THREATS TO BIODIVERSITY

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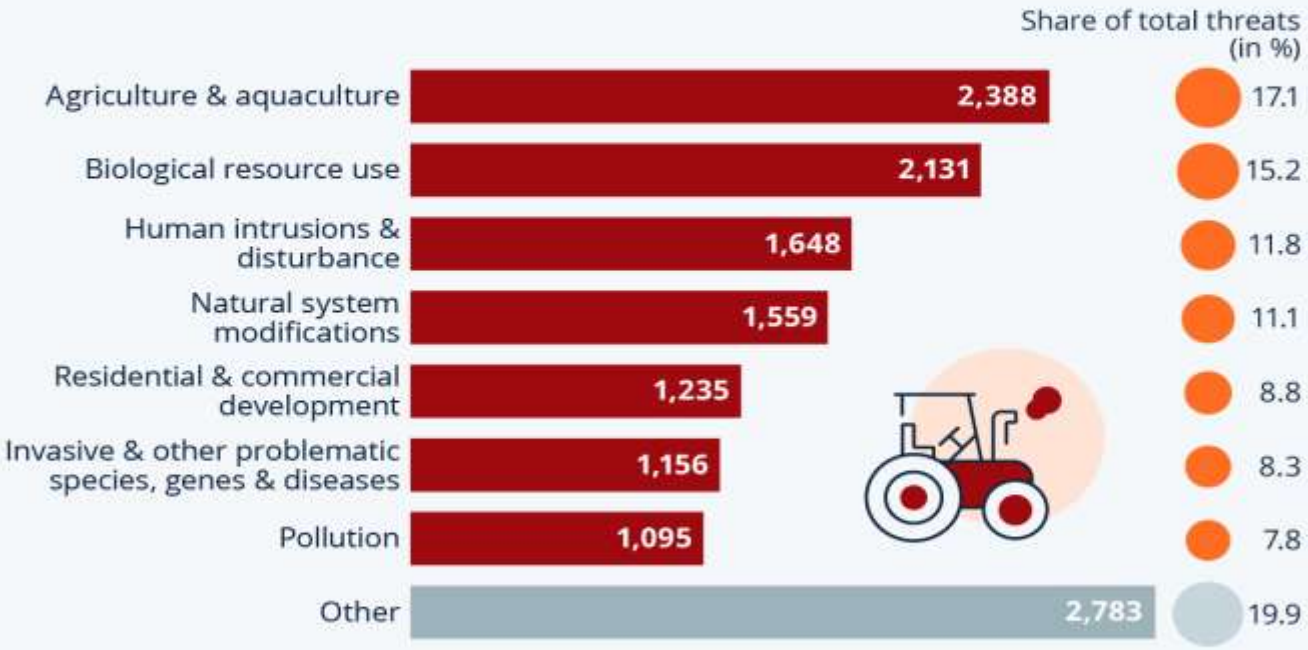
According to WWF's Living Planet Report 2024 reveals that World's biodiversity is under threat, significant declines in the average size of populations of wildlife across the globe and Africa.

According to the report, the world has experienced a decline of 73% with Africa's at 76% in the size of monitored vertebrate wildlife populations between 1970 and 2020, driven primarily by habitat loss, **overexploitation,** pollution and the impacts of climate change.

The Biggest Threats to Biodiversity on Earth

Number of key biodiversity areas identified as experiencing the following threats* worldwide as of Sep. 2024



* Categorized by the IUCN as top-level threats to biodiversity and ecosystems

Source: World Database of Key Biodiversity Areas

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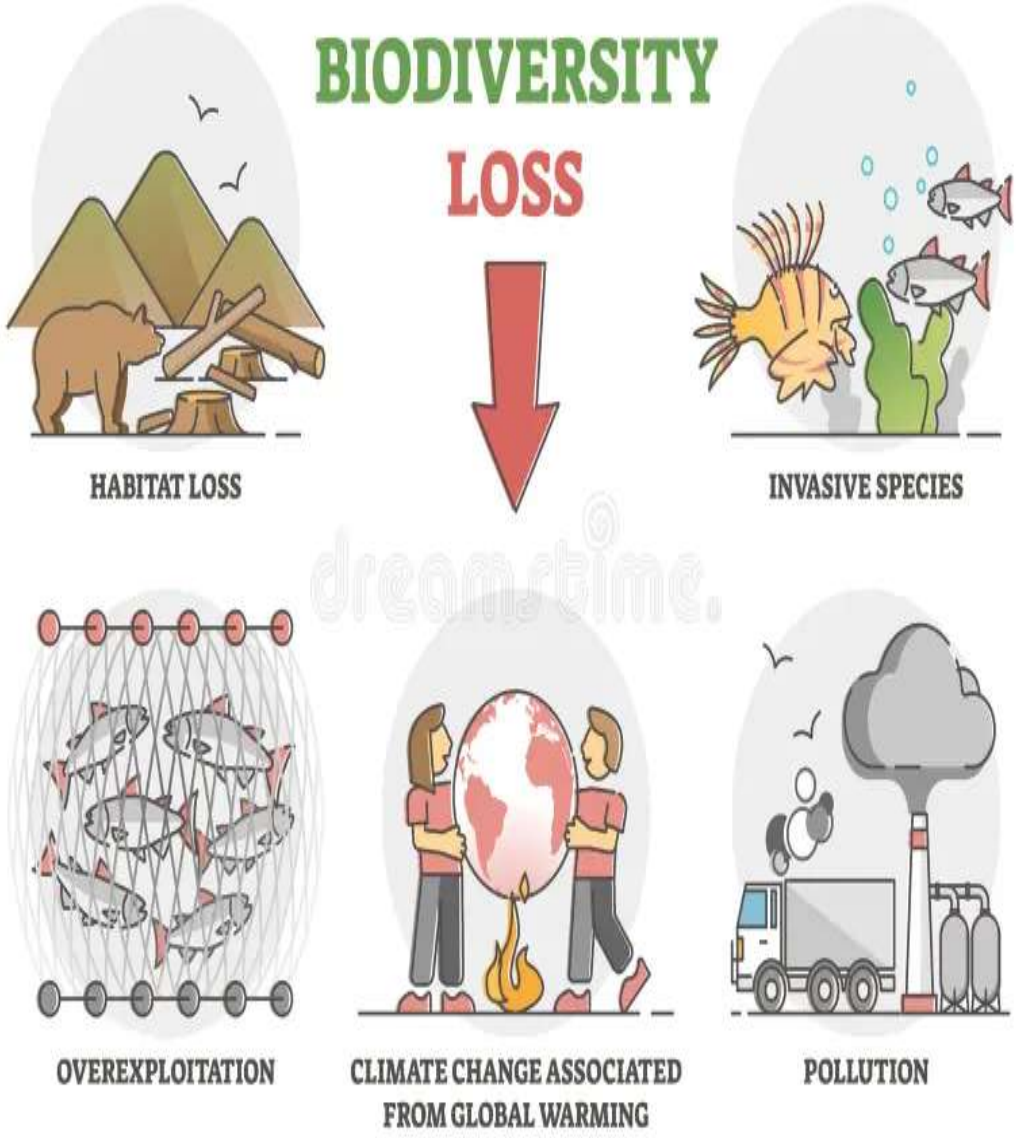


OVEREXPLOITATION

- **Overexploitation of biological resources**: when the activities connected with capturing and harvesting (hunting, fishing, farming) a renewable natural resource in a particular area is excessively intense, the resource itself may become exhausted.
- Today's vast human population and improved technology have resulted in unsustainable harvest levels of many species and other biological resources.
- International trade and Poaching.
- Global and local overexploited species: Tuna fish, Blue whale, Gevy zebras, Black rhino, Elephants, Kongoni, Topi, frogs. Sandal wood, Mangroves.

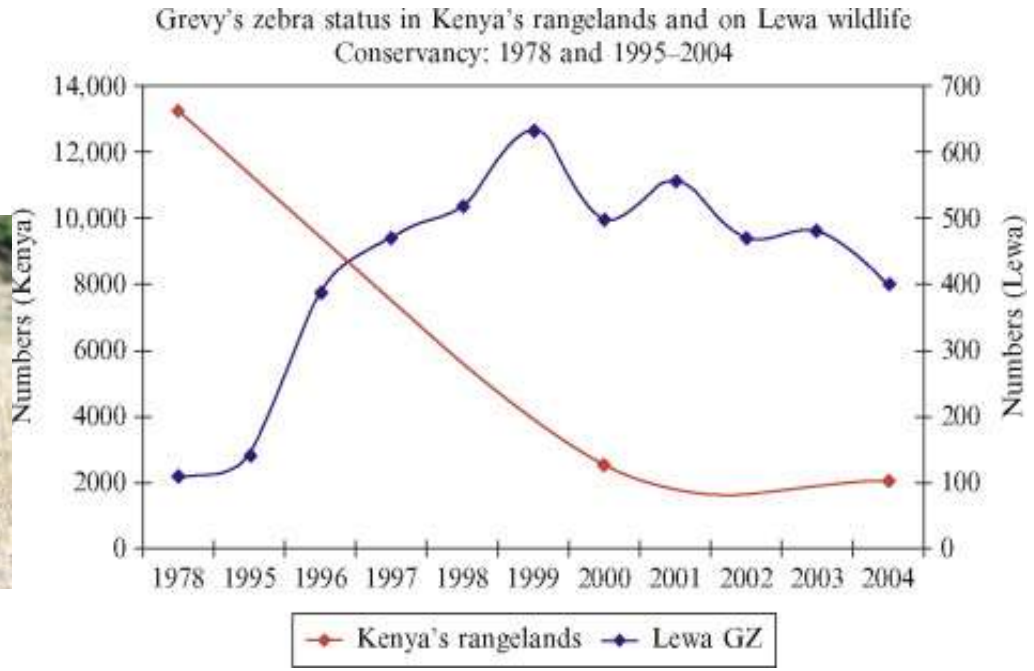
CASE STUDY - KENYA

- According to DRSRS estimates, The late 1980s and 1990s ushered in an era of heavy declines in Grevy's zebra (Equus grevyi) at (74%).

- Poaching Driven by Illegal Trade: Despite a drop in incidents (only one rhino was poached in 2022 compared to six in 2021), poaching for the international rhino horn market remains a primary threat. The illegal trade, primarily destined for Asia, continues to target the species for its horns.

Grevy's zebra (Equus grevyi)

Black Rhino (Diceros bicornis michaeli)



❑Overexploited plants - Kenya

- The illegal harvesting of plant species such as the African Sandalwood tree (Osyris lanceolata), exploited for its essential oils used in perfumes.

- African sandalwood (*Osyris lanceolata*) leaves, roots, barks, fruits, and woods are used for multiple purposes throughout Asia, Africa, and Europe.
- It is threatened in several countries in Africa due to overexploitation.

sandalwood (*Osyris lanceolata*)

INVASIVE SPECIES

- Species have spread into new regions via natural processes of dispersal, but under human influence they are moving faster, farther, and in greater numbers than ever before (Ricciardi 2007. A number of species have recently emerged as particularly serious threats.
- Has obscured past regional differences.
- Invasive species may displace native species through competition for limiting resources, they may prey upon native species to the point of extinction, or they may alter the habitat so that natives are no longer able.

Modes of Introduction.

- European colonization
- Agriculture, horticulture, aquaculture
- Accidental transport
- Biological control

CASE STUDY - KENYA

Group	Species	Year of arrival	General ecosystem impacts	Potential socioeconomic impacts	Invasive status at the Kenya Coast
Invertebrate	*Acanthaster planci* crown-of-thorns starfish	Not known	Predation of corals by *Acanthaster planci*, upsurge of coral diseases and increased vulnerability of corals to temperature-related stresses. The impacts of coral predation can be severe and long-lasting. In some reefs 90% of live coral cover is lost due to *A. planci* outbreaks	Reduced fish yields	Mild
Plants	*Prosopis juliflora* (*mathenge*)	1983	An aggressive large shrub which especially invades riparian, arid, and semi-arid regions. It form's impenetrable thickets reducing native biodiversity and displacing valuable pasture species , Reducing ground water resources,	Damages fishing equipment Thorns can kill livestock when ingested Negatively impacts livelihoods	Serious Reported in Tana River Delta
	Pistia stratiotes (Nile cabbage)	A free-floating aquatic plant.	Outcompeting other native plants and reduced biodiversity, loss of feeding and breeding grounds for fish and other aquatic fauna. May cause nutrient load from decaying weed biomass and also lead to anoxic conditions	Serious	Serious
	Sphenoclea zeylanica (*Wedgewort*)	This weed species is native to African and has spread as a weed across the world.			Serious
	Salvinia molesta (Kariba weed)	A free-floating aquatic plant native to south-eastern Brazil and first reported in Kenya in 1984. Invasive in lakes			Serious

(Source: Global Invasive Species Database, Centre for Agriculture and Biosciences International, 2016)

Acanthaster planci (crown-of-thorns starfish)

Mathenge (Prosopis juliflora)

water hyacinth (Pontederia crassipes

DISEASES

- Another major threat to species and biological communities is the increased transmission of disease resulting from human activities and interaction with humans.
- Human-caused habitat destruction may increase disease-carrying vectors and interaction with humans may cause populations of wild animals to acquire diseases from near by domestic animals and people (Jones et al. 2008).
- Diseases in Kenya pose a significant threat to biodiversity, with roughly 71.8% of emerging infectious diseases (EIDs) originating from wildlife, often exacerbated by habitat degradation, climate change, and human-wildlife contact.
- Key diseases impacting both wildlife and ecosystem health include anthrax, bovine tuberculosis, and various vector-borne illnesses that cross between species.

TYPES OF DISEASES

- **Zoonotic Diseases (Wildlife to Human/Livestock):** These diseases originate in wild animals and can devastate wildlife populations while also impacting humans and livestock.

- **Ebola Virus Disease:** Linked to fruit bats, this has caused major concern for biodiversity, particularly primate populations, and poses a high risk to human health.

- **Anthrax and Brucellosis:** Prevalent in livestock-rearing areas, these diseases affect wild herbivores and carnivores, causing significant mortality in wildlife and impacting biodiversity.
- **Rift Valley Fever:** Transmitted by mosquitoes, this disease heavily affects both livestock and wildlife in Kenya, especially during flooding events.
- **Vector-Borne Diseases: Trypanosomiasis:** While often seen as a livestock disease, it significantly affects wildlife populations, particularly in protected areas and conservation zones.
- **Yellow Fever, Dengue, and Malaria:** These diseases are increasing in frequency in arid areas due to climate change, affecting ecosystem health and causing increased pressure on biodiversity.

- Infectious diseases such as rabies, Lyme disease, influenza, bird flu, hantavirus, and canine distemper-spread among wildlife populations, domestic animals, and humans as a result of increasing population densities and the advance of agriculture and human settlements into wildlife areas.

Ebola outbreak in DR. Congo, 2025.

CONCLUSION

- Certifying timber, seafood, and other products as sustainable may be a way to prevent overharvesting.
- National parks, nature reserves, marine sanctuaries, and other protected areas can also be established to conserve overharvested species.
- Global conservation laws, policies and regulations. Such as CITES.


THE
END