Editorial

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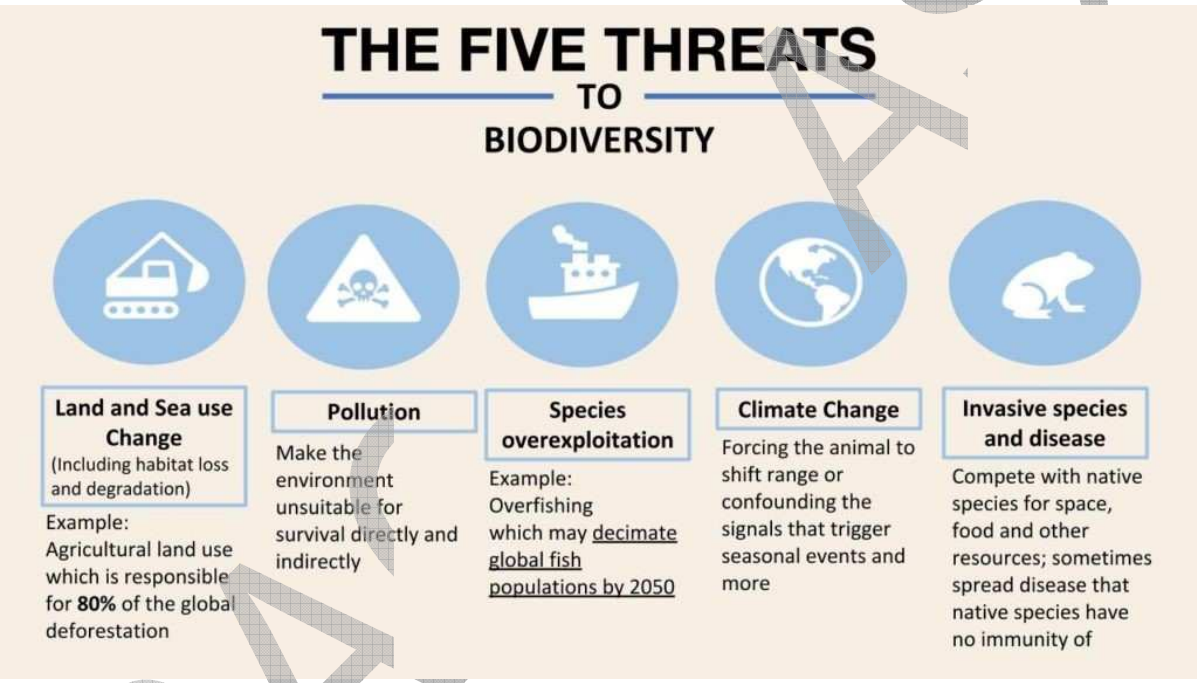
The grim forewarnings of a global study on birds



Context:

The State of the World's Birds, an annual review of environmental resources published on May 5 by nine natural sciences and avian specialists across the globe, has revealed that the **population of 48% of the 10,994 surviving species of birds is declining**.

The report led by the Manchester Metropolitan University gives an overview of the changes in the knowledge of avian biodiversity and the extent to which it is imperilled.

What are the key findings of the study?

1. The study found that 5,245 or about 48% of the existing bird species worldwide are known or suspected to be undergoing population declines.

2. While 4,295 or **39% of the species** have stable trends, about 7% or 778 species have increasing population trends. The trend of 37 species was unknown.
3. The study draws from **BirdLife International's latest assessment** of all birds for the International Union for Conservation of Nature's Red List that shows 1,481 or **5% species are currently threatened with global extinction.**
4. These include 798 species classified as vulnerable, 460 as endangered and 223 as critically endangered while 52 species were considered to be data deficient.
5. **About 73% species** are estimated to have fewer than 10,000 mature individuals, 40% have fewer than 2,500 mature individuals, and almost 5% have fewer than 50 mature individuals.
6. The bird species are non-randomly threatened across the avian tree of life, with richness of threatened species disproportionately high among families such as parrots, pheasants and allies, albatrosses and allies, rails, cranes, cracids, grebes, megapodes, and pigeons.
7. The **more threatened bird species (86.4%)** are **found in tropical** than in **temperate latitudes (31.7%),** with hotspots for threatened species concentrated in the tropical Andes, southeast Brazil, eastern Himalayas, eastern Madagascar, and Southeast Asian islands.

What is the importance of birds to ecosystems and culture?

1. **Birds are a truly global taxon**, with one or more species occupying all habitats across the earth's terrestrial surface including urban environments with no natural analogues.
2. **Birds contribute toward many ecosystem services** that either directly or indirectly benefit humanity. These include provisioning, regulating, cultural, and supporting services.
3. The functional role of birds within ecosystems as pollinators, seed-dispersers, ecosystem engineers, scavengers and predators not only **facilitate accrual and maintenance of biodiversity** but also **support human endeavours** such as sustainable agriculture via pest control besides aiding other animals to multiply.
4. For instance, **coral reef fish productivity** has been shown to increase as seabird colonies recovered following rat eradication in the Chagos archipelago.

5. **Wild birds and products** derived from them are also economically important as food (meat, eggs).
6. Approximately 45% of all extant bird species are used in some way by people, primarily as pets (37%) and for food (14%).
7. The **cultural role of birds** is perhaps more important than any other taxonomic group.
8. Beyond its symbolic and artistic values, **birdwatching** is a global pastime practised by millions of people.
9. **Garden bird-feeding** is valued at $5-6 billion per year and growing by four per cent annually.

What are the threats contributing to avian biodiversity loss?

The study lists **eight factors**, topped by land cover and land-use change.

1. The continued growth of human populations and of per capita rates of consumption lead directly to conversion and degradation of primary natural habitats and consequent loss of biodiversity.
2. Although global tree cover increased between 1982 and 2016, including by 95,000 sq. km in the tropical dry forest biome and by 84,000 sq. km in the tropical moist deciduous forest biome, this has been **driven by afforestation with plantations** (often of non-native species) plus land abandonment in parts of the global North, with net loss in the tropics.
3. The other factors are **habitat fragmentation and degradation**, especially in the tropics;
4. **Hunting and trapping** with 11 to 36 million birds estimated to be killed or taken illegally in the Mediterranean region alone;
5. The **impact of invasive alien species and disease** (971 alien bird species introduced accidentally or deliberately to 230 countries over the centuries have affected the native species);
6. Infrastructure, energy demands and pollution;
7. **Agrochemical and pharmaceutical usage** (pesticide ingestion kills an estimated 2.7 million birds annually in Canada alone);
8. Global trade teleconnections; and
9. Climate change.

Can the avian biodiversity loss be stemmed?

Yes. The study says ornithologists have a good understanding of the **spatio-temporal patterns of avian diversity** compared to many other taxa and the measures needed to slow down and **ultimately reverse avian biodiversity loss**.

The growing footprint of the human population represents the **ultimate driver of most threats to avian biodiversity**, so the success of solutions will depend on the degree to which they account for the social context in which they are implemented, and our ability to effect changes in individual and societal attitudes and behaviour.

Conclusion:

Emerging concepts of conservation social science can inform efforts to address biodiversity loss and to achieve **more effective and sustainable conservation outcomes**, linking birds to human well-being, **sustainability, climate resilience, and environmental justice.**

The continued degradation of the primary natural habitats of birds due to human activities should be mitigated because birds **contribute towards many ecosystem services** that either directly or indirectly benefit humanity.

Avian biodiversity needs to be conserved as it has a direct bearing on human wellbeing and sustainability.

A Long Term Strategy to Tackle Heat Waves

India has been in the grip of what seems like an **eternity of heat waves.** The temperatures over north-west and central India in April 2022 were the highest in 122 years.

India is no stranger to heatwaves but what stands out about the heatwaves this year is the remarkably earlier timing, and the large spatial extent, extending from the northwestern to the southeastern parts of the country.

It is time now that concrete plans are put in place to deal with heat waves and closely linked extreme weather events. Early warning systems, heat-proof shelters and major afforestation are of vital need to reduce heat wave fatalities.

What are Heat Waves and Causes of its Occurrence?

- A heatwave is a **period of abnormally high temperatures th**at occurs during the summer season in the North-Western and South Central parts of India. It is

a **condition of air temperature which becomes fatal to the human body when exposed.**

- The **India Meteorological Department (IMD)** requires that temperatures should reach at least 40℃ in the plains and at least 30℃ in the hilly regions, and should reflect an increase of at least 5℃-6℃ above the normal temperature to be classified as a heatwave.
- The proximate causes for the searing heat are an **absence of rain-bearing Western Disturbances** or tropical storms that bring rain from the Mediterranean over north India.
    - The combination of **global warming and population growth** in already-warm cities in India is the **primary driver of increased heat exposure.**
    - The Urban Heat Island **(UHI) also elevates temperatures within cities**, which will be amplified during the heatwaves.
        - It occurs when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat.

How Intense the Heat Waves have Become in India?

- Heatwaves are a common phenomenon in India during the months of May-June, however, heatwaves in the year 2022 began early due to the gradually increasing maximum temperatures in many parts of India.
- As per IMD, the **number of heatwave days in India has increased** from 413 over 1981-1990 to **600 over 2011-2020**.
    - This sharp rise in the number of heatwave days has resulted due to the increasing impact of climate change.
- The number of **people killed due to heat waves has also increased** from 5,457 over 1981-1990 to **11,555 over 2011-2020**. Since 1967, 39,815 people have been killed due to heat waves across India.

What is the State-Specific Scenario of Heat Waves' intensity?

- Based on the geo-climatic and socio-economic conditions, the **highest number of people have been killed in Uttar Pradesh (6,745)**, followed by Andhra Pradesh (5,088), Bihar (3,364), Maharashtra (2,974), Punjab (2,720), Madhya Pradesh (2,607), West Bengal (2,570), Odisha (2,406), Gujarat (2,049), Rajasthan (1,951), Tamil Nadu (1,443), Haryana (1,116), Telangana (1,067), Delhi (996), Jharkhand

(855), Karnataka (560), Assam (348), and 954 people were killed across the remaining 12 States.

- According to the Maharashtra Health Department, this year's heat waves have claimed 25 lives in the State.

How Harmful are these Heat Waves?

- **Human Mortality:** Mortality due to heat waves occurs because of rising temperature, lack of public awareness programmes, and inadequate long-term mitigation measures.
  - According to a 2019 report of the Tata Centre for Development and the University of Chicago, **by 2100, annually, more than 1.5 million people will be likely to die** due to extreme heat caused by climate change.
  - The increased heat will lead to an increase in diseases like **diabetes**, circulatory and **respiratory conditions,** as well as **mental health challenges.**
- **Impact on Economy:** The frequent occurrence of heat waves also adversely affects different sectors of the economy. For instance, the **livelihood of poor and marginal farmers is negatively impacted** due to the loss of working days. Heatwaves have an **adverse impact on these workers' productivity,** impacting the economy.
  - According to an ILO report of 2019, **India lost around 4.3% of working hours** due to heat stress in 1995 and is **expected to lose 5.8% of working hours in 2030**.
    - It also shows that **9.04% of working hours are expected to be lost in each agriculture and construction sectors,** respectively, due to heat stress in 2030.
- **Crop Damage and Food Insecurity:** The **concurrence of heat and drought events** are causing **crop production losses and tree mortality.**
  - The risks to health and **food production will be made more severe from the sudden food production losses exacerbated** by heat-induced labour productivity losses.
  - These interacting impacts will **increase food prices, reduce household incomes**, and lead to **malnutrition** and climate-related deaths, especially in tropical regions.

- **Impact on Workers:** Workers in sectors like agriculture and construction will be severely impacted in 2030 because India's large population depends on these sectors for their livelihoods.
    - What should be of interest to India is that **countries and regions with precarious labour market conditions are likely to suffer higher** productivity losses with such extreme heatwaves.
        - In absolute terms, **India is likely to lose around 34 million full-time jobs** in 2030 due to heat stress.
- **Weaker Sections to be Specifically Impacted:** The climate science community has reported overwhelming evidence that extreme events such as **heatwaves are likely to become more intense, more frequent and of longer duration** in future unless emissions of greenhouse gases and aerosols are significantly cut globally.
    - It is important to remember that heatwaves in India, such as the current event, have the **potential to influence thousands of vulnerable and poor** people **who contributed very little to the climate crisis.**

Where does India Stand in terms of a Heat Wave Impact Mitigation Strategy?

- Before 2015, **no national-level heatwave action plan** was available to fight against such calamities.
    - At the regional-level, **Ahmedabad Municipal Corporation (AMC)** prepared the **first Heat Action Plan in 2013,** followed by the devastating heatwave-related deaths in 2010.
- In 2016, the **National Disaster Management Authority (NDMA)** issued **comprehensive guidelines** to prepare national level key strategies for mitigating the impact of heatwaves.
- Although some preventive measures have been undertaken to mitigate and adapt to extreme weather-related shocks, such initiatives are **insufficient to prevent human fatalities from heatwaves** as implementing preventive measures, mitigation, and preparedness actions remains difficult.

What Long-Term Strategies does India need to Adopt to Mitigate the Impacts of Heat Waves?

- **A Heat Waves Action Plan:** The adverse impacts of heat waves indicate that **effective disaster adaptation strategies** and more robust disaster management policies are required in heatwave zones to lessen the impact of heatwaves.
    - As deaths due to heatwaves are preventable, the government must prioritise preparing a long-term action plan to **safeguard human lives, livestock, and wildlife.**
    - **Effective implementation of the Sendai Framework for Disaster Risk Reduction 2015-30** with the **State playing a leading role** and sharing responsibility with other stakeholders is now the need of the hour.
- **Early Warning Systems:** Death from heat waves can be prevented by installing **improved early warning systems that communicate heatwave threats,** recommend different preventative measures, and constrain disaster impacts.
    - Disseminating **public awareness through print, electronic and social media,** providing **heat-proof shelter facilities** during summer, easing access to public drinking water, and huge afforestation in urban and rural areas would help mitigate heatwave fatalities.
- **Declaration of Heat Waves as a Natural Disaster:** Recognising heat waves as a major disaster is long due. India still has a long way to go in building public awareness, particularly on how individuals and local communities can take care of themselves.
    - Also, there needs to be **clear guidelines regarding when to shut schools or about the optimal ranges of temperatures** that a household AC should be kept at or **how long one should stay outdoors** if that's unavoidable.
- **Local Level Preparedness:** Heatwave is **India's second most lethal disaster** after the flood. Declaring heat waves as a natural disaster would help the state and district administration prepare **a heatwave action plan at the regional level.**
    - This will help **build resilience infrastructure,** develop early warning infrastructure, and create public awareness.

- It is also **crucial to prepare a database at the district level** involving the age, gender, and occupation of people who have died due to heatwaves.

- **Passive Cooling to Reduce UHIs: Passive cooling technology**, a widely-used strategy to **create naturally ventilated buildings**, can be a vital alternative to address the urban heat island for residential and commercial buildings.
  - The **IPCC's AR6 report** cites **ancient Indian building designs** that have used this technology, which could be **adapted to modern facilities** in the context of global warming.

- **Replacing Dark Roofs:** A big reason that cities are so much hotter than rural areas is that they are covered by dark roofs, roads and parking lots that absorb and retain heat.
  - One of the long term solutions can be **replacing the dark surfaces with lighter and more reflective materials;** it will result in a comparatively cooler environment.