



Rhisotope Project

[Source: IE](#)

Why in News?

South African University, in collaboration with the [International Atomic Energy Agency \(IAEA\)](#) has launched an innovative **rhino anti-poaching initiative** using **radioactive isotopes (radioisotopes)**, called the [Rhisotope Project](#).

What is the Rhisotope Project?

- **About:** It involves a **non-invasive procedure** where **measured low doses of radioisotopes** are injected into the **horns of live rhinoceroses**.
 - This makes the horn **useless** and **toxic for human consumption**, while the procedure is **safe for rhinoceroses**.
- **Advantages:**
 - **Radioactively treated rhino horns** are identifiable by **Radiation Portal Monitors (RPMs) and scanners** at **borders, ports, and airports**, even inside **fully loaded containers**.
 - Radioactive markers make **horns dangerous to smugglers** and **less marketable in illegal trade**, discouraging poaching.

What are Radioisotopes?

- **About:** **Radioisotopes** are **radioactive isotopes** with **unstable atomic nuclei** that emit **ionizing radiation (alpha, beta, or gamma)** to achieve a **more stable nuclear configuration**.
 - It is caused by an **imbalance between neutrons and protons** in the nuclei.
Eg: **Carbon-14 (C-14)** & **Tritium (H-3)**.
 - To achieve stability, they emit **energy and particles** which **can be detected** with devices such as a **Geiger counter** or photographic film.
- **Isotopes:** **Isotopes** are **atoms of the same element** having the **same atomic number (protons)** but **different mass number (protons + neutrons)**.
 - Eg: Protium, Deuterium & Tritium (isotopes of hydrogen).
- **Applications:**
 - Medicine (I-131 for thyroid diagnostics, Tc-99m for imaging), Industry, Power generation, Archaeology (C-14 dating).

RHINOCEROS

World Rhino Day - 22nd September (declared by WWF in 2010)

5 Main Species of Rhino

Species	Found in	IUCN Red List Status	Habitat
African White	Africa	NT	Long/short grass Savannah
African Black	Africa	CE	Semi-Desert Savannah
Greater one-horned	Asia	Vu (CITES - Appendix I, WPA - Schedule I)	Tropical grassland
Javan	Asia	CE	Tropical, subtropical forests
Sumatran	Asia	CE	Same as Javan

Ujung Kulon National Park (a UNESCO WHS) is home to the last remaining wild Javan rhinos on Earth

Greater One-Horned Rhino

Only species found in India (aka Indian Rhino)



CHARACTERISTICS

- Largest of the 5 species
- Identified by a single black horn and a grey-brown hide with skin folds



Threats

- Poaching for horns
- Habitat loss
- Decreasing Genetic diversity



Protected Areas (India)

- **UP**
 - ◆ Dudhwa TR
- **West Bengal**
 - ◆ Jaldapara NP ◆ Gorumara NP
- **Assam**
 - ◆ Pabitora WLS
 - ◆ Orang NP
 - ◆ Kaziranga NP (max no. of Rhinos: ~2400)
 - ◆ Manas NP



Conservation Efforts (India)

- National Rhino Conservation Strategy
- Indian Rhino Vision 2020 (launched in 2005)

New Delhi Declaration on Asian Rhinos 2019

Signed by 5 rhino range nations (India, Bhutan, Nepal, Indonesia and Malaysia)



Drishti IAS

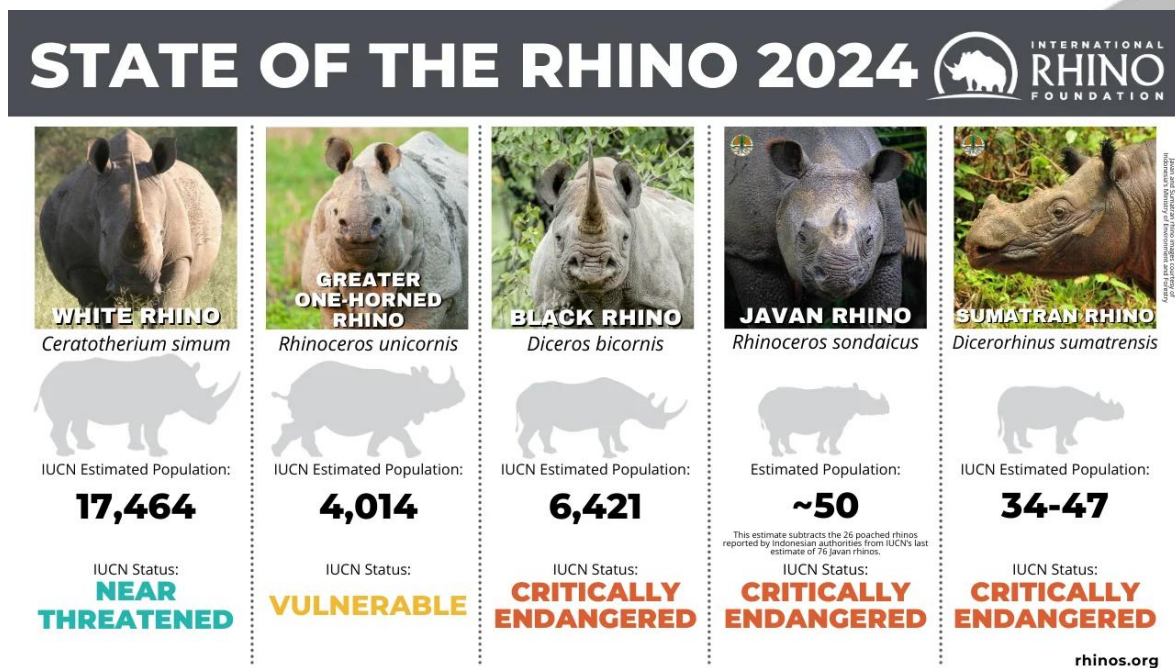
Major Threats to Rhino

- **Poaching:** It remains the most severe threat, causing population declines and local extinctions.

- **Invasive species: Invasive species (like Parthenium)** threaten habitats by outcompeting native rhino food plants, limiting available range.
- **Climate change & Human-Wildlife Conflicts:** Climate change **intensifies monsoons and droughts** in Asia, pushing **Rhinos out of their habitats**. This forces them into human areas, **increasing human-wildlife conflict**.

Note:

- **Parthenium (Congress grass)** is threatening **Assam's Pobitora Wildlife Sanctuary**, which hosts the world's highest density of **one-horned rhinos**, by causing **skin allergies, fever, lowering agricultural productivity**, and damaging biodiversity.
 - It is a **highly invasive flowering plant** from the **Asteraceae family**, & native to the Americas.
 - It possibly **entered into India** along with **wheat imported from the US in the early 1950s** and has since **spread aggressively across about 1 million hectares** of fallow land nationwide.



Conservation Initiatives for Rhinos

- [New Delhi Declaration on Asian Rhinos](#)
- [DNA Profiles of all Rhinos](#)
- [National Rhino Conservation Strategy](#)
- [Indian Rhino Vision 2020](#)

International Atomic Energy Agency (IAEA)

- The IAEA is an **intergovernmental organisation** founded in **1957**, to **promote the peaceful applications of nuclear energy** and works to **prevent its use for military purposes**, such as **nuclear weapons**.
- It was **founded** as the **UN's "Atoms for Peace" organisation** and operates under its own **founding treaty**, the **Statute of the IAEA**.
- It reports to both the **UN General Assembly** and the **UN Security Council** & is headquartered at the UN Office in **Vienna, Austria**.
- It comprises **178 member states**, with **India as a founding member** & was awarded the **2005 Nobel Peace Prize** for contributions to nuclear safety and peace.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q. Consider the following statements in respect of Trade Related Analysis of Fauna and Flora in Commerce (TRAFFIC): (2017)

1. TRAFFIC is a bureau under the United Nations Environment Programme (UNEP).
2. The mission of TRAFFIC is to ensure that trade in wild plants and animals is not a threat to the conservation of nature.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (b)

Q, Consider the following statements: (2019)

1. Asiatic lion is naturally found in India only.
2. Double-humped camel is naturally found in India only.
3. One-horned rhinoceros is naturally found in India only.

Which of the statements given above is/are correct?

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

Ans: (a)