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Restoring Nesting Habitats: Design and Implementation of Artificial Platforms for Painted Storks at Veerapuramu Village in Sri Sathya Sai District., Andhra Pradesh, India

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Abstract:
The Painted Stork (*Mycteria leucocephala*) is a near-threatened colonial waterbird experiencing population fluctuations due to habitat degradation, climatic variability, and loss of nesting trees. This study was conducted at Veerapuram village, Sri Sathya Sai District, Andhra Pradesh, a key traditional heronry. Field observations (2018–2025), supported by long-term community data (2006–2026), assessed population trends, nesting ecology, and habitat characteristics. Results revealed strong temporal variation linked to rainfall and wetland availability, with peak populations exceeding 4,000 individuals in favourable years and complete absence during droughts. Habitat analysis indicated limited nesting substrates due to the decline of *Acacia*, *Tamarindus*, and *Ficus* in a predominantly agricultural landscape (412 ha net sown area of 786 ha). Despite strong community protection, high chick mortality and nest overcrowding persist. The study recommends artificial nesting platforms, along with habitat restoration and community-based conservation, to enhance breeding success and ensure long-term population stability.

Keywords: Painted Stork, Artificial nesting platforms, Wetland conservation, Nesting ecology, Community-based conservation.

The Painted Stork (*Mycteria leucocephala*) is one of India's most recognizable aquatic birds, characterized by its stilt-like legs, elongated neck, and a prominent, heavy yellow bill (Ali and Ripley, 1983). While primarily a resident species, it is known to undertake localized migrations in response to fluctuating environmental conditions. Globally, nineteen stork species have been identified, nine of which are found within the Indian subcontinent (Ali and Ripley, 1987; Del Hoyo et al., 1994).
In the state of Andhra Pradesh, these birds are frequently recorded across a variety of landscapes, including the Nelapattu Bird Sanctuary, Pulicat Lake, Kolleru Lake, and the Coringa Wildlife Sanctuary, as well as village-based sites like Uppalapadu, Chintapalli, and Telineelapuram. Significant community-conserved heronries, such as Kokkarebellur in Karnataka and Pedullapalle in Andhra Pradesh, serve as vital habitats. Although the species is distributed across much of India, it is notably absent from regions such as Kerala, Bihar, West Bengal, Assam, and Jharkhand. Unfortunately, habitat degradation and shifting ecological factors have led to a visible decline in population growth and a reduction in visits to traditional nesting grounds.

These demographic shifts have prompted extensive research into the species' population dynamics and conservation needs. Significant contributions include the work of Desai (1971) on feeding and nesting behaviour, and Desai et al. (1977) on reproductive patterns. Later studies, such as those by Bhat et al. (1991) and Ramesh and Philip (2005), focused on nest abundance and foraging behavior at specific colonies like Veerapuram. Furthermore, research by Devkar et al. (2006) on captive breeding, along with studies by Urfi et al. (2007) and Gopi and Pandav (2007) in the Bhitarkanika mangroves, has deepened the understanding of stork nesting ecology.

Collectively, these findings indicate that past community involvement in conservation has been insufficient, highlighting an urgent need to strengthen local initiatives for the species' long-term survival. Consequently, the present study was designed as a baseline assessment to document population status, habitat characteristics, and nesting success. By engaging local communities, this research aims to identify and address emerging conservation challenges across diverse nesting habitats to ensure the continued presence of the Painted Stork in the landscape.

Materials and Methods:

Study area The Veerapuram is a small village located (13°50 N; 77°43) in the Chilamathur mandal which is an administrative division of Sri Sathya Sai district of Andhra Pradesh, India, with its headquarters at Puttaparthi, formed on April 4, 2022, from parts of the Anantapur district. (Figure 1). It is a rain-shadow area with an average annual rainfall of 552 mm and hence, monsoon evades this part and the failure of rains during the south-west monsoon from June to September leads to drought conditions. Rests of the months are almost dry, whereas March to May is warm months with a nor mal daily maximum temperature ranging between 29.1° and 40.3° C. The detailed demographic and socio-economic data along with land utilization of the Veerapuram village is given in Table 1 and 2.

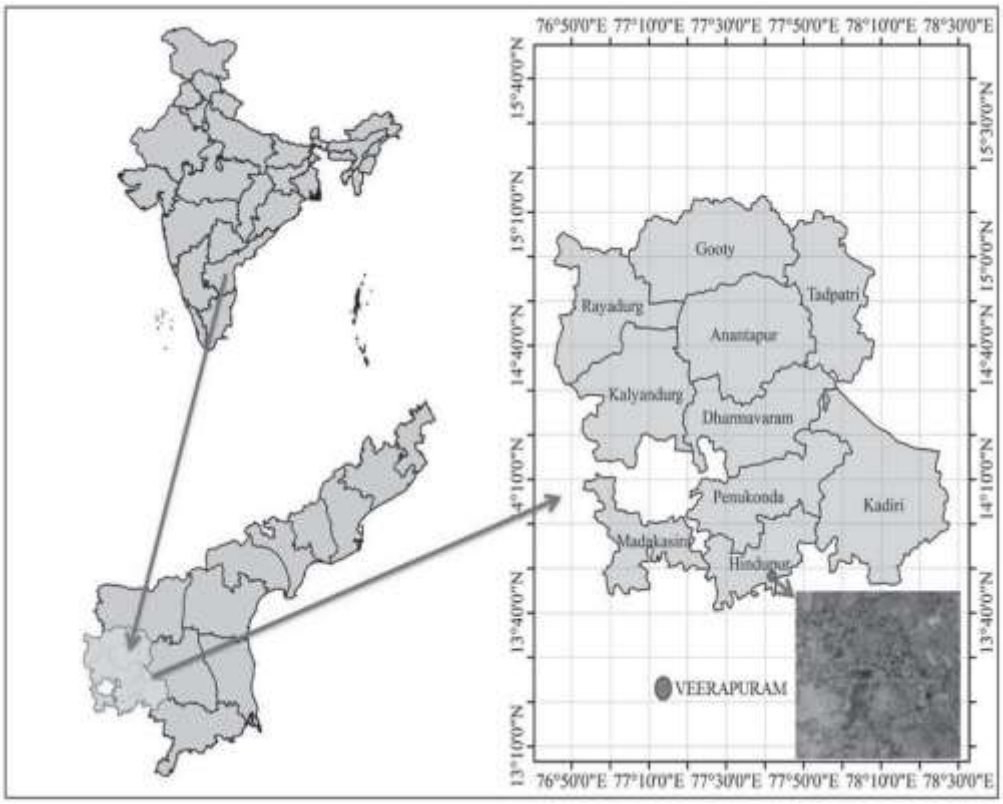


Table 1. Demographic and socio-economic profile of Veerapuram Village:

Name of the village		**Veerapuram Total Geographical area, 786 ha***
S. No	Indicators	Numbers
1.	Number of Households	462
2.	Total Population	1910
3.	Male	963
4.	Female	947
5.	Population in the age group (0-6 years)	188
6.	Male	96
7.	Female	92
8.	Total Scheduled Castes Population of Village	350
9.	Male	177
10.	Female	173
11.	Illiterates	1101
12.	Male	496
13.	Female	605
14.	Total workers	774
15.	Male	537
16.	Female	237
17.	Main workers	327
18.	Male	288
19.	Female	39
20.	Marginal workers	447
21.	Male	249
22.	Female	198
23.	Cultivators	25
24.	Male	21
25.	Female	1
26.	Agricultural Labourers	391
27.	Female	710

Source: Census of India 2011 Andhra Pradesh. District census handbook Anantapur Series- 29, Part XII-B (*Main Workers and Marginal Workers classified by the four broad industrial categories, namely, (i) Cultivators, (ii) Agricultural Labourers, (iii) Household Industry Workers, and (iv) Other Workers and also non-workers.)* *Area in Hectares

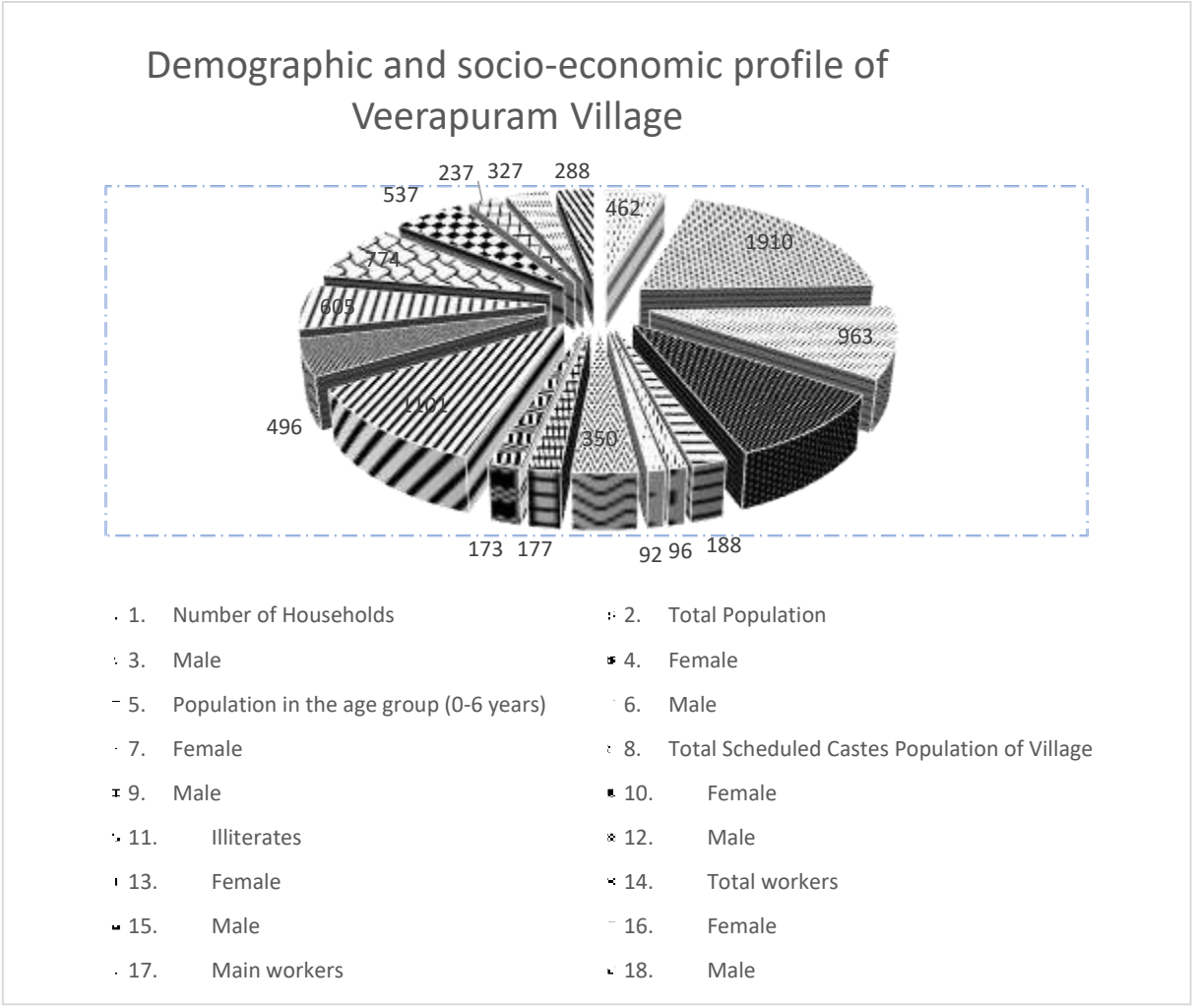


Table 2. Land use types in Veerapuram village:

S.No	Land Use type	Area
1.	Area under non agriculture Uses	122 ha
2.	Barren & Uncultivable land area	121 ha
3.	Permanent pastures and other grazing land area	0 ha
4.	Land under miscellaneous tree crops etc	47 ha
5.	Culturable waste land area	23 ha
6.	Fallow land other than current fallow areas	6 ha
7.	Current Fallows area	55 ha
8.	Forest land	0 ha
9.	Net area sown	412 ha
10.	Total un-irrigated land area	366 ha
11.	Total Irrigated area	107 ha
12.	Area irrigated by wells / tube wells	55 ha
13.	Land under miscellaneous tree crops etc	47 ha
14.	Culturable waste land area	23 ha
15.	Fallow land other than current fallow areas	6 ha

16.	Current Fallows area	55 ha
17.	Forest land	0 ha
18.	Net area sown	412 ha
19.	Total un-irrigated land area	366 ha

Methodology

We adopted the direct observation method as described in standard literature cited by Urfi (2005a) for population studies of heronries at Sultanpur National Park. Bird counts in the surrounding village habitations were conducted during late dusk, when most individuals were present at their nests. Arrival and departure timings were systematically recorded. The same procedure was repeated during night and dawn hours to reconfirm the accuracy of the counts.

Observations indicated that storks began leaving their nests around 6:00 AM and returned from approximately 12:00 noon onwards, typically in flocks of 10–22 individuals. Field visits to neighbouring areas—including Veerapuram, Lakshmipuram, Amanibyrasagara Gudibanda, Chilamathur, Hussainpuram, Nelakombu, Yellodu, Yarrabelli, Chamarla Palli, Pathachamarla Palli, Dadireddy Palli, Maruvakotha Palli, Kothasamallapalli tanks, and Parugodu dam—enabled detailed observations of foraging behaviour, particularly the "stand-and-wait" prey capture strategy.

Photographic documentation of Painted Storks was maintained using Canon EOS 700D SLR cameras with 16.1-megapixel resolution (42× wide optical zoom). Birds were also observed using high-resolution Olympus binoculars (8 × 42). Systematic observations were conducted over a seven-year period (2018–2026), with visits to Veerapuram village twice weekly during the nesting season to monitor nest construction, clutch size, and hatching success rates.

In addition, surveys were undertaken to assess factors contributing to the decline in bird populations, along with the socio-economic status of local communities (Nautiyal et al., 2015). Detailed population data obtained from community records spanning 2006 to 2026 were incorporated and cross-verified with field observations to ensure reliability.

Socio-economic status of this Village: Veerapuram is renowned for hosting a variety of large waterbird species that breed and roost within the village. Four primary factors attract these birds to the region:

1. Abundant foraging niches provided by surrounding reservoirs, tanks, and dams.
2. Community-led protection that ensures a safe breeding environment.
3. Low predation risk.
4. The prevalence of tamarind trees, which serve as ideal nesting sites. Across Andhra Pradesh, local communities have a long-standing tradition of protecting heronries, as seen in Vedurupattu (Nellore district), Uppalapadu (Guntur district), and Nelapattu (Nellore district). However, such conservation efforts can present challenges; for example, restrictions on traditional fishing at Nelapattu have significantly impacted local livelihoods.

Our survey team examined both the conservation status of seasonal Painted Stork visitors and the socio-economic conditions of the local inhabitants. The villagers view the arrival of these birds as a positive omen for a successful harvest and take pride in their community's role in wildlife conservation.

Veerapuram consists of approximately 250 households with a total population of 1,500. The Kaapu (Reddy) community is the dominant demographic. According to 2011 Census data, literacy rates are 52% for males and 44% for females. The villagers are welcoming toward bird enthusiasts, often acting as

informal guides who explain avian nesting and foraging behaviours. This interaction provides a supplementary income that incentivizes local conservation efforts.

According to community elders, these birds have been breeding in the village for nearly a century, with occasional, brief interruptions. Some residents note that birds have also been nesting in the nearby village of Venkatapuram since time immemorial. The local agricultural economy relies on crops such as paddy (*Oryza sativa*), bajra (*Pennisetum glaucum*), and groundnut (*Arachis hypogaea*), irrigated primarily by bore wells and traditional tanks. Within a 5-km radius, there are numerous small-to-medium irrigation tanks, including the 30-acre Veerapuram tank, which is bordered by agricultural dry lands and hillocks that form its primary catchment area. These water bodies are vital food sources for both resident and migratory bird populations.

A key element in the success of these habitats is the cultural practice of protecting "sacred landscapes." This involves preserving areas or species as untouched spaces due to religious significance. Such sites—which include forest patches, lakes, ponds, high-altitude valleys, islands, mangroves, and grasslands—are believed to be the abodes of deities. The fear of divine retribution prevents the exploitation of these ecosystems, and any necessary resource extraction is only conducted following specific religious rituals.

Results:

Table 3: Population of Painted Storks in Veerapuram Village (2006–2026)

Year	Total No. of Birds (Painted Storks)	Total No. of Nesting Trees	No. of Adults per Nest	No. of Chicks per Nest	Total No. of Chicks in Village	Total No. of Nests Damaged	Total No. dead: Adults	Total No. dead: Chicks	Total No. rescued: Adults	Total No. rescued: Chicks
2006	3800	35	2	1-4	5700	10	Nil	127	6	75
2007	3200	28	2	1-4	4800	11	1	61	1	42
2008	3300	29	2	1-4	4950	11	2	101	33	49
2009	3600	35	2	1-4	5400	20	Nil	55	33	49
2010	3940	40	2	1-4	3940	23	4	47	8	64
2011	2800	32	2	1-4	4200	55	Nil	37	Nil	126
2012	1356	15	2	1-4	2034	Nil	Nil	11	Nil	21
2013	Severe drought in Veerapuram has dried local wetlands, driving away all birdlife									
2014	1282	28	2	3-4	1923	14	14	1	N/A	34
2015	4440	59	2	3-4	6600	162	74	7430	6	30
2016	1627	49	2	3-4	2440	30	Nil	11	2	33
2017	1725	56	2	3-4	4600	11	Nil	11	2	33
2018	Drought	No birds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2019	2895	28	2	2	5790	10	2	40	3	141
2020	3029	48	2	2	4543	50	31	28	4	182

2021	2742	32	2	3	4113	110	16		20	10
2022	3880	60	2	2	5820	8	11	82	15	98
2023	2680	37	2	3	4020	13	8	148	10	89
2024	2988	28	2	4	4482	15	3	22	8	58
2025	2499	23	2	3	3748	20	10		11	10
2026	2890	27	2	2	4335	15	00	00	00	00

Discussion:

Long-term observations of the Painted Stork population at Veerapuram clearly demonstrate pronounced temporal variability driven primarily by climatic factors, especially rainfall and wetland hydrology. The fluctuations recorded over two decades (2006–2026) reveal a classic "boom-and-bust" population pattern, consistent with earlier studies on colonial waterbirds in semi-arid landscapes.

Population dynamics and climatic influence

The population trends strongly indicate that water availability is the primary ecological driver influencing colony size and persistence. Peak populations recorded in 2010 (3,940 individuals) and 2015 (4,440 individuals) correspond with favorable hydrological conditions and adequate foraging resources. In contrast, complete colony failure during drought years such as 2013 and 2018, when no birds were recorded, highlights the species' extreme sensitivity to habitat desiccation. Similar patterns of non-visitation linked to drought have been documented in earlier decades (1984–1987, 1992, 1996, 2003, and 2005), reinforcing the long-term climatic vulnerability of the species (Bhat et al., 1991; Ramesh et al., 2015).

Short-term fluctuations also reflect seasonal variation. For instance, the decline from 2,798 birds in 2010–2011 to 1,530 birds in February 2012 likely corresponds to non-breeding dispersal rather than true population reduction. Recovery during 2013–2014, with ~2,560 birds arriving between December and February, indicates rapid recolonization once favorable conditions return (Ramesh et al., 2015). These findings align with broader observations that Painted Storks exhibit flexible movement patterns in response to wetland availability.

Breeding Phenology and Reproductive Output

Despite environmental variability, breeding phenology remains relatively consistent, with arrival typically between December and February and nesting commencing in March. Nest construction is rapid (5–7 days) and involves biparental cooperation, as noted by Pathak (2011). However, inter-annual variation is evident in breeding duration and departure timing, with extended breeding seasons observed in some years (e.g., 2011, 2012, 2014), possibly due to prolonged water availability.

Reproductive output shows high variability but generally strong productivity under favorable conditions. Peak chick production (6,600 chicks in 2015) coincided with high adult abundance, suggesting density-dependent reproductive advantages. Interestingly, even during years of reduced adult visitation (e.g., 2017–2018), chick production remained relatively high (4,600–6,200), indicating compensatory reproductive strategies.

However, high productivity is often offset by substantial chick mortality. The extreme mortality event in

2015 (7,430 chick deaths) suggests that overcrowding, limited food availability, disease, and nest competition may significantly affect survival during peak population years. Such density-dependent mortality has been reported in colonial nesting birds and is a key regulating mechanism in population dynamics.

Habitat characteristics and nesting constraints

Habitat structure at Veerapuram plays a crucial role in determining nesting density and colony stability. The limited availability of suitable nesting trees, particularly tamarind, forces birds to utilize alternative species such as *Prosopis juliflora*. The fluctuation in nesting trees—from a low of 15 in 2012 to a peak of 60 in 2022—directly correlates with nesting intensity and colony size.

Nest reuse behavior, involving dry twigs and branches, is consistent with previous observations in stork species. The possible incorporation of biologically active or aromatic materials may serve adaptive functions such as parasite deterrence (Weimberger, 1984; Clark et al., 1985). Degraded vegetation and limited nesting substrates remain significant constraints, emphasizing the importance of habitat quality in sustaining large colonies.

Mortality Patterns and Conservation Interventions

Adult mortality remains relatively low across most years, indicating resilience among mature individuals. However, episodic spikes, such as the 74 adult deaths recorded in 2015, suggest that extreme environmental stress can impact even robust age classes. Chick mortality, in contrast, is highly variable and often substantial, reinforcing the vulnerability of early life stages.

Active human intervention has played a notable role in mitigating mortality. Rescue efforts, particularly in 2011 (126 chicks) and 2020 (182 chicks), highlight the importance of local conservation initiatives. The absence of recorded deaths or rescues in 2026 may indicate improved habitat conditions or a stable ecological phase, although continued monitoring is essential to confirm this trend.

Ecological Resilience and Conservation Implications

The long-term dataset underscores both the resilience and vulnerability of Painted Storks at Veerapuram. The species demonstrates strong site fidelity and rapid recolonization following favorable environmental conditions. However, the recurring “zero-bird” years emphasize a strict dependence on wetland availability and highlight the risks posed by increasing climatic variability.

Although some studies suggest that breeding periodicity in Painted Storks may not be strictly synchronized with monsoon patterns (Ramesh and Philip et al., 2015), the Veerapuram data clearly indicate that local hydrological conditions are a decisive factor influencing colony persistence.

Conclusion:

Overall, the Painted Stork population at Veerapuram represents a dynamic system shaped by the interplay of climate, habitat quality, and ecological processes. Sustaining this important breeding colony requires:

- Maintenance of wetland hydrology and water availability
- Restoration and protection of nesting trees
- Management of colony density to reduce mortality
- Continued community-based conservation and monitoring

These findings highlight the urgent need for integrated habitat management strategies to buffer the impacts

of drought and ensure the long-term viability of this ecologically significant waterbird population.

Challenges and strategic recommendations for conservation:

1. Nesting Artificial Sites: Because habitat degradation and a lack of suitable foraging areas have significantly reduced nesting frequency, the development of artificial nesting sites is a priority. To ensure effectiveness, researchers must first quantify nesting habitat characteristics by surveying at least 10% of existing nests. This data collection should include the specific nesting tree species, the colony's height from the ground, its position within the tree canopy, and its proximity to both adjacent trees and human infrastructure.
2. Population Resource Assessment & Ethno-ecological Integration: An inventory of available nesting trees must be conducted to identify ecological bottlenecks restricting the breeding population. This quantitative assessment should be supplemented by semi-structured interviews with local villagers; leveraging Traditional Ecological Knowledge (TEK) provides longitudinal insights into historical nesting trends and environmental shifts that modern data might miss.
3. Spatial Analysis of Nest-Site Micro-habitats: To accurately define nesting requirements, data must be gathered on tree species and the precise spatial orientation of nests. This includes analyzing:
    a) Intra-colony Proximity: Distance and orientation relative to neighboring nests.
    b) Canopy Stratification: Position within the vertical and horizontal canopy layers.
    c) Aviation Clearances: Required open space above the nest for takeoff and landing.
4. Advanced Methodology for Nest Architecture For a comprehensive understanding of nest structural integrity, a minimum of 20 nests should be analyzed using stratified random sampling. To enhance accuracy, researchers should utilize Terrestrial Laser Scanning (TLS) or LiDAR-equipped drones to create 3D models of the canopy architecture without disturbing the active colony.
5. Data-Driven Artificial Habitat Design Based on the results of these scientific investigations, bio-inspired artificial nesting platforms should be engineered specifically for the Painted Stork population in Veerapuram Village. These designs should mimic the structural properties of natural sites to ensure high adoption rates and long-term breeding success
6. Behavioral Monitoring and Predator Assessment: Painted Stork breeding colonies must be monitored systematically to document interspecific interactions and potential predatory threats from Bonnet Macaques. To accurately assess the impact of these macaques, nesting trees should be observed continuously from dawn to dusk. All behavioral data and interaction frequencies must be quantified using standard Scan and Focal Animal Sampling techniques.
7. Infrastructure Optimization and Research Integration: The current rescue facility—presently limited to basic structural enclosures—requires a comprehensive upgrade to meet international avian welfare standards. Following a systematic literature review of specialized stork rehabilitation, the canter should be redesigned into a multi-functional Avian Research and Clinical Facility. This modernization should incorporate climate-controlled intensive care units (ICUs), quarantine protocols to prevent zoonotic transmission, and specialized physiotherapy pools. These enhancements will provide the controlled environment necessary for conducting longitudinal physiological and ethological studies on the species.
8. Drop nets should be strategically placed beneath nesting trees to minimize egg damage and prevent injuries to chicks that may fall from nests. Recent advances in wildlife conservation recommend the use of impact-absorbing, biodegradable netting materials and sensor-based monitoring systems that

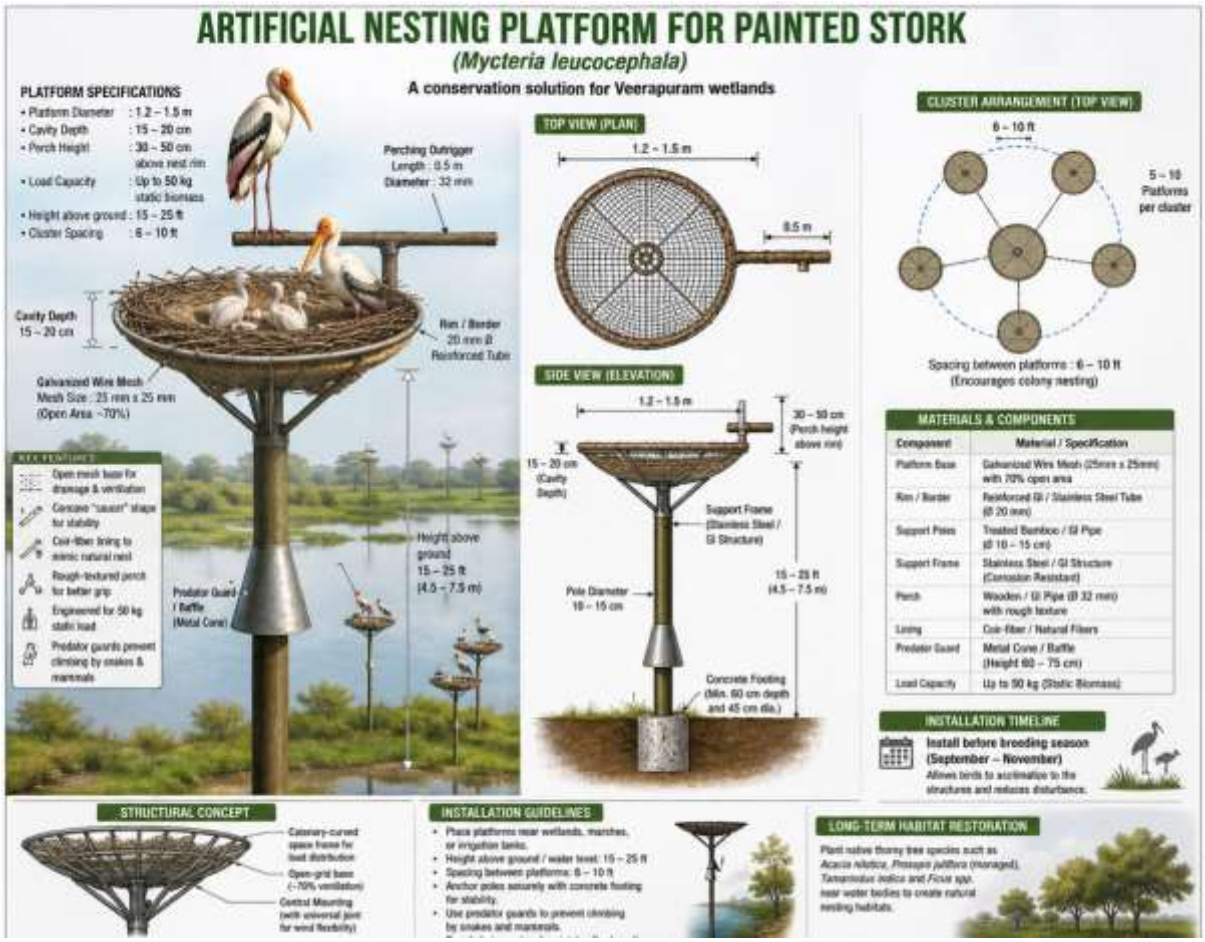
can detect nest disturbances in real time. Additionally, integrating drone-assisted canopy assessments and AI-driven behavioural analysis helps optimize net placement and improve overall nest protection efficiency.

9. Artificial nesting sites should be designed using suitable materials based on the nesting-site characteristics identified in the study area. Since Painted Stork exhibits colonial breeding behaviour, artificial nests should be installed in close proximity to existing nesting colonies to prevent isolation and ensure social cohesion.
10. Rescue centres should be equipped with controlled-environment incubators for the artificial incubation of fallen eggs. Modern conservation practices recommend the use of programmable incubators with automated temperature and humidity regulation, egg-turning mechanisms, and real-time monitoring systems. Incorporating data logging and IoT-enabled alerts can further enhance hatching success rates and allow rapid intervention when environmental parameters deviate from optimal conditions.
11. The local NGOs working towards the conservation of the Painted Stork should seek the assistance of veterinary doctors for the proper treatment and rehabilitation of injured birds.
12. Initially, 2–3 meetings should be organized within the first six months involving local NGOs, village heads, and community representatives. These meetings should focus on planning and implementing conservation strategies with active community participation.
13. Educational materials such as posters, booklets, and digital content should be developed to raise awareness about the conservation of the Painted Stork. Incorporating multimedia tools and local language content will improve outreach effectiveness.
14. Interactive meetings with experts, ecologists, and wildlife managers should be conducted annually to review conservation progress and integrate new scientific findings.
15. Workshops (at least two during the first and second years) should be organized to train local people in bird rescue techniques, habitat management, and conservation practices. Training may also include the use of modern tools such as GPS tagging and basic wildlife monitoring methods.
16. Veerapuram village, the study site, supports one of the largest breeding colonies of the nearly threatened Painted Stork. Conservation efforts have already been initiated by local communities with support from the forest department. The integration of scientific research—such as population modelling, habitat suitability analysis, and climate impact studies—can significantly strengthen ongoing conservation initiatives and ensure long-term survival of the species.
17. Improvement of the existing rescue centre operated by local people should be prioritized. Incorporating scientific protocols such as veterinary diagnostics, data recording systems, and rehabilitation tracking can enhance its effectiveness. This model can serve as a case study demonstrating the importance of combining community participation with scientific intervention in conservation programs across the country.
18. The design and development of artificial nesting sites can be optimized using scientific data on nest site characteristics, including tree species preference, height, and proximity to water sources. Advanced techniques such as GIS mapping and drone-based habitat surveys can support site selection. Given the availability of space and the willingness of local people to contribute land, this goal is achievable.
19. Ecotourism: Bird watching and nature-based tourism have experienced rapid growth and are expected to continue expanding. Developing partnerships with local businesses and organizations can enhance economic opportunities through ecotourism. Sustainable tourism models, supported by biodiversity

monitoring and visitor management systems, should be encouraged by local governing bodies. This approach can provide employment opportunities for villagers, who play a crucial role in maintaining the habitat that attracts birds to Veerapuram.

20. Advanced engineering technologies must be integrated into the design and construction of artificial foraging habitats to support seasonal migratory species.
21. Precision Ecological Engineering: Utilize GIS (Geographic Information Systems) and Remote Sensing to identify optimal micro-climates and historical flight paths. This ensures artificial habitats are placed where migrants are most likely to encounter them.
22. Bio-Acoustic Lures: Incorporate automated acoustic systems that play specific social or foraging calls. This "social attraction" technique is a proven scientific method for guiding migratory birds to newly constructed foraging grounds.
23. Hydro-Regulated Foraging Zones: For aquatic migrants, use smart sensor networks to monitor and maintain water quality, depth, and temperature. Automated sluice gates can manage water levels to maximize the availability of benthic organisms (food sources) during peak migration periods.

Artificial nesting platforms:



To address the decline of natural nesting trees in Veerapuram, artificial nesting platforms are proposed as an immediate conservation measure for the Painted Stork (Mycteria leucocephala). The degradation of traditional nesting canopies such as Acacia, Tamarindus, and Ficus has significantly reduced suitable breeding habitats. Since Painted Storks are colonial nesting birds, the platforms are designed to replicate

their natural nesting ecology by providing elevated, clustered nesting sites near wetlands, irrigation tanks, and marshes. The structures consist of circular or rectangular frames (approximately 1.2–1.5 m in diameter) supported by treated bamboo or galvanized iron poles. A galvanized wire-mesh base with a shallow concave "saucer-shaped" cavity ensures drainage, thermoregulation, and stability of nesting material. Coir-fibre lining and rough-textured perches further mimic natural branches and improve grip during landing and nesting.

The engineering design follows a bio-mimetic "space-frame" concept with a catenary-curved base that distributes load efficiently and withstands strong winds and heavy landings. Each platform is engineered to support up to 50 kg of static biomass, accounting for adults, fledglings, and accumulated nesting material. The open-grid floor provides nearly 70% ventilation area, enabling effective heat dissipation in tropical conditions. Platforms should be installed 15–25 feet above ground in clusters of 5–10 units spaced 6–10 feet apart to encourage colony formation. Predator guards such as metal baffles are recommended to prevent access by snakes and small mammals, and installation should be completed before the breeding season (September–November) to minimize disturbance.

In addition to artificial platforms, long-term restoration of native thorny tree species such as Acacia nilotica near water bodies is strongly recommended to recreate natural nesting habitats. Community participation in monitoring and maintenance can further improve conservation success by reducing human disturbance and promoting local stewardship. Overall, artificial nesting platforms provide a scientifically viable and practical strategy for sustaining breeding colonies of Painted Storks in Veerapuram while long-term habitat restoration efforts continue.

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