Species Richness of Accipitriformes and Falconiformes in The Yavatmal Vicinity, Maharashtra

Praveen Joshi
Professor, Department of Zoology
Amolakchand Mahavidyalaya, Yavatmal
doi.org/10.64643/IJIRTV12I9-196010-459

***Abstract*—Raptors are apex predators and reliable indicators of ecosystem health. The present long-term study documents the species richness, conservation status, and distribution of raptors belonging to the orders Accipitriformes and Falconiformes in the Yavatmal vicinity of eastern Maharashtra, Central India. Field investigations were carried out over a 15-year period (2009–2024) covering eight talukas—Yavatmal, Kalamb, Ralegaon, Babhulgaon, Ghatanji, Darwha, Digras, and Arni. Regular morning surveys were conducted across diverse habitats including agricultural landscapes, reservoirs, scrublands, forest patches, and riverine ecosystems. A total of 30 raptor species were recorded, comprising 24 species of Accipitriformes (family Accipitridae and Pandionidae) and 6 species of Falconiformes (family Falconidae), including the subspecies *Falco peregrinus peregrinator* (Shaheen Falcon). The assemblage included both resident and migratory species, with notable winter migrants such as Amur Falcon, Pallid Harrier, Montagu's Harrier, Eurasian Marsh Harrier, Greater Spotted Eagle, and Osprey. IUCN Red List assessment revealed the presence of threatened species, including the Critically Endangered Indian Vulture (*Gyps indicus*), Endangered Egyptian Vulture (*Neophron percnopterus*), and Vulnerable Greater Spotted Eagle (*Clanga clanga*), emphasizing the conservation significance of the region. Species richness and habitat utilization patterns highlight Yavatmal as an ecologically important landscape for raptors in Central India. The study provides baseline data essential for long-term monitoring, conservation planning, and habitat management of raptors in the Deccan biogeographic zone.**

***Index Terms*—Raptor diversity; Accipitriformes; Falconiformes; Species richness; Migratory raptors; Yavatmal district.**

I. INTRODUCTION

Raptors (birds of prey) occupy the highest trophic levels in terrestrial ecosystems and play a crucial role in maintaining ecological balance by regulating prey populations and facilitating nutrient cycling. Due to their large home ranges, slow reproductive rates, and sensitivity to environmental changes, raptors are considered excellent bioindicators of habitat quality and ecosystem integrity. India supports a rich diversity of raptors owing to its varied climatic zones and heterogeneous landscapes. The Yavatmal district, located in eastern Maharashtra, forms a transitional zone between the Deccan Plateau and forested tracts of central India, providing suitable habitats for both resident and migratory raptors. Despite this ecological importance, long-term systematic studies on raptor diversity in this region remain scarce. The present study aims to assess the species richness, distribution, and conservation status of raptors belonging to the orders Accipitriformes and Falconiformes in the Yavatmal vicinity over a 15-year period. Special emphasis is given to migratory species and globally threatened taxa. The findings contribute to regional avifaunal knowledge and provide critical insights into the conservation importance of agro -forest mosaics and wetland-associated landscapes of Yavatmal.

II. MATERIALS AND METHODS

The study was conducted in Yavatmal district, eastern Maharashtra, Central India, located between 19.26°–20.42° N latitude and 77.18°–78.18° E longitude. Surveys covered eight talukas: Yavatmal, Kalamb, Ralegaon, Babhulgaon, Ghatanji, Darwha, Digras, and Arni. The region comprises agricultural fields,

reservoirs, seasonal wetlands, scrub forests, dry deciduous forest patches, and riverine habitats.

Study Period and Field Methods-
Field observations were carried out from 2009 to 2024 through regular morning visits to selected habitats. Raptors were recorded using direct visual encounter surveys and opportunistic sightings.1-Optical equipment: Nikon 10×40 binoculars, Photographic documentation: DSLR Nikon D7500 with Nikkor 200–500 mm telephoto lens. Identification and Data Analysis- Species identification followed standard field guides including Birds of Prey of the Indian Subcontinent by Inskipp et al. Scientific nomenclature and IUCN status were verified using the IUCN Red List (2024). Species richness was analysed order-wise, family-wise, residency status-wise, and IUCN category-wise. Data are presented using tables and pie charts.

III. RESULTS AND DISCUSSION

The long-term survey conducted from 2009 to 2024 revealed a remarkably high diversity of raptors in the Yavatmal vicinity, with a total of 30 species belonging to the orders Accipitriformes (24 species) and Falconiformes (6 species). The dominance of Accipitriformes reflects a typical tropical raptor assemblage, where habitat-generalist and habitat-specialist hawks, eagles, kites, and harriers exploit a wide spectrum of ecological niches. The high species richness recorded in Yavatmal district can be attributed primarily to the heterogeneous landscape mosaic of the region. Extensive agricultural fields interspersed with scrublands, forest patches, wetlands, and reservoirs create ideal foraging and roosting conditions for raptors. Open farmlands support rodents, reptiles, and insects, attracting species such as Black Kite (*Milvus migrans*), Shikra (*Accipiter badius*), White-eyed Buzzard (*Butastur teesa*), and Red-necked Falcon (*Falco chicquera*). Simultaneously, wetlands and large reservoirs provide abundant prey such as fish and waterbirds, favouring species like Osprey (*Pandion haliaetus*) and Grey-headed Fish Eagle (*Ichthyophaga ichthyaetus*). Another major factor contributing to raptor abundance is the strategic geographical position of Yavatmal within the Deccan Plateau. The district lies along seasonal migratory pathways, making it an important wintering and stopover ground for several Palearctic migratory raptors. Species such as Amur Falcon (*Falco amurensis*), Pallid Harrier (*Circus macrourus*), Montagu's Harrier (*Circus pygargus*), Eurasian Marsh Harrier (*Circus aeruginosus*), Greater Spotted Eagle (*Clanga clanga*), and Osprey were recorded regularly during winter months. The presence of these migrants indicates adequate prey availability, minimal disturbance in certain pockets, and favorable climatic conditions. The occurrence of globally threatened species, including the Critically Endangered Indian Vulture (*Gyps indicus*) and Endangered Egyptian Vulture (*Neophron percnopterus*), further highlights the ecological importance of Yavatmal. Although their populations were low, consistent sightings suggest that the region still retains suitable scavenging habitats and nesting or roosting sites. However, declining numbers compared to earlier years may indicate emerging threats such as habitat degradation, reduction in carcass availability, and anthropogenic pressure. Harriers were particularly well represented, with four species recorded, emphasizing the importance of open grasslands, fallow agricultural fields, and wetland margins. Such habitats are increasingly threatened elsewhere in India, making Yavatmal a region of conservation significance for grassland-dependent raptors.

Table 1. Checklist of Raptors Recorded from Yavatmal District

Common Name	Scientific Name	Family	Order	IUCN Status
Osprey	*Pandion haliaetus*	Pandionidae	Accipitriformes	LC
Black Kite	*Milvus migrans*	Accipitridae	Accipitriformes	LC
Black-shouldered Kite	*Elanus caeruleus*	Accipitridae	Accipitriformes	LC
Crested Goshawk	*Accipiter trivirgatus*	Accipitridae	Accipitriformes	LC
Besra	*Accipiter virgatus*	Accipitridae	Accipitriformes	LC

Common Name	Scientific Name	Family	Order	IUCN Status
Shikra	*Accipiter badius*	Accipitridae	Accipitriformes	LC
Eurasian Sparrowhawk	*Accipiter nisus*	Accipitridae	Accipitriformes	LC
Oriental Honey Buzzard	*Pernis ptilorhynchus*	Accipitridae	Accipitriformes	LC
White-eyed Buzzard	*Butastur teesa*	Accipitridae	Accipitriformes	LC
Short-toed Snake Eagle	*Circaetus gallicus*	Accipitridae	Accipitriformes	LC
Crested Serpent Eagle	*Spilornis cheela*	Accipitridae	Accipitriformes	LC
Indian Spotted Eagle	*Clanga hastata*	Accipitridae	Accipitriformes	LC
Greater Spotted Eagle	*Clanga clanga*	Accipitridae	Accipitriformes	VU
Crested Hawk-Eagle	*Nisaetus cirrhatus*	Accipitridae	Accipitriformes	LC
Grey-headed Fish Eagle	*Ichthyophaga ichthyaetus*	Accipitridae	Accipitriformes	NT
Bonelli's Eagle	*Aquila fasciata*	Accipitridae	Accipitriformes	LC
Black Eagle	*Ictinaetus malaiensis*	Accipitridae	Accipitriformes	LC
Indian Vulture	*Gyps indicus*	Accipitridae	Accipitriformes	CR
Egyptian Vulture	*Neophron percnopterus*	Accipitridae	Accipitriformes	EN
Pallid Harrier	*Circus macrourus*	Accipitridae	Accipitriformes	NT
Montagu's Harrier	*Circus pygargus*	Accipitridae	Accipitriformes	NT
Eurasian Marsh Harrier	*Circus aeruginosus*	Accipitridae	Accipitriformes	LC
Pied Harrier	*Circus melanoleucos*	Accipitridae	Accipitriformes	LC
Red-necked Falcon	*Falco chicquera*	Falconidae	Falconiformes	LC
Amur Falcon	*Falco amurensis*	Falconidae	Falconiformes	LC
Eurasian Hobby	*Falco subbuteo*	Falconidae	Falconiformes	LC
Peregrine Falcon	*Falco peregrinus*	Falconidae	Falconiformes	LC
Shaheen Falcon	*Falco peregrinus peregrinator*	Falconidae	Falconiformes	LC
Common Kestrel	*Falco tinnunculus*	Falconidae	Falconiformes	LC

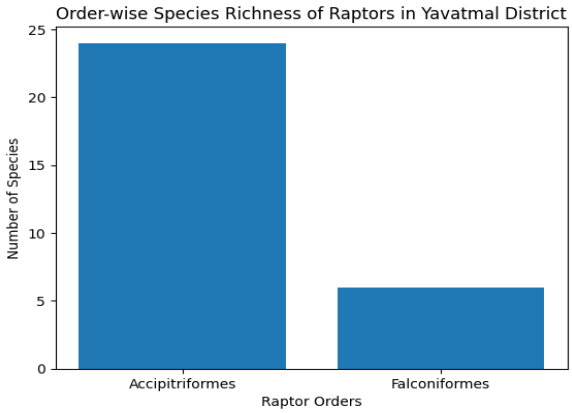

Figure 1. Order-wise Species Richness of Raptors in Yavatmal District

(Accipitriformes – 24 species; Falconiformes – 6 species)

Overall, the results clearly demonstrate that Yavatmal district functions as an ecologically important raptor landscape in Central India, supporting resident breeders, passage migrants, and winter visitors. The sustained species richness over a 15-year period indicates habitat stability in certain areas, though continued monitoring and habitat protection are essential to conserve this raptor assemblage.

Conclusion

IV. CONCLUSION

The present 15-year study highlights the Yavatmal vicinity of eastern Maharashtra as an ecologically significant landscape supporting a rich and diverse assemblage of raptors. The documentation of 30 species belonging to Accipitriformes and Falconiformes, including resident, migratory, and globally threatened taxa, reflects the suitability of the region's heterogeneous agro-forest, wetland, and grassland habitats. The regular occurrence of winter migrants and the presence of Critically Endangered and Endangered vultures underscore the conservation value of the area within Central India. Despite increasing anthropogenic pressures, the sustained species richness indicates relative habitat stability in parts of the district. The findings provide essential baseline data for long-term monitoring and emphasize the need for habitat protection, especially grasslands, wetlands, and scavenging sites, to ensure the continued survival of raptor populations in the Deccan biogeographic zone

REFERENCES

[1] Inskipp, T., Inskipp, C., & Grimmett, R. (2011). Birds of Prey of the Indian Subcontinent. Oxford University Press.
[2] Ali, S., & Ripley, S. D. (1987). Handbook of the Birds of India and Pakistan. Oxford University Press.
[3] Ferguson-Lees, J., & Christie, D. A. (2001). Raptors of the World. Houghton Mifflin.
[4] Bildstein, K. L. (2006). Migrating Raptors of the World. Cornell University Press.
[5] del Hoyo, J., Elliott, A., & Sargatal, J. (1994). Handbook of the Birds of the World, Vol. 2. Lynx Edicions.
[6] IUCN (2024). The IUCN Red List of Threatened Species.
[7] Newton, I. (1979). Population Ecology of Raptors. T & AD Poyser.
[8] Thiollay, J. M. (1994). Family Accipitridae. In Handbook of the Birds of the World.
[9] Rasmussen, P. C., & Anderton, J. C. (2012). Birds of South Asia. Lynx Edicions.
[10] Grimmett, R., Inskipp, C., & Inskipp, T. (2016). Birds of the Indian Subcontinent. Bloomsbury.