

An International Edition

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2025



VANISHING DIVERSITY

Global threats to flora and fauna

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IMPERILED CHELONIANS: ISSUES AND CONSERVATION CHALLENGES

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(Received 22 August 2025, Revised 28 September 2025, Accepted 10 October 2025)

ABSTRACT : Chelonian comprising turtles and tortoises represent one of the most ancient reptilian lineages. They maintain ecosystem balance through playing vital ecological roles such as scavenging, seed dispersal. They are among the most threatened vertebrates globally despite their evolutionary resilience with over half of known species now facing extinction. This chapter explores the diversity of freshwater turtles and tortoises in India, emphasizing their ecological significance and escalating threats they face due to habitat degradation, overexploitation, illegal trade, pollution and climate change. India, a key hotspot for chelonian diversity, hosts 36 species of freshwater, terrestrial and marine turtles and tortoises. However, intensive anthropogenic pressures—urbanization, illegal trade, hydrological modification, pollution are affecting the existence of these species. Conservation efforts are underway but faces formidable challenges due to increasing demand, anthropogenic pressure and lack of habitat protection.

Key words : Freshwater, climate change, endangered species, poaching, overfishing.

Introduction

Chelonians are one of the oldest and most primitive groups of reptiles. Order Testudines (Turtles and Tortoises) contains 14 recognized families of tortoises, freshwater and marine turtles (TTWG, 2025). The previously successful survival adaptations of turtles, including delayed sexual maturity, high fecundity combined with high juvenile mortality and a long adult life-span with low natural mortality, have left turtle populations vulnerable to new, potentially devastating threats posed by human exploitation and development related pressures.

Turtles and tortoises are conspicuous, long-lived components of many ecosystems, and they often act as keystone species whose presence exerts disproportionate effects on ecosystem processes (van Dijk, 2000). One of their most critical ecological roles is that of scavengers: many species feed on aquatic weeds and detritus, as well as carrion, including dead or diseased animals. By removing decomposing organic matter, turtles help to regulate nutrient cycles and prevent water quality degradation. Experimental studies in Australia demonstrated that freshwater turtles accelerate the recovery of water quality following fish kills, rapidly