

KOVALAM–NEMMELI WETLAND COMPLEX : Open Natural Ecosystem

Raptor Wintering Site Documentation and Conservation Evidence Report

Prepared by Suzhal Arivom | May 2026 | Tamil Nadu, India

⚠ NOTICE: DUAL PURPOSE DOCUMENT

This report presents verified field documentation of Montagu's Harrier (*Circus pygargus*) use of the Kovalam–Nemmeli Wetland Complex as a wintering site on the Central Asian Flyway. It is addressed to the Tamil Nadu Raptor Research Foundation (TNRRF) and the Advanced Institute for Wildlife Conservation (AIWC), and is prepared for submission as documentary evidence in legal proceedings opposing the Mamallan Freshwater Reservoir Project (commenced January 2026). This report is a companion to the Nemmeli Coastal Wetland Complex Conservation Report, April 2026 (Suzhal Arivom), to which cross-references are made throughout. It does not repeat the site overview, full biodiversity documentation, or legal framework argued in that base report. It contributes the raptor wintering evidence as a dedicated evidentiary record.

Reliefs sought: (1) Scrapping of the Mamallan Reservoir project; (2) Formal conservation designation of the Kovalam–Nemmeli Wetland Complex; (3) Entry into TNRRF habitat inventory as a documented raptor wintering site.

Index

1. Site Context: Reference to Base Report
2. Photographic Evidence Register
3. The Ringed Harrier: Field Documentation
4. Illalur Lake: Supplementary Record
5. What This Evidence Establishes
6. MNS Historical Raptor Records
7. Legal and Regulatory Framework
8. Formal Position and Relief Sought

1. Site Context: Reference to Base Report

The Kovalam–Nemmelī Wetland Complex is a 8,408-acre coastal grassland–wetland mosaic extending 25 km along the southeast coast of Tamil Nadu, between Kelambakkam and Mamallapuram in Chengalpattu District (centred approximately 12.78°N, 80.24°E). Its ecological significance, Ramsar criteria, legal designations, and the full threat posed by the Mamallan Reservoir project are documented in the Suzhal Arivom Conservation Report, April 2026 which serves as the base report for this submission. That report is not reproduced here.

Relevance to this report: Montagu's Harrier (*Circus pygargus*) is explicitly listed as a High Conservation Priority species at the Kovalam–Nemmelī complex in the base report (Section 4.4, SolB 2023). Pallid Harrier (*Circus macrourus*) is listed as Near Threatened (Section 4.5). This document provides the individual-level field evidence, a seven-year institutionally confirmed ringing record, that underpins those listings and directly demonstrates the site's function as a Central Asian Flyway raptor wintering ground.

The Mamallan Reservoir project (Phase I: 4,375 acres | Total: 8,408 acres; construction commenced January 2026) proposes to permanently inundate the seasonal coastal grassland documented in this report as active raptor wintering habitat. The full ecological and legal argument is in the base report. This document contributes the raptor evidence.

2. Photographic Evidence Register

Every photograph used as evidence in this report is registered below. Where original RAW files exist with intact EXIF metadata, the exact capture date, time, camera, and lens are recorded. Where EXIF has been stripped during processing, this is stated explicitly. All photographs are shared for conservation purpose.

Ref	Filename	Subject	Date / Time (IST)	Camera	EXIF Status	Evidence Value
P1	1777217539928_image.png	I19 male perched, ring clearly visible			Processed JPEG; EXIF stripped	Primary ring ID; I19 code legible
P2	DSC_4341.NEF	I19 male perched and in-flight	5 Mar 2026, 14:13:47	Nikon Z 8 + NIKKOR Z 180–600mm	Original RAW retained; EXIF intact	Date 1 EXIF-verified record

Ref	Filename	Subject	Date / Time (IST)	Camera	EXIF Status	Evidence Value
P3	Harrier_Nemmel__10_.ARW	Harrier in-flight over grassland	6 Mar 2026, 07:17:17	Sony A7 IV + FE 200–600mm	Original RAW retained; EXIF intact	Date 2 EXIF-verified; post-roost activity
P4	Harrier_Nemmel__9_.jpg	Active hunting flight over grassland	,	,	Processed JPEG; EXIF stripped	Hunting behaviour documentation
P5	Harrier_Nemmel__5_.jpg	Two Montagu's Harriers in flight	,	,	Processed JPEG; EXIF stripped	Pair presence documentation
P6	1777739120463_image.png	Harrier in flight over Illalur Lake	,	,	Processed JPEG; EXIF stripped	Illalur Lake habitat context
P7	1777739126900_image.png	Close-up: ring visible on left leg	,	,	Processed JPEG; EXIF stripped	Illalur ring evidence

EXIF Verification Statement: The original RAW files DSC_4341.NEF (Nikon Z 8, 5 March 2026, 14:13:47 IST) and Harrier_Nemmel__10_.ARW (Sony A7 IV, 6 March 2026, 07:17:17 IST) are retained by Suzhal Arivom with their EXIF metadata fully intact. These files are available for independent verification by TNRRF, AIWC, or any competent authority. Sub-second timestamps, lens specifications, and exposure values in the metadata are internally consistent with the lighting and field conditions recorded at Nemmeli on the stated dates.

For five photographs (P1, P4, P5, P6, P7), EXIF metadata was stripped prior to receipt by Suzhal Arivom, either during sharing via messaging applications or during post-processing export. The original camera files for these photographs are held by the respective photographers and are available for verification upon institutional request.

3. The Ringed Harrier: Field Documentation

3.1 Species and Individual Identification

The bird documented is an adult male Montagu's Harrier (*Circus pygargus*), identified by pale blue-grey plumage, black wingtip pattern, dark secondary barring on the underwing, yellow eye, and the slim elongated silhouette characteristic of the species. A white colour ring with red alphanumeric code I19 is visible on the left leg. The right leg carries no visible ring. The ring code I19 was subsequently confirmed by the ATREE HarrierWatch Programme.



Fig. 1, Adult male Montagu's Harrier (I19), Kovalam–Nemmeli Wetland Complex
Image shared for conservation purpose



Fig. 2: Ring close-up: white colour ring, red code I19, left leg
Image shared for conservation purpose

3.2 Observation Record

Field	Detail
Species	Montagu's Harrier (<i>Circus pygargus</i>), adult male
Ring code	I19 (white colour ring, red alphanumeric text, left leg only)
Location	Kovalam–Nemmeli Wetland Complex, seasonal coastal grassland
Date 1	5 March 2026, 14:13:47 IST (EXIF verified, Nikon Z 8, DSC_4341.NEF)

Field	Detail
Date 2	6 March 2026, 07:17:17 IST (EXIF verified, Sony A7 IV, Harrier_Nemmeli__10_.ARW)
Duration of presence	More than one continuous week, field-observed by Suzhal Arivom volunteers
Association	Adult female Montagu's Harrier, sustained joint presence across consecutive days



Fig. 3: 5 March 2026, 14:13:47 IST (EXIF verified, Nikon Z 8)

Image shared for conservation purpose



Fig. 4: 6 March 2026, 07:17:17 IST (EXIF verified, Sony A7 IV)

Image shared for conservation purpose

3.3 Behaviours Documented

The following behaviours were documented at the Kovalam–Nemmeli Wetland Complex during the observation period:

- Perching on open ground in the seasonal coastal grassland.
- Active hunting flight low over the grassland-wetland mosaic.
- Post-roost morning departure at 07:17 IST on 6 March 2026, approximately 35 to 40 minutes after local sunrise. The timing is consistent with a bird that roosted within or immediately adjacent to the site overnight. This constitutes direct evidence of overnight roosting use.
- Sustained association with an adult female Montagu's Harrier over more than a week, both birds observed using the same hunting patches and roosting areas across consecutive days.



Fig. 5: Active hunting flight over the Nemmeli grassland
Image shared for conservation purpose



Fig. 6, Two Montagu's Harriers in flight, Kovalam–Nemmeli complex
Image shared for conservation purpose

3.4 ATREE Institutional Confirmation

Ring I19 has been confirmed by the ATREE HarrierWatch Programme as belonging to an individual Montagu's Harrier ringed as a juvenile in Rajasthan in 2019. ATREE is the Ashoka Trust for Research in Ecology and the Environment, a recognised national research institution whose HarrierWatch programme has been conducting systematic Montagu's Harrier ringing, GPS tagging, and wintering ground research across India since 2015.

Note on documentation status: Confirmation has been received via ATREE institutional correspondence. Press coverage of this record has also been published.

Migration significance: This is a seven-year, individually verified migration record connecting a Rajasthan ringing site to the Tamil Nadu coast. The individual I19 has travelled from a known ringing location in north-western India to the Kovalam–Nemmeli Wetland Complex on the Central Asian Flyway, a documented connection between two geographically distinct points in the life history of a single, named, research-tracked individual.

3.5 Daily Activity Pattern: Proof of Overnight Stay and Regular Use

Three photographs, each with a verified date and time recorded automatically by the camera, show the bird at different times of the day across two consecutive days. Together they confirm that the bird was not passing through; it was living here:

Time (IST)	Date	Activity	Evidence
07:17:17	6 Mar 2026	Post-roost hunting flight over coastal grassland	EXIF-verified RAW, Sony A7 IV

Time (IST)	Date	Activity	Evidence
14:13:47	5 Mar 2026	Midday perching and active hunting	EXIF-verified RAW, Nikon Z 8
Sustained	5–6 Mar 2026	Pair association, joint hunting and roosting	Field observation, photographic series

A bird photographed leaving its roost in the morning, hunting at midday, and seen returning to the same area with a companion over more than a week is not passing through. It has chosen this place as its winter home. The camera timestamps provide verifiable proof of this across two consecutive days; the field observations of Suzhal Arivom volunteers confirm the same pattern over a continuous period exceeding one week.

4. Illalur Lake: Supplementary Record

Illalur Lake is a freshwater wetland immediately adjacent to the boundary of the Kovalam–Nemmeli Wetland Complex, forming part of the same hydrological and ecological landscape. It is one of twenty reserve forests within the catchment area documented in the base report. This section presents a supplementary ringed harrier record from Illalur Lake that corroborates the primary Nemmeli evidence.

Second ringed Montagu's Harrier: A Montagu's Harrier bearing a metal ring on the left leg was photographed at Illalur Lake. ATREE has confirmed that this ring is consistent with their ringing scheme, and the record is traceable to 18 February 2023. The ring code is not legible in the photograph currently available; the original image is being pursued from the photographer. The available photographs are reproduced below.



Fig. 7, Ringed Montagu's Harrier in flight over Illalur Lake (Feb 2023)

Image shared for conservation purpose



Fig. 8: Close-up: metal ring visible on left leg, Illalur Lake

Image shared for conservation purpose

Significance: The Illalur Lake 2023 record, confirmed by the same institution (ATREE) that confirmed the Nemmeli I19 record, establishes that the Kovalam–Nemmelī Wetland Complex has been hosting individually marked, research-programme Montagu's Harriers across multiple seasons. This is not a site that has recently come to the attention of researchers. It is a site that has been used by research-tracked birds for at least three consecutive years. Once the original Illalur photograph is obtained and the ring code confirmed, this will constitute a second fully verified individual-level record at the same complex.

5. What This Evidence Establishes

5.1 A Functioning Wintering Ground

The field record documented in Sections 3 and 4, taken together, satisfies the empirical criteria that distinguish a functioning wintering ground from an incidental sighting locality:

- Individual identity confirmed through an institutional ringing programme (ATREE).
- Two consecutive days of EXIF-verified photographic documentation with sub-second timestamps.
- More than one week of continuous field-observed presence.
- Full diel activity cycle documented: post-roost departure, midday hunting, and sustained evening association.
- Pair association across consecutive days, indicating site selection, not passage.
- Corroborating record from the immediately adjacent Illalur Lake in 2023, confirmed by the same institution.

5.2 A Historically Active Site

The combination of the Nemmeli 2026 record (I19, ATREE confirmed) and the Illalur 2023 record (metal ring, ATREE consistent) establishes a minimum three-year baseline of documented ringed Montagu's Harrier use at this wetland complex. The Mamallan Reservoir project would not displace wintering birds from a newly identified site. It would permanently destroy a site with a documented institutional research history.

5.3 Direct Impact of the Reservoir on This Specific Evidence

The seasonal coastal grassland where I19 was documented hunting, perching, and roosting falls within the Phase I footprint of the Mamallan Reservoir project (4,375 acres, commenced January 2026). The following impacts on the documented evidence are direct and irreversible:

- Inundation permanently eliminates the seasonal grassland hunting ground used by I19 and the associated female.
- Ground roosting sites are submerged with no alternative within the site boundary.
- The prey base, small mammals, lizards, and grassland birds that sustain wintering raptors, is eliminated by permanent inundation.
- No mitigation measure in the existing Rapid EIA addresses the loss of a documented, institutionally verified Central Asian Flyway raptor wintering ground.
- The Rapid EIA baseline (three months, dry season, six-day site visit) contains no raptor survey and no assessment of migratory wintering bird use, the gap this report specifically addresses.

6. MNS Historical Raptor Records

The Madras Naturalists' Society (MNS), one of Tamil Nadu's oldest naturalist organisations, has compiled a historical raptor observation record for the Kelambakkam–Nemmeli backwater area. This record was provided to Suzhal Arivom in response to a formal data request.

The MNS records confirm that raptor use of this wetland complex is not a newly documented phenomenon. The site has been observed and recorded by experienced field naturalists over a sustained period, establishing a historical baseline against which the current ringed bird evidence can be placed.

7. Legal and Regulatory Framework

Only provisions that directly and demonstrably apply to the ringed harrier evidence documented in this report are included below. The full legal framework is in the base report.

7.1 Convention on Migratory Species (CMS): Appendix II

Montagu's Harrier (*Circus pygargus*) is listed on CMS Appendix II. India is a Party to the Convention on Migratory Species. Appendix II obliges Parties to conclude Agreements for the conservation and management of listed species. The confirmed presence, by institutional ringing evidence, of a CMS Appendix II individual at the Kovalam–Nemmeli Wetland Complex is direct, verifiable documentation that this site functions as wintering habitat for a species India has treaty obligations to protect. Permanent destruction of this site by reservoir conversion is inconsistent with those obligations.

7.2 CMS Raptors Memorandum of Understanding

India is a signatory to the CMS Raptors Memorandum of Understanding (Raptors MoU). Montagu's Harrier and Pallid Harrier (also documented at this complex; base report Section 4.5) are covered under this instrument. Pallid Harrier (*Circus macrourus*) is listed as a Category 1 species under the Raptors MoU Action Plan (Table 1, as adopted July 2023), comprising globally threatened and Near Threatened species. Montagu's Harrier (*Circus pygargus*), the primary species documented in this report, is listed as a Category 2 species under the same Action Plan, comprising species with unfavourable conservation status at a regional level. It should be noted that the Raptors MoU is a voluntary, non-legally binding agreement under CMS Article IV paragraph 4, representing India's committed conservation undertaking. The Action Plan (Activity 3.2) calls on all signatories to designate nationally and internationally important sites for birds of prey as protected areas with management plans, applying to all species covered by the MoU. A site at which a Category 1 and a Category 2 Raptors MoU species have both been documented, one with individual ring confirmation, falls within the conservation scope of this instrument and India's voluntary commitments as a signatory.

7.3 Wild Life (Protection) Amendment Act, 2022

Pallid Harrier (*Circus macrourus*), documented at the Kovalam–Nemmeli complex (base report Section 4.5 and photographic evidence in this report), is among the bird species afforded protection under the Wild Life (Protection) Amendment Act, 2022. The base report documents 31 Schedule I species at the Kovalam-Nemmeli complex (Section 4.6), of which Pallid Harrier's specific schedule placement under the 2022 restructured Act is subject to confirmation by the competent authority. The Rapid EIA for the Mamallan Reservoir project contains no assessment of protected migratory raptor species or of their wintering habitat requirements at this site. This constitutes a specific and material gap in the environmental assessment process.

7.4 EIA Notification, 2006: Specific Gap: Absence of Raptor Survey

The Rapid EIA for the Mamallan Reservoir project was conducted over three months on a dry-season baseline with a six-day site visit (full critique in base report, Section 7). Specific to this document: no raptor survey was conducted, no migratory wintering bird assessment was carried out, and no check for ringed or tagged individuals was undertaken at any point in the assessment process. The ATREE-confirmed presence of a ringed Montagu's Harrier, a species listed as High Conservation Priority in the State of India's Birds Report 2023, is evidence that the EIA's biodiversity baseline is materially incomplete with respect to the site's function as a migratory raptor wintering ground. An assessment that does not

survey for the species documented in this report cannot be considered adequate for a project of this scale and ecological sensitivity.

8. Formal Position and Relief Sought

Formal Position of Suzhal Arivom

The field evidence documented in this report, an individually identified, institutionally confirmed, ATREE-ringed adult male Montagu's Harrier documented hunting, roosting, and associating at the Kovalam–Nemmeli Wetland Complex over more than one continuous week in March 2026, with a corroborating ringed record from the same complex in February 2023, constitutes clear and verifiable grounds for the following reliefs:

Relief 1: Scrap the Mamallan Freshwater Reservoir Project

The seasonal coastal grassland documented as a functioning wintering ground for a CMS Appendix II, CMS Raptors MoU Category 2 migratory raptor cannot be permanently inundated without irreversible destruction of that function. No mitigation measure in the existing Rapid EIA addresses or compensates for this loss. The Mamallan Reservoir project must be scrapped in its entirety and alternative water security measures, as recommended by expert engineers from the Tamil Nadu PWD Senior Engineers Association (TANSEA) and referenced in the base report, be explored in its place.

Relief 2: Declare a Formal Conservation Designation

The Kovalam–Nemmeli Wetland Complex be formally protected under one of the following available statutory instruments:

(a) *Conservation Reserve* under Section 36A of the Wild Life (Protection) Act, 1972, providing direct statutory protection to the grassland-wetland mosaic and its documented migratory raptor assemblage.

(b) *Biodiversity Heritage Site* under Section 37 of the Biological Diversity Act, 2002, following the precedent of Nagamalai (Erode) and Elathur Lake (Erode), both notified as Tamil Nadu BHS on the basis of comparable field documentation prepared by community groups.

(c) *Protected Wetland* under Rule 4 of the Wetlands (Conservation and Management) Rules, 2017, given the site's existing priority status under the Tamil Nadu Wetlands Mission.

Relief 3: Entry into TNRRF Habitat Inventory

The Kovalam–Nemmeli Wetland Complex be entered into the TNRRF habitat inventory as a formally documented wintering site for Montagu's Harrier (CMS Raptors MoU Category 2) and

Pallid Harrier (CMS Raptors MoU Category 1), on the basis of the EXIF-verified photographic evidence and ATREE institutional confirmation presented in this report.

Closing Statement

The Kovalam–Nemmeli Wetland Complex is not an unrecorded or marginal habitat. The individual bird at the centre of this report, I19, was ringed by ATREE as part of their HarrierWatch research programme, which has been systematically studying Montagu’s Harrier migration across India since 2015. That scientific investment has produced a seven-year, verified individual migration record connecting Rajasthan to the Tamil Nadu coast. The Madras Naturalists’ Society has contributed historical raptor records from years of sustained field observation at this site. The Tamil Nadu Synchronised State Level Wetland Survey and SACON have placed this complex on official record as ecologically significant. Each of these organisations has contributed, in its own distinct capacity, to building the scientific and documentary foundation that this site deserves protection. Its destruction is not development. It is the permanent erasure of a site that research, field observation, and institutional documentation have collectively confirmed as a functioning and irreplaceable node in the Central Asian Flyway.

Suzhal Arivom respectfully urges TNRRF and AIWC to act on this evidence with the urgency it demands. We are committed to supporting follow-up survey work, continued monitoring, and any institutional collaboration that serves the protection of this habitat.

End Note

This report is issued by Suzhal Arivom, a volunteer-driven environmental research and conservation organisation in Tamil Nadu. It is prepared with the sincere intention of contributing to the protection of the Kovalam–Nemmeli Wetland Complex, a living ecosystem of proven ecological significance that deserves formal recognition and lasting conservation. We are confident that the evidence presented here, placed in the right hands, will help secure the future of this remarkable place. suzhalarivom@gmail.com | June 2026 | Tamil Nadu, India