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SM Kolangath

Wildlife Research & Training
Centre, Gorewada, Nagpur
Maharashtra Animal & Fishery
Sciences University, Nagpur,
Maharashtra, India

SV Upadhye

Wildlife Research & Training
Centre, Gorewada, Nagpur
Maharashtra Animal & Fishery
Sciences University, Nagpur,
Maharashtra, India

MD Pawshe

Wildlife Research & Training
Centre, Gorewada, Nagpur
Maharashtra Animal & Fishery
Sciences University, Nagpur,
Maharashtra, India

PK Bhangale

Wildlife Research & Training
Centre, Gorewada, Nagpur
Maharashtra Animal & Fishery
Sciences University, Nagpur,
Maharashtra, India

Shruti Patwa

Wildlife Research & Training
Centre, Gorewada, Nagpur
Maharashtra Animal & Fishery
Sciences University, Nagpur,
Maharashtra, India

Giftson Johnson

Wildlife Research & Training
Centre, Gorewada, Nagpur
Maharashtra Animal & Fishery
Sciences University, Nagpur,
Maharashtra, India

Chandrasekharan Bala

CEO FGZ Ltd, Gorewada Project,
Nagpur, Maharashtra, India

Corresponding Author:

SM Kolangath

Wildlife Research & Training
Centre, Gorewada, Nagpur
Maharashtra Animal & Fishery
Sciences University, Nagpur,
Maharashtra, India

Oxyurid Infection in Indian Star Tortoises (*Geochelone elegans*)

SM Kolangath, SV Upadhye, MD Pawshe, PK Bhangale, Shruti Patwa, Giftson Johnson and Chandrasekharan Bala

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Abstract

The Indian Star Tortoise (*Geochelone elegans*) is a vulnerable terrestrial chelonian endemic to the Indian subcontinent and increasingly encountered in wildlife rescue and rehabilitation facilities due to illegal trade and habitat disturbance. Parasitic infections, particularly gastrointestinal nematodes, represent an important but often overlooked health concern in both captive and rescued tortoises. The present study reports the detection of oxyurid infection in Indian Star Tortoises during routine health surveillance conducted at the Wildlife Research and Training Centre, Gorewada, Nagpur, Maharashtra, between April 2023 and March 2025. A total of fifteen tortoises were examined, comprising individuals rescued from illegal trade, urban conflict situations, and temporary shelters. Fresh faecal samples were collected non-invasively and examined using standard faecal flotation techniques with saturated sodium chloride solution. Oxyurid eggs were detected in six out of fifteen samples (40%). The eggs were oval to ellipsoidal, thick-shelled, operculated, and morphologically consistent with *Tachygonetria* or *Pharyngodon* species. All infected tortoises were clinically asymptomatic, showing normal appetite, activity, and body condition, suggesting low to moderate parasitic burden. The findings highlight the endemic occurrence of oxyurid infections in captive Indian Star Tortoises and underscore the importance of routine parasitological screening, enclosure hygiene, and preventive veterinary care. Regular surveillance is essential to prevent parasite persistence, reduce reinfection risk, and ensure the health and conservation management of this threatened species.

Keywords: *Geochelone elegans*, oxyurid infection, Indian Star Tortoise, gastrointestinal parasites, faecal examination, wildlife rehabilitation

Introduction

The Indian Star Tortoise (*Geochelone elegans*) is a well-recognized terrestrial reptile species endemic to the Indian subcontinent. Its most distinguishing feature is the star-like pattern formed by radiating yellow lines on a dark brown or black carapace. This cryptic coloration is not only attractive but also serves as camouflage in its natural habitat. The species is widely distributed across India, particularly in the semi-arid regions of Gujarat, Rajasthan, Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, and Odisha. It inhabits dry scrublands, thorn forests, and grasslands, often relying on seasonal vegetation and scattered water sources.

Ecologically, the Indian Star Tortoise plays a vital role as a seed disperser and grazer, aiding in vegetation control and habitat dynamics. However, its populations are increasingly threatened due to habitat destruction, illegal wildlife trade, and unsustainable capture for the exotic pet market. Consequently, the species is listed as "Vulnerable" by the IUCN Red List and is protected under Schedule IV of the Wildlife (Protection) Act, 1972 in India.

Apart from anthropogenic threats, infectious and parasitic diseases also pose significant but often underappreciated risks to wild and captive tortoise populations. Parasitic infections are particularly important in chelonians due to their coprophagic habits and frequent contact with contaminated substrates, especially in confined environments. Among various gastrointestinal parasites, nematodes of the family Oxyuridae are frequently reported in tortoises and other

herbivorous reptiles. Oxyurids, such as *Pharyngodon* and *Tachygonetria* spp., reside in the large intestine and cloaca and typically follow a direct life cycle, involving the ingestion of embryonated eggs from the environment. Though often subclinical, heavy infestations can lead to cloacal inflammation, prolapse, secondary infections, and poor condition in stressed or immunocompromised individuals (Frye, 1991; Jacobson, 2007) ^[2, 3]. This report presents a case study of oxyurid egg detection in Indian Star Tortoises screened between 2023 and 2025 during routine health surveillance activities at a wildlife rehabilitation facility in central India.

Case Reports: A total of fifteen Indian Star Tortoises (*Geochelone elegans*) were examined between April 2023 and March 2025 at the Wildlife Research and Training Centre (WRTC), Gorewada, Nagpur, Maharashtra including samples submitted by various rescue centres and zoos of Maharashtra state. These tortoises had been rescued from illegal trade operations, relocated from urban conflict zones, or transferred from temporary shelters. The animals were maintained under controlled conditions with adequate space, basking platforms, clean water access, and a vegetarian diet consisting of greens, vegetables, and seasonal fruits. To assess parasitic burden, faecal samples were collected non-

invasively from each tortoise over a two-day period. The fresh droppings were placed in labelled sterile containers and transported to the parasitology laboratory under refrigerated conditions. Samples were processed within 6-12 hours of collection using standard faecal flotation techniques. Approximately 2 grams of faeces was homogenized in saturated sodium chloride solution (specific gravity ~1.20) and transferred to test tubes. Cover slips were placed on the meniscus and left undisturbed for 20 minutes before microscopic examination under 10× and 40× objectives. Out of the fifteen samples analyzed, six (40%) were found positive for oxyurid eggs. The eggs appeared oval to ellipsoidal with smooth, thick shells, a single operculum at one pole, and measured around 80-100 µm in length. The internal embryo occupied most of the egg space, consistent with descriptions of *Tachygonetria* and *Pharyngodon* spp. No other helminth ova or protozoan oocysts were observed in any of the samples. Notably, all six tortoises harboring oxyurid eggs were clinically normal at the time of examination. They displayed good appetite, active movement during basking hours, and no signs of weight loss, diarrhoea, cloacal prolapse, or discharge. The enclosures housing these individuals were regularly cleaned, but the reuse of soil substrate was noted, which could serve as a source of reinfection.

	
Fig 1: Oxyurid egg under light microscope (40X)	Fig 2: Oxyurid egg under light microscope (40X)
	
Fig 3: Oxyurid egg under light microscope (40X)	Fig 4: Unknown tapeworm fragment

Discussion

Oxyurid infections in tortoises have been frequently reported across both wild and captive populations. In Indian contexts, Acharjyo (2004) ^[1] reported gastrointestinal helminths including oxyurids in reptiles from zoos in Odisha. More recently, Mohanty *et al.* (2016) ^[4] documented the presence of *Tachygonetria* spp. in captive chelonians at Nandankanan Zoological Park. Globally, oxyurids have been described in various tortoise species including the Greek tortoise (*Testudo graeca*), Russian tortoise (*Agrionemys horsfieldii*), and Red-footed tortoise (*Chelonoidis carbonarius*). Wellehan and Gunkel (2004) ^[5] emphasized the re-emergence of parasitic infections in captive reptiles due to increased animal movement, stress, and biosecurity lapses.

Although oxyurid infections are often asymptomatic in healthy reptiles, their pathogenic potential increases under poor husbandry, immunosuppression, or high parasite burdens. These nematodes can cause mechanical irritation of the cloaca and lower intestine, leading to inflammation and, in severe cases, prolapse. Secondary bacterial or fungal infections may ensue if mucosal damage occurs. Chronic infections may also contribute to weight loss and delayed growth in juveniles. However, in the present study, all infected tortoises remained asymptomatic, suggesting a low to moderate parasitic burden and good overall host condition.

The detection of oxyurid eggs in 40% of the examined tortoises is significant for multiple reasons. First, it confirms the endemic presence of oxyurids in captive Indian Star Tortoise populations. Second, it highlights the potential for parasite persistence and spread within enclosures, particularly if sanitation is suboptimal. The coprophagic and ground-foraging nature of tortoises increases their exposure to contaminated fecal material. Third, since infected individuals may appear clinically normal, the role of routine fecal examinations as part of preventive veterinary care cannot be overemphasized.

Management of oxyurid infections includes regular fecal screening, rotational enclosure cleaning, and use of safe anthelmintics. Fenbendazole (50-100 mg/kg PO once daily for 3-5 days) is commonly used and effective against adult oxyurids and migrating larvae. Hygiene measures such as removal of old substrate, minimizing overcrowding, and individual quarantine of new arrivals reduce the risk of reinfection. Additionally, as molecular tools become more accessible, PCR-based identification of parasite species can help monitor parasite diversity and detect emerging strains.

From a conservation perspective, parasitic monitoring is essential, especially in facilities engaged in rehabilitation, conservation breeding, or reintroduction of threatened species. Infections that are benign in captivity may become exacerbated post-release in wild populations or contribute to pathogen spill over into sympatric wildlife. In conclusion, this case report contributes to the growing body of evidence on parasite ecology in Indian reptiles. It underscores the importance of non-invasive surveillance and responsible husbandry in ensuring the health of Indian Star Tortoises, a species already under stress from anthropogenic pressures.

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Conflict of Interest

Not available.

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References

1. Acharjyo LN. Parasitic infections in captive reptiles in India. *Zoos' Print J.* 2004;19(1):1354-1356.
2. Frye FL. Biomedical and surgical aspects of captive reptile husbandry. Malabar (FL): Krieger Publishing Company; 1991.
3. Jacobson ER. Infectious diseases and pathology of reptiles: color atlas and text. Boca Raton (FL): CRC Press; 2007.
4. Mohanty P, Panda MR, Patra RC. Endoparasites of reptiles in Nandankanan Zoological Park. *Int J Sci Environ Technol.* 2016;5(3):1725-1730.
5. Wellehan JFX, Gunkel CI. Emerging and re-emerging reptile parasites. *Vet Clin North Am Exot Anim Pract.* 2004;7(2):395-412.

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