

VULNERABLE TO EXTINCTION



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VULNERABLE TO EXTINCTION

Susceptible to physical or emotional attack or harm

Faces a high risk of extinction in the medium-term.

Examples: Manatee & Polar Bear



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Not all species have an equal chance of going extinct.

Rare species are considered to be especially vulnerable to extinction, while common species are considered less so.

Term rare has a variety of meanings in the biological literature.

Generally a species is considered rare if it,

- ❑ Lives in a narrow geographic range
- ❑ Occupies only one or a few specialized habitats
- ❑ Found only in small populations

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- Sea cow (*Dugong dugong*) is rare because it occurs only in the Gulf of Mannar Biosphere Reserve, Southeast coast of India.
- Many geographically rare species occupy islands and some may also occupy isolated habitats such as high mountain peaks of lowlands or lakes surrounded by a terrestrial landscape. Within their limited geographical range, however, a rare species may be locally abundant.
- Endemism-that some species are found naturally in a single geographic area and no other place (Eg. *Rhizophora annamalayana*).

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- A species may also be considered rare if it occupies only one or a few specialized habitats.
- Ex: Salt marsh cord grass (*Spartina patens*) is found only in salt marshes and not in other habitats, yet within this habitat, cord grass is quite common.
- A species may be considered rare if it is found only in small populations.

Eg. Sea cow *Dugong dugong*

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- Mediterranean monk seals (*Monachus monachus*) are found over a wide area, but their populations are always small and isolated.
- When environments are damaged by human activity, the ranges and population sizes of many species will be reduced, and some species will go extinct.
- Rare species must be carefully monitored and managed in conservation efforts.

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Ecologists have observed that particular categories of species are most vulnerable to extinction many of which are the defining characteristics of rare species.

These categories are as follows:

1. Species with very narrow geographical range

Ex: Birds species on oceanic islands many fish species confined to a single lake or a single watershed have also disappeared.

2. Species with only one or a few populations
3. Species in which population size is small (“the small population paradigm”)
4. Species in which population size is declining (“the declining population paradigm”)

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5. Species with low population density
6. Species that need a large home range
7. Animal species with a large body size
8. Species that are not effective dispersers
9. Seasonal migrants
10. Species with little genetic variability
11. Species with specialized niche requirements

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12. Species that are characteristically found in stable, pristine environments
13. Species that form permanent or temporary aggregations
14. Species that have evolved in isolation and have not had prior contact with people
15. Species that are hunted or harvested by people

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16. Species have closely related species

- That are recently or rare threatened with extinction
- Any one population of a species may become extinct due to earthquakes, fire, an outbreak of disease or human activity
- “The small population paradigm”, small populations are more likely to go locally extinct than large populations due to their greater vulnerability to demographic and environmental variation and loss of genetic variability
- Species in which population size is declining, sometimes called “the declining population paradigm”. Population trends tend to continue, so a population showing signs of decline is likely to go extinct unless the cause of decline is identified and corrected

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Species with low population density:

- A species with low population density-few individuals per unit area-will tend to have only small populations
 - Species that need a large home range: for foraging (searching their food)
 - Animal species with a large body size: Require more food, more easily hunted by humans

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Species that are not effective dispersers:

- Environmental changes prompt species to adapt behaviorally, physiologically to the new conditions of their habitat. Species unable to adapt to changing environments must either migrate to more suitable habitat or face extinction, **pollution, exotic species and global climate changes, canalization and sedimentation** can limit the movement so.
- In US 68% of freshwater fauna of mussels and snails are extinct or 40% of freshwater fishes are become to extinction-for example birds unable to fly due to oil pollution.