of local communities
- To make India a global hub of knowledge on big cat disease diagnostics and treatment
- State government of Gujarat also gets funding for conservation of wildlife under centrally sponsored scheme – Integrated development of Wildlife Habitats.

ANTARCTICA'S EMPEROR PENGUINS

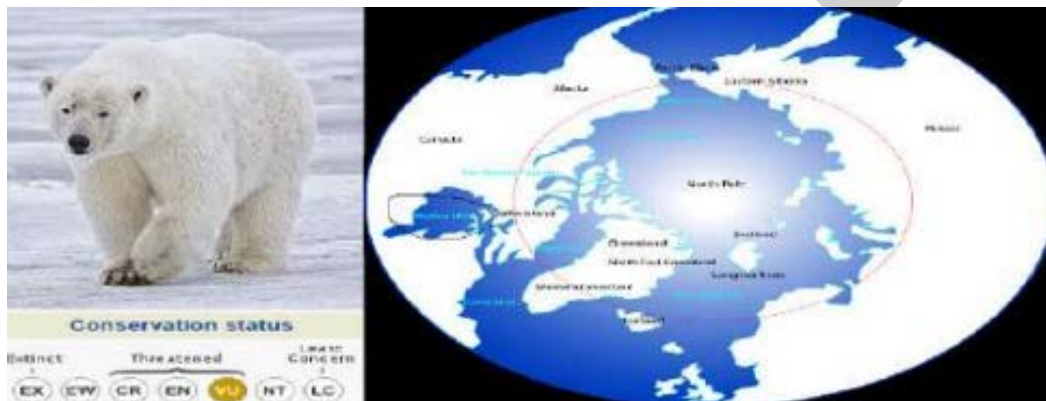
- The emperor penguin, which relies on ice for breeding, is the most vulnerable of Antarctica's species.
- According to a recent study, greater efforts are needed to conserve Antarctic ecosystems, and populations of up to 97% of land-based Antarctic species may decline by 2100 if the negative consequences of climate change are not addressed
- the emperor penguin is the tallest and heaviest of all living penguin species and is endemic to Antarctica.



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POLAR BEARS

- Western Hudson Bay (the region includes Churchill, the town that is known as 'The Polar Bear Capital of the World') has witnessed a drop of around 50% in the population of polar bears since the 1980s
- Polar Bears are a hyper-carnivorous (animals with over 70% meat diet) species whose native range lies largely within the Arctic Circle.
- It is the largest extant bear species, as well as the largest extant land carnivore.
- Impact of climate change on polar bears: The Arctic Sea ice (which is melting due to rising global temperatures) is crucial to polar bears' survival as they use it not only to hunt seals (chief food) but also for travelling, mating and resting.
- Importance of polar bears: Polar bears are one of the most significant predators in the Arctic region and they keep biological populations in balance.



PROJECT NILGIRI TAHR

- India's first Nilgiri Tahr project to conserve the State animal of Tamil Nadu will be taken up.
- The project will have nine components, including bi-annual synchronised surveys across the division, diagnosis and treatment for affected individuals and a Shola grassland restoration pilot in Upper Bhavani.

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Project Nilgiri Tahr of Tamil Nadu Forest (India's first) aims to restore the fragmented habitat especially **Shola grasslands** where it thrives, reintroduce the **Tahr population** in its historic habitat and ensure proper rehabilitation facilities are provided



About Nilgiri Tahr

- Only mountain ungulate in Southern India among the **12 species present** in India.
- **Population:** It's population has been estimated at **3,122** in the wild (WWF India 2015 estimates)
- It is **endemic** to Western Ghats and locally known as '**Varaiaadu**'.
- **Threats:** A large part of its population has been wiped out from its historical range of Western Ghats. The existing populations are under severe stress due to **habitat loss and hunting**
- **State animal** of Tamil Nadu
- **IUCN: Endangered**

The shola forest-grassland is the **tropical montane forest** found in the upper reaches of India's **Western Ghats**. This mosaic ecosystem is native only to the southern Western Ghats and found in the high altitude mountains of **Kerala, Tamil Nadu and Karnataka**.



Ungulates consists of large mammals with hooves.



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All the Best to all my Economics students...
Hope this material will help you.
God bless...
Jai Hind

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