

THE RED DATA BOOK

IUCN Categories and Criteria, National Red Data Books, and Their Role in Conservation

1. Introduction

A **Red Data Book (RDB)**, also called a Red List, is an official inventory that documents the conservation status and distribution of plant and animal species, ranking them by how close they are to extinction. The name comes from the original 1964 publications of the **International Union for Conservation of Nature (IUCN)**, which were bound in red covers to signal urgency. The modern global reference is the **IUCN Red List of Threatened Species**, maintained and updated continually by the IUCN Species Survival Commission.

- First produced by the IUCN in 1964; today it is the world's most comprehensive information source on the global extinction risk status of animal, fungus, and plant species.
 - As of the most recent update, the IUCN Red List has assessed over 169,000 species, of which more than 47,000 are classified as threatened with extinction.
 - Besides the global IUCN Red List, many countries and agencies compile their own **national or regional Red Data Books** — for example, India's are prepared chiefly by the Zoological Survey of India (ZSI) for fauna and the Botanical Survey of India (BSI) for flora.
 - An entry in a Red Data Book is a scientific assessment of extinction risk, not itself a law — but it is widely used as the evidence base for legal protection (such as Wildlife Protection Act schedules) and for international trade controls (such as CITES appendices).
-

2. Objectives and Significance

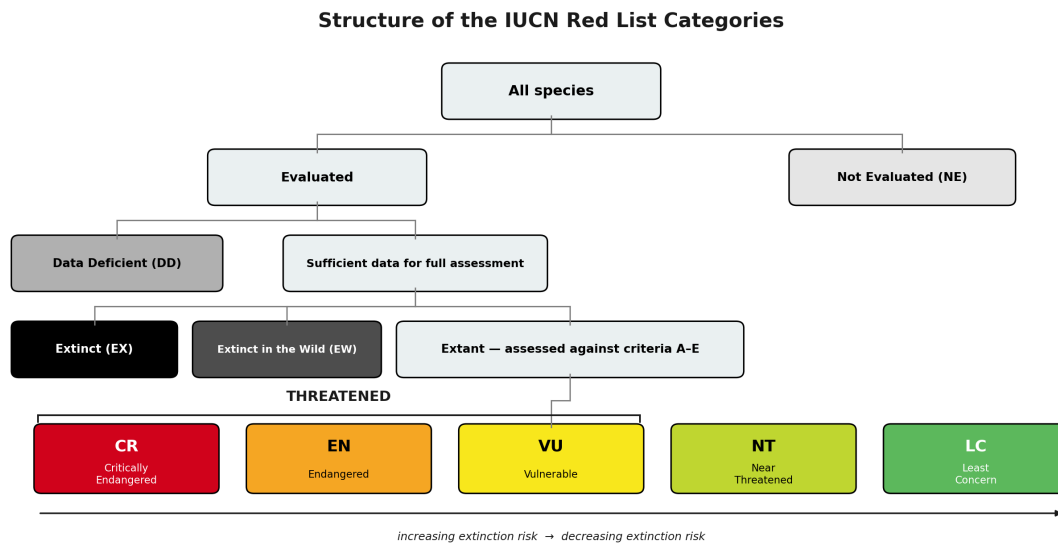
The Red Data Book exists to turn scattered field and survey data into a single, standardised measure of extinction risk that scientists, governments, and conservation planners can act on.

- To identify and publicise species facing a high risk of global extinction, so that conservation attention and funding can be directed where it is most needed.
 - To provide an objective, transparent, and scientifically rigorous system that can be applied consistently across very different taxonomic groups and geographic regions.
 - To track changes in a species' status over time, providing an early-warning indicator of deteriorating (or improving) ecosystems.
 - To support national and international policy — including the Wildlife (Protection) Act, 1972 in India, CITES trade controls, and the global targets of the Convention on Biological Diversity (CBD).
 - To guide priorities for protected-area planning, habitat restoration, captive-breeding programmes, and species-specific recovery plans.
-

3. The IUCN Red List Categories

Under the current system (IUCN Red List Categories and Criteria, version 3.1), every evaluated species is placed into one of several categories, forming a graded scale of extinction risk. Species assessed as

Critically Endangered, Endangered, or Vulnerable are collectively termed **"threatened"**.



DD (Data Deficient) and NE (Not Evaluated) are not risk categories — they mean a status could not yet be assigned, either from lack of data or because the species has not been reviewed.

Fig. 1 — Structure of the IUCN Red List categories, from initial evaluation through to the extinction-risk gradient.

Category	Meaning
Extinct (EX)	No reasonable doubt that the last individual has died (e.g. dodo, passenger pigeon).
Extinct in the Wild (EW)	Survives only in cultivation, captivity, or as a naturalised population well outside its native range.
Critically Endangered (CR)	Facing an extremely high risk of extinction in the wild in the immediate future.
Endangered (EN)	Facing a very high risk of extinction in the wild in the near future.
Vulnerable (VU)	Facing a high risk of extinction in the wild in the medium-term future.
Near Threatened (NT)	Close to qualifying for, or likely to qualify for, a threatened category soon.
Least Concern (LC)	Widespread and abundant; does not qualify for any higher-risk category.
Data Deficient (DD)	Inadequate information to make a direct or indirect assessment of extinction risk.
Not Evaluated (NE)	Has not yet been assessed against the criteria.

4. Assessment Criteria (A–E)

To keep assessments objective and comparable across taxa, the IUCN evaluates every candidate species against five quantitative criteria. Meeting the threshold for **any one** criterion is sufficient to assign a threatened category — a species does not need to meet all five.

The Five IUCN Criteria Used to Assign CR / EN / VU Status

A species qualifies as Critically Endangered, Endangered, or Vulnerable if it meets ANY ONE of criteria A–E

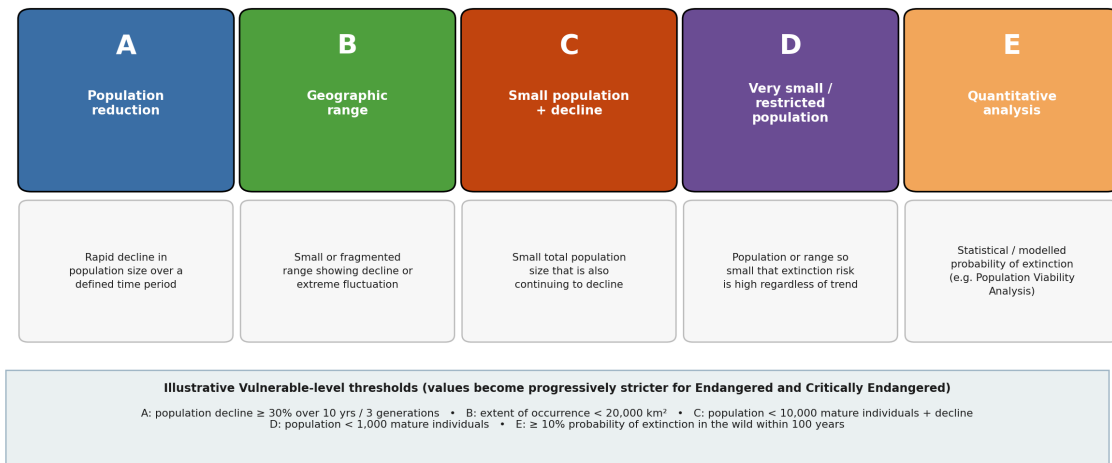


Fig. 2 — The five IUCN assessment criteria, with illustrative Vulnerable-level thresholds; thresholds tighten further for Endangered and Critically Endangered.

Other factors recorded alongside the category include the **population trend** (increasing, stable, decreasing, or unknown), the specific criterion and sub-criterion met (e.g. "VU A2c"), and — since 2001 — **Red List assessments are formally reviewed and updated at set intervals** to reflect new data.

5. The Red Data Book in India

- **Zoological Survey of India (ZSI)**, Kolkata, compiles Red Data Books for Indian faunal groups (mammals, birds, reptiles, amphibians, fish, invertebrates), following IUCN categories and criteria.
- **Botanical Survey of India (BSI)** similarly compiles Red Data Books for threatened Indian plant species.
- The **Wildlife Institute of India (WII)**, Dehradun, and the **Bombay Natural History Society (BNHS)** contribute species assessments and population data used in these compilations.
- West Bengal itself hosts important faunal Red List concerns, including the **Royal Bengal Tiger** (Endangered) in the Sundarbans, and river dolphins and turtles of the Ganga–Brahmaputra system.

Examples of Indian species by IUCN category

Category	Examples (India)
Critically Endangered	Great Indian Bustard, Gharial, Red-crowned Roofed Turtle, Namdapha Flying Squirrel
Endangered	Bengal Tiger, Asian Elephant, Snow Leopard, Ganges River Dolphin, Lion-tailed Macaque

Category	Examples (India)
Vulnerable	Indian Rhinoceros (one-horned), Sloth Bear, Dhole (Asiatic wild dog), Indian Pangolin
Near Threatened	Indian Leopard, King Cobra
Least Concern	Nilgai, Common Peafowl, Rhesus Macaque

Note — IUCN status vs. legal protection status

IUCN Red List category is a scientific extinction-risk assessment; it is distinct from, though often used to justify, a country's own legal protection schedules.

In India, the Wildlife (Protection) Act, 1972 places species into Schedules (currently Schedule I being the highest legal protection) largely, but not always exactly, in line with their IUCN status.

6. Red Data Book Compared with Other Conservation Tools

Tool	Purpose	Maintained by
Red Data Book / IUCN Red List	Scientific assessment of a species' global (or national) extinction risk	IUCN (global); ZSI/BSI (India, national)
CITES Appendices (I, II, III)	Regulates and monitors international trade in wild species and their parts	CITES Secretariat, under a UN-linked treaty
Wildlife (Protection) Act, 1972 Schedules	Domestic Indian law defining legal hunting/trade restrictions and penalties	Government of India (Ministry of Environment, Forest and Climate Change)

The three systems are complementary: a Red List assessment identifies risk, CITES controls the cross-border trade that can drive that risk, and national law enforces on-the-ground protection.

7. Quick Revision Summary

Aspect	Key point
Origin	IUCN, 1964; bound in red covers, hence "Red Data Book"
Global reference	IUCN Red List of Threatened Species — continually updated
Category gradient	EX → EW → CR → EN → VU → NT → LC (plus DD and NE, which are not risk levels)
"Threatened" =	CR + EN + VU combined
Assessment basis	Any one of five criteria: A (population reduction), B (range), C (small population + decline), D (very small/restricted population), E (quantitative extinction-risk analysis)
India — fauna	Zoological Survey of India (ZSI)
India — flora	Botanical Survey of India (BSI)
Related tools	CITES (trade control); Wildlife (Protection) Act, 1972 (domestic legal protection)

Compiled study note — conservation / wildlife biology reference. Species-assessment statistics reflect the IUCN's most recent published update; consult iucnredlist.org for the current figures, as counts change as new assessments are added. Figures are original schematic diagrams prepared for this note.