Beavers

Prelims: *Current events of national and international importance*

Why in News?

A recent study published in that beavers can transform riverbeds into powerful carbon sinks, offering significant potential for climate mitigation in Europe.

- These are ***semi-aquatic rodents*** known for their role as "nature's engineers."
- **Genus –** Castor.
  - **Scientific Name -** Castor canadensis (North American) and Castor fiber (Eurasian).
- They are the ***second-largest living rodents*** in the world, surpassed only by the Capybara.
- **Habitat –** Found in ***temperate and boreal regions*** of Europe, North America, and parts of Asia.
- Prefer river corridors, wetlands, and riparian forests.
- Build dams and lodges in streams and rivers, altering hydrology and sedimentation.
- **Global Distribution – Europe -** Increasingly recolonising rivers after conservation efforts.
- **North America** - Widespread across Canada and USA.
- **Asia -** Small populations in Mongolia, China, and Russia.
- **India Context -** While not currently native, historical records indicate that the Manipur beaver (Trogontherium cuvieri) existed in India until approximately 1905.
- **Ecological Importance -** Beavers are classified as a ***Keystone Species*** because their impact on the environment is disproportionately large compared to their population size.
- **Dam Building -** By constructing dams with mud, stones, and wood, they slow down stream flow and create wetlands.
- **Nature's Kidneys-** These dams act as natural filtration systems, trapping sediment and filtering out pollutants like nitrates and phosphates, which

significantly improves water quality downstream.

- **Carbon Sequestration -** Recent studies (2025-26) highlight that beaver-created wetlands are excellent at trapping organic matter and storing carbon, helping mitigate climate change.
- **Disaster Mitigation-** * Floods: Dams act as "speed bumps" that reduce the peak of floodwaters.
- **Droughts -** Ponds store water that recharges groundwater and keeps streams flowing during dry spells.
- **Wildfires -** Areas with beaver activity often act as natural firebreaks, remaining lush and green while surrounding areas burn.
- **Threats –** Dependence on intact dams for long-term carbon storage.
- Seasonal CO_2 emissions when water levels recede.
- Human–wildlife conflict - flooding of agricultural lands and infrastructure.
- **Conservation Status - IUCN Red List-** Both species are currently listed as *Least Concern.*



References

1. Down to earth | Beavers
2. Wageningen University & Research | Beavers

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