

Chapter II

Performance Audit

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FOREST, ENVIRONMENT AND CLIMATE CHANGE DEPARTMENT

2.1 Performance Audit on Conservation of National Parks and Wildlife Sanctuaries in Jharkhand

Executive Summary

The State of Jharkhand covers an area of 79,716 square kilometres (sq. km.) including Recorded Forest Area (RFA) of 25,118 sq. km. and Total Forest Cover (TFC) of 23,721 sq. km. Jharkhand has a network of 11 Wildlife Sanctuaries (WLS) and one National Park (NP) which are termed as Protected Areas (PAs). Additionally, there is a Tiger Reserve (Palamau Tiger Reserve) and an Elephant Reserve (Singbhum Elephant Reserve).

A Performance Audit on “Conservation of National Parks and Wildlife Sanctuaries in Jharkhand” covering all the 12 PAs, for the period from 2018-19 to 2022-23, was conducted to assess the adequacy of planning & funding; measures adopted for management of the PAs and the efficacy of internal controls & monitoring mechanism in place. Findings of the Performance Audit, along with recommendations, are summarised below.

As of March 2024, the State Government had not fully settled the rights of individuals or communities in 11 out of the 12 PAs. Around 67 per cent of the PAs were designated as protected forests, where rights of local communities and individuals had been suspended without providing alternative resources, leading to biotic pressure, forest degradation, and depletion of fodder for wildlife. Management Plans (MPs) for the PAs were not prepared or updated regularly, and essential activities like surveys and resource mapping were not conducted. A comprehensive perspective plan was not prepared for the Elephant Reserve, and there was no critical management plan for the notified core area. Zonal Master Plans (ZMPs) for the declared nine Eco-Sensitive Zones (ESZs), covering all the 12 PAs, were not prepared within the stipulated period of two years.

Financial and administrative mismanagement further aggravated these issues. During 2018–23, ₹ 41.22 crore (10 per cent of available funds) remained unutilised. The Palamau Tiger Conservation Foundation operated eight bank accounts instead of the permissible three and did not maintain cash books. Boundary consolidation using digitised data to curb external activities and encroachment in the PAs was not undertaken. Patrolling was hampered by lack of adequate resources, including skilled personnel, vehicles, and communication systems. Two PAs lacked watchtowers, while the existing ones lacked basic amenities for patrolling. Staffing shortages were severe, with only 182 frontline staff (51 per cent of the sanctioned strength) managing the PAs, many without wildlife management training.

Prosecution Reports for prosecuting wildlife crimes were submitted to the courts with delays ranging from nine to 68 months, and the absence of crime-prone zone mapping or habitual offender dossiers affected enforcement. Despite over half the PAs being extremely or highly fire-prone, there were no Annual Fire Management Plans, assessment of requirement of firefighting equipment, or training for firefighting squads. Habitat quality also declined, with area covered by trees decreasing by 2.60 per cent between 2017 and 2021, while bare ground

and built-up areas increased by 13.51 per cent and 22.33 per cent, respectively. Wildlife population monitoring was inconsistent, with significant fluctuations indicating the lack of a scientific census mechanism. Number of tigers in the Palamau Tiger Reserve (PTR) fell from 34–46 (2000–2005) to just one in 2022, while the MStrIPES monitoring system was not being utilised optimally.

Though man-elephant conflict was a critical issue in three PAs (Dalma, Palkot, and PTR), no zone or species-specific studies or mitigation strategies were developed. Eco-tourism in 10 PAs, having identified potential for eco-tourism, remained undocumented and unplanned, with no defined carrying capacity, travel routes and means of travel. Only 40 per cent of villages in and around the PAs had functioning Eco-Development Committees (EDCs), and 130 out of 429 submitted micro-plans were not approved, leaving developmental activities unimplemented and local dependency on PAs unchecked. Rescue and rehabilitation centres lacked veterinary care, and rescued animals were not promptly released back into the wild. Livestock immunization was irregular, and divisions did not compile data on livestock or immunized animals.

Research activities, essential for informed and effective management of the PAs, were entirely absent between 2018 and 2023, and no State Wildlife Action Plan was prepared to align with the National Wildlife Action Plan. Annual targets for achieving Sustainable Development Goal (SDG) 15, which relate to "Life on Land," were not defined for each scheme, leaving progress unascertained. None of the PAs maintained essential records like Control Forms, PA Books, Range Books, or Compartment Histories to monitor activities and their impacts on the ecosystem of the PAs. These deficiencies underscore significant gaps in the management of the PAs, threatening both biodiversity conservation and the livelihoods of communities dependent on these areas.

Recommendations:

1. The Department may expedite the process of settlement of rights of individuals and communities residing within the PAs to facilitate final notification of the PAs.
2. The Department may ensure preparation of site-specific plans for conservation activities for each PA, for the remaining plan period of the approved MPs, after detailed survey and resource mapping.
3. The Department may prepare and implement a perspective plan for the ER to ensure that the natural habitats and migratory routes of the elephants are restored and man-elephant conflicts are minimised.
4. The Department may prepare ZMPs for all ESZs to regulate prohibited activities in ESZs, based on a detailed assessment of activities that have adverse impact on the ecology of the PAs.
5. The Department may ensure maintenance of cash books by PTCF and recoup advances made to the DFOs.
6. The Department may take steps to consolidate the boundaries of the PAs through erection of boundary pillars with DGPS survey.

7. *The Department may ensure deployment of skilled personnel for patrolling of PAs with adequate vehicles, communication equipment and safety gear.*
8. *The Department may initiate action to fill up vacancies of frontline staff and specialised officers on priority and impart induction and specialised training, as required.*
9. *The Department may frame a Standard Operating Procedure for investigation of forest offences and submission of PRs to the Court in a time-bound manner.*
10. *The Department may ensure preparation of Annual Fire Management Plans and Restoration Plans for fire-affected areas. It may also ensure training of fire-fighting personnel, conducting mock drills, and providing adequate fire kits, communication equipment, and fire blowers for the squads.*
11. *The Department may take up consider taking up independent evaluation of forestry schemes in the PAs to ascertain the causes for decrease in forest/ tree cover and to suggest suitable mitigation measures. Scientific census methodologies may be adopted for estimation of the wildlife population in the PAs and appropriate conservation plans may be formulated.*
12. *The Department may expedite the process of voluntary relocation of villages situated in the core area to create an effective inviolate area for tigers. MStrIPES application may also be optimally utilised for capturing data needed for protecting the habitat, mitigating human-wildlife conflict and supporting the recovery of the predator and prey populations.*
13. *The Department may make arrangements for release of treated animals from the rescue centres to their natural habitat. It may also ensure and document immunisation of livestock in and around the PAs against communicable diseases.*
14. *The Department may prepare an SOP to effectively tackle HWC in the PAs and adopt suitable mitigation measures.*
15. *The Department may devise specific eco-tourism plan for each PA, detailing its carrying capacity, travel routes, means of travel, entry fee etc. Skill development and awareness generation of the local community may be ensured for their active participation in eco-tourism.*
16. *The Department may ensure constitution of EDCs in all villages having biotic pressure on the PAs. Preparation and approval of micro plans, for taking up developmental activities in the villages may also be ensured.*
17. *The Department may fix specific targets in the budget against each scheme related to conservation of the PAs and protection of wildlife. Progress against the proposed outcomes may be monitored to ascertain the achievement of SDG 15 in the State.*
18. *The Department may ensure maintenance of PA books, Range Books and Control Forms in all the PAs to strengthen the monitoring mechanism. A State Wildlife Action Plan may be prepared for initiating research activity and providing a sound scientific basis for management of the PAs.*

2.1.1 Introduction

The State of Jharkhand covers an area of 79,716 square kilometres (sq. km.), which is 2.42 *per cent* of the total geographical area of the country. As per India State of Forest Report (ISFR), 2021, published by the Forest Survey of India (FSI), Dehradun, Jharkhand has Recorded Forest Area¹ (RFA) of 25,118 sq. km. and Total Forest Cover² (TFC) of 23,721 sq. km. The State, with an RFA of 31.51 *per cent* and TFC of 29.76 *per cent*, is better placed as compared to the national average of 23.58 and 21.71 *per cent*, respectively.

The Government of India (GoI) had enacted the Wildlife (Protection) Act (WPA), 1972, with the objective of providing protection to wild animals, birds and plants, and for matters connected therewith. The WPA empowers the State Government to declare any area of adequate ecological, faunal, floral, geo-morphological, natural or zoological significance, as a National Park (NP) or Wildlife Sanctuary (WLS) for protecting, propagating or developing wildlife or its environment. The WPA was amended in 2006 and a new chapter “National Tiger Conservation Authority (NTCA)” was included, under which the State Governments were empowered to notify an area as a tiger reserve on the recommendation of the Tiger Conservation Authority. Further, preparation of a Tiger Conservation Plan (TCP), for the management of these tiger reserves, was mandated.

Jharkhand has a network of 11 Wildlife Sanctuaries (WLS) and one National Park (NP) which are termed as Protected Areas (PAs) under WPA, 1972. Details of PAs in Jharkhand, are shown in **Table 2.1**.

Table 2.1: Details of notification and area of PAs as of March 2023

Sl. No.	Name of PA	Date of Notification	Area of PA in sq. km.
1	Hazaribagh WLS	24 May 1976	186.25
2	Gautam Buddha WLS	14 September 1976	121.14
3	Topchanchi WLS	03 June 1978	12.82
4	Lawalong WLS	07 August 1978	211.03
5	Parasnath WLS	21 August 1984	49.33
6	Koderma WLS	25 January 1985	150.62
7	Udhwa Lake Bird Sanctuary	17 August 1991	5.65
8	Dalma WLS	17 July 1976	193.22
9	Palamu WLS	14 July 1976	979.27
10	Betla NP ³	10 September 1989	
11	Mahuadanr Wolf Sanctuary	23 June 1976	63.25
12	Palkot WLS	22 March 1990	183.18
Total:			2,155.76

¹ Area recorded as forests in Government records.

² All lands, more than one hectare in area, with a tree canopy density of more than 10 *per cent*, irrespective of ownership and legal status. Such lands may not necessarily be a RFA.

³ The NP was notified in an area of 226.32 sq. km. within the area of Palamu WLS.

In addition to the above, the State also has a tiger reserve namely, the Palamau Tiger Reserve⁴ (PTR) with an area of 1,129.93 sq. km. and an elephant reserve namely, the Singhbhum Elephant Reserve⁵ (SER) covering an area of 4,529.90 sq. km.

As per the wildlife census, the total number of wild animals in the PAs of Jharkhand has come down from 20,028 in 2017-18 to 19,882 in 2020-21. As such, conservation and protection of wildlife, flora and fauna needs to be given utmost importance.

2.1.2 Authorities for regulation of activities in PA

Regulation of activities in the PAs is governed by the WPA, 1972, and this is complemented by the Forest Conservation Act, 1980, and the Environment Protection Act, 1986 of GoI. The following authorities play an important role in ensuring compliance with the provision of these Acts:

National Board for Wildlife (NBWL): This is a statutory board constituted at the national level under Section 5A of the WPA and headed by the Prime Minister. The role of NBWL, *inter alia*, includes making recommendations on matters related to restriction of activities in the PAs.

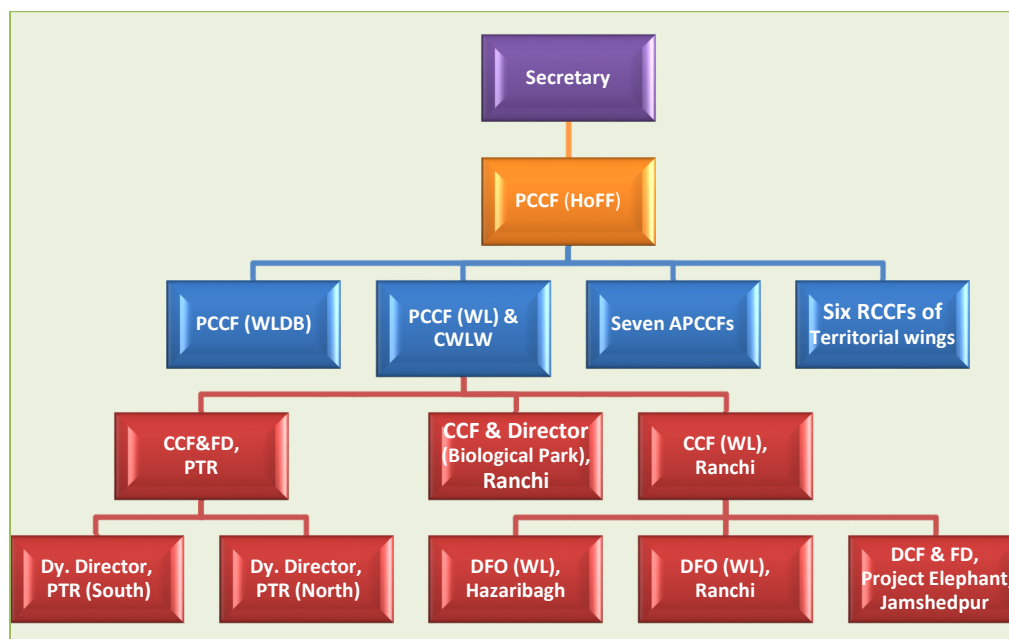
State Board for Wildlife (SBWL): Constituted in States, under Section 6 of the WPA and headed by the respective Chief Minister. The duty of SBWL is to advise the State Government in selection of areas to be declared as PAs, in formulation of policy in relation to the measures to be taken for harmonising the needs of tribals and other forest dwellers with the protection and conservation of PAs and wildlife, *etc.*

2.1.3 Organisational setup

The Forest, Environment and Climate Change Department (the Department) is responsible for the management of PAs in the State. The Secretary is the administrative Head of the Department. The Principal Chief Conservator of Forests, Head of the Forest Force (PCCF, HoFF) is the functional head of the Department. PCCF (Wildlife) is the Chief Wildlife Warden (CWLW) under the provisions of the WPA, 1972. At the regional level, the Chief Conservator of Forests (CCF)/Conservator of Forests (CF)/ Field Director (FD), and at the divisional level, the Divisional Forest Officer (DFO)/ Deputy Director (DD) manage the PAs. The organogram of the Department is depicted below:

⁴ PTR was notified on 16 August 1974. Later on Palamu WLS was notified (14 July 1976) within the area of PTR.

⁵ Dalma WLS was notified on 17 July 1976. Later on SER was notified in September 2001 including the area of Dalma WLS.



There are three wildlife divisions in the State which are further divided into Ranges, headed by Range Forest Officers (RFOs). A Range is split into Beats, headed by Foresters; and Beats are split into Sub-Beats, headed by Forest Guards. A Sub-Beat is the lowest administrative unit of the Department.

2.1.4 Audit objectives

The Performance Audit was conducted to assess whether:

- Planning for conservation and protection of Wildlife in National Parks (NPs) and Wildlife Sanctuaries (WLSs) was adequate
- Funding for conservation and protection of wildlife was adequate and available funds were utilised economically, effectively and efficiently
- Steps/measures taken for conservation and protection of wildlife and their habitats were in accordance with the plan, related rules and were implemented efficiently; and
- Internal control and monitoring mechanism for wildlife management was in place and effective.

2.1.5 Scope and methodology of Audit

The Performance Audit of all the 12 PAs in the State, covering the period from 2018-19 to 2022-2023, was conducted between July 2023 and October 2023. Test-check of records of the Department, PCCF (Wildlife), APCCF (Development) and APCCF (Research & Training) at the headquarter level, two⁶ Chief Conservator of Forests, five⁷ Wildlife Divisions and two⁸ Territorial Divisions having jurisdiction of PAs, was carried out.

⁶ CCF & FD (Palamau Tiger Reserve), Medininagar and CCF (Wildlife), Ranchi.

⁷ Wildlife Divisions, Ranchi and Hazaribagh; North and South Divisions, Palamau Tiger Reserve, Medininagar and Elephant Project Division, Jamshedpur.

⁸ Forest Division, Sahibganj, having jurisdiction of Udhwa Lake Bird Sanctuary and Forest Division, Jamshedpur, having jurisdiction of Singbhum Elephant Reserve.

During the Performance Audit, data was collected through analysis of replies of the Department to audit queries/questionnaires and scrutiny of records. Audit also conducted joint site visits of the PAs, along with the Departmental Officers.

An Entry Conference was held (June 2023) with the Additional Chief Secretary, wherein the objectives, methodology, scope and criteria of Audit were explained. The Exit Conference was held (July 2024) with the Principal Secretary, wherein audit findings and audit recommendations were discussed. In the exit conference, the Department stated that, based on the audit recommendations, the Field Officers have been directed to take corrective measures to improve the management of PAs. The Department also submitted (August 2024) detailed replies on the audit findings which have been suitably incorporated in the Report.

2.1.6 Audit criteria

Audit findings are based on criteria derived from the following:

- Wildlife (Protection) Act, 1972
- Forest (Conservation) Act, 1980
- Environment (Protection) Act, 1986
- National Wildlife Action Plans 2002-2016 and 2017-2031
- Guidelines issued by the National Tiger Conservation Authority (NTCA)
- Working Plans/Management Plans of PAs and Tiger Conservation Plan
- Project Elephant Guidelines (November 2013)
- Guidelines and notifications relating to Eco Sensitive Zones
- Scheme guidelines and other orders, instructions, action plans, strategies issued by Government of India/Government of Jharkhand
- Guidelines/Research/study reports issued by the Wildlife Institute of India and the Forest Survey of India
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
- Jharkhand Financial Rules, and
- Guidelines relating to Compensatory Afforestation Fund Management and Planning Authority (CAMPA).

2.1.7 Management Effectiveness Evaluation (MEE) of PAs

The Wildlife Institute of India (WII), GoI, periodically reviews the status of Protected Areas (PAs) across the country, based on various parameters viz., management practices, protection measures, habitat restoration, diversity indices, adequacy of infrastructure, staff & financial resources and socio-economic status of local communities.

The WII had reviewed the status of all 12 PAs in the State for various periods between 2006 and 2022 (**Appendix 2.1**). As per the Management Effectiveness

Evaluation (MEE) Reports of WII, four⁹ out of 12 PAs were placed in ‘good’ category and six¹⁰ in ‘fair’ category, whereas the rating of PTR (having two PAs viz., Palamu WLS and Betla NP) had come down from ‘very good’ in 2006 to ‘good’ in 2022. The MEE Reports also highlighted management strengths & weaknesses and actionable points with respect to the management of PAs. However, Audit noticed that the Department had not taken remedial measures against the actionable points of the MEE Reports in order to improve the management of PAs, as detailed in **Appendix 2.2** and discussed in the Report.

Audit findings

The enactment of WPA provided a legal framework for conservation and protection of PAs. In light of the country’s approach to wildlife conservation coupled with the growing concern about depletion of India’s rich biodiversity, the first National Wildlife Action Plan (NWAP) was adopted in 1983 by GoI and revised in 2002 (NWAP-2) and 2017 (NWAP-3). NWAP-2 recommended preparation of Management Plans (MPs) for each PA by the Chief Wildlife Warden (CWLW) of the States to outline strategies for habitat conservation, wildlife protection and sustainable use of natural resources.

Shortcomings/deficiencies, noticed in the management of PAs, have been discussed in the following paragraphs.

2.2 Planning

2.2.1 Non-issue of Final Notification

As per Sections 18(1), 19, 25A and 26A of the WPA, the State Government was empowered, by notification, to declare its intention to constitute any area “other than an area comprised within any reserve forest or the territorial waters (inserted in 1991)” as a sanctuary for the purpose of protecting, propagating or developing wildlife or its environment. After declaration of an area as a sanctuary, the extent of rights of any person within the limits of the sanctuary was to be enquired into and determined by the State Government within a period of two years from the date of notification. After the period for preferring the claim had elapsed, and all claims, if any, made in relation to any land in an area intended to be declared as a sanctuary, were disposed off, the State Government was to issue a notification specifying the limits of the area of the sanctuary. Section 18 A (2) further envisages that till such time as the rights of affected persons are finally settled, the State Government shall make alternative arrangements required for making available fuel, fodder and other forest produce to the persons thus affected, in terms of their rights as per the Government records. Similar provisions are applicable in case of National Parks, declared under Section 35 of the WPA Act.

Further, as per Section 29 of the Indian Forest Act (IFA), 1927, the State Government was empowered to notify any forest-land or waste-land as a

⁹ Dalma, Mahuadanr, Palkot, and Udhwa WLSs.

¹⁰ Gautam Buddha, Hazaribagh, Koderma, Lawalong, Parasnath and Topchanchi WLSs.

protected forest. No such notification was to be made unless the nature and extent of the rights of Government and of private persons over such forest-land or waste-land had been enquired into and recorded through a survey or settlement, or in such other manner as the State Government thinks sufficient. The State Government was to, pending such enquiry and record, declare such land to be a protected forest, without abridging or affecting any existing rights of individuals or communities. National Wildlife Action Plan (NWAP)-3 (2017-31) also suggested completing legal formalities for facilitating final notification of PAs in a time bound manner so as to avoid harassment of local people.

Audit noticed that the State Government had notified 12 PAs (11 WLSs and one NP) in Jharkhand between May 1976 and August 1991. However, the final notification for only Betla NP was issued in January 1996 and that of 11 WLSs had not been issued despite a lapse of more than 32 to 47 years from the date of their notifications, as of March 2024.

It was further seen that nine¹¹ out of 11 WLSs had around 67 *per cent* (1,434.23 sq. km.) of total sanctuary area (2,155.76 sq. km.) as protected forests where the rights of individuals or communities were yet to be settled (as of March 2024). Non-settlement of rights had an adverse impact on the conservation of WLSs, as discussed below.

- The MP (2016-17 to 2025-26) of Mahuadanr Wolf Sanctuary indicated that almost all the forests in the Sanctuary are protected forests and rights burdened. At the time of declaration (under Section 18) in June 1976, the rights of the persons were suspended¹² but never settled. The State Government also did not provide alternate resources to the affected persons/communities in lieu of their rights as a result of which the sanctuary was still facing acute problems associated with biotic pressure *viz.* cattle grazing, felling of trees, firewood collection, collection of minor forest produce and medicinal plants for sale in the local market.
- The MP (2020-21 to 2029-30) of Palkot WLS indicated that most of the Sanctuary area was rights burdened and remained unsettled since its declaration as WLS in March 1990, thus hampering restoration of the degraded and fragmented forest. Land Use Land Cover (LULC) data also showed that crop area and built-up area increased in the Sanctuary by 22.10 sq. km. (8.43 *per cent*) and 9.03 sq. km. (39.99 *per cent*) respectively in 2021 compared to the position in 2017 (crop area: 262.10 sq. km. and built-up area: 22.58 sq. km.).

¹¹ Dalma: 147.64 sq. km., Gautam Buddha: 121.14 sq. km., Hazaribagh: 186.25 sq. km., Lawalong: 211.03 sq. km., Mahuadanr: 63.25 sq. km., Palkot: 183.18 sq. km., Parasnath: 49.33 sq. km., Palamau: 471.72 sq. km. and Topchanchi: 0.69 sq. km. Koderma WLS and Udhwa Lake Bird Sanctuary falls under the category of reserved forests.

¹² As per Section 18 A (1), when any area is declared as a sanctuary under section 18 (1), the provisions of sections 27 to 33A *i.e.*, restricted entry in sanctuary, prohibition of destruction in sanctuary, control and management of sanctuary, prohibition of grazing in sanctuary *etc.* shall come into effect forthwith.

- The MP (2020-21 to 2029-30) of Hazaribagh WLS acknowledged rights of grazing of cattle in the sanctuary area as a major threat with an adverse impact on available fodder sources for the wildlife fauna (herbivores). The MP proposed to settle the grazing rights with development of alternative arrangements for cattle grazing. However, this had not been implemented and neither were corrective measures had been taken (as of March 2024), although the PA was declared as a WLS in May 1976.
- The MP (2020-21 to 2029-30) of Dalma WLS indicated that the formality for enquiries and settlement of rights has not been carried out by the District Collector since its declaration as a WLS in July 1976. This caused forest degradation on the periphery of the Sanctuary, removal of minor forest produce, illicit felling of trees for domestic use, livestock grazing and encroachment of sanctuary land. The LULC data also showed increase in built-up area by 3.71 sq. km. and reduction in area covered by trees by 6.61 sq. km. within the PA in 2021 as compared to the status in 2017 (built-up area: 23.18 sq. km. and area covered by trees: 239.90 sq. km.).
- The MP (2021-22 to 2030-31) of Udhwa Lake Bird Sanctuary indicated that private landowners had taken advantage of the zig zag nature of the landscape of the Sanctuary and used large chunks of fragmented *Raiyati* lands that were in existence within the Sanctuary for cultivation. The Department had not assessed the need for acquisition of the *Raiyati* lands in the Sanctuary, which was required for its conservation and protection, since its declaration as a lake bird sanctuary in August 1991.

Thus, inability of the State Government to settle the rights of persons/communities and to provide them alternate resources in lieu of their rights led to biotic pressure on PAs, non-restoration of degraded and fragmented forests, depletion of fodder resources for herbivores and inadequacies in the conservation and protection measures adopted. In addition, it also led to forest offences like tree felling, encroachment and cattle grazing in the PAs, as discussed in **Paragraph 2.4.1.4**.

The Department stated (August 2024) that Koderma WLS, consisting of notified reserve forests, is deemed to be a sanctuary under Section 26A of the WPA, 1972. The process for final notification of the remaining 11 PAs began in 1996, with rights fully settled for six¹³ sanctuaries and partially for two (Dalma and Gautam Buddha). Despite requests (September 1998 and February 1999) from Deputy Commissioners, the final notification was delayed due to partition of the State of Bihar. Meanwhile, the Supreme Court barred (February 2000) all rights in PAs, halting the process. The Chief Conservator of Forests, Wildlife, has now restarted (2023-24) the notification process, with the officials concerned initiating steps for final notification of Hazaribagh, Lawalong, Parasnath, and Dalma WLSs.

¹³ Hazaribagh, Topchanchi, Lawalong, Parasnath, Udhwa and Palkot.

Reply regarding settlement of rights in six PAs is not convincing as the MPs of three PAs (Hazaribagh, Palkot and Udhwa) had been approved (between March 2020 and January 2022) after more than 20 years of settlement of rights (prior to 2000) as claimed by the Department. This indicated non-settlement of all rights including acquisition of *Raiyati* land which led to depletion of grazing area, non-restoration of degraded forests and absence of effective conservation and protection of PA. The MP of Lawalong (approved in January 2022) WLS also suggested revival of rights of collection of minor forest produce as villagers continued to collect these items illegally. The MP of Parasnath WLS (approved in March 2020) is silent on the issue of settlement of rights, whereas the MP of Topchanchi WLS is yet to be prepared. Further, no specific replies, regarding settlement of rights in Palamu WLS and Mahuadanr Wolf Sanctuary, were provided.

Recommendation 1: The Department may expedite the process of settlement of rights of individuals and communities residing within the PAs to facilitate final notification of the PAs.

2.2.2 Absence of Management Plans

The NWAP-2 (2002-16) and NWAP-3 (2017-31), read with the GoI Guidelines for Management Planning for PAs, provides that each PA should have its own Management Plan (MP) for a period of 10 years, based on scientific and ecological data. A Management Plan Development Cell (MPDC) was to be established at the Headquarters of the State Forest Department to ensure timely preparation and review of MPs and to monitor implementation. The CWLW was responsible for ensuring preparation of scientifically valid MPs for every PA.

Audit noticed that, after creation (November 2000) of the State of Jharkhand, Management Plans (MPs) for 11 out of the 12 PAs, covering the complete period since 2001-02, had not been prepared and the period of gaps ranged between two (PTR) and 19 (Parasnath) years as of March 2023 (**Appendix 2.3**). Further, no MP was prepared for Topchanchi WLS after creation of Jharkhand. The MPDC had also not been established by the Department (as of July 2023) and as such, timely preparation of MPs and their monitoring could not be ensured. The management of sanctuaries was affected due to non/delayed preparation of MPs as discussed below.

- The Department had invited (November 2016) Expression of Interest from experienced consulting firms/institutes/organisations for preparing MPs of five¹⁴ WLSs. However, the Procurement Committee¹⁵, with the approval of PCCF, Jharkhand, had approved (January 2017) preparation of MPs for only three WLSs (Hazaribagh, Parasnath and Dalma). It was decided that the MPs of the remaining two WLSs (Udhwa and Topchanchi) with their area being small, would be prepared departmentally.

¹⁴ Dalma, Hazaribagh, Parasnath, Topchanchi and Udhwa.

¹⁵ Headed by Additional PCCF, Development.

Audit noticed that the MPs of three WLSs (Hazaribagh, Parasnath and Dalma) were prepared and approved (March 2020) by the PCCF (WL) & CWLW. Further, while the MP (2021-22 to 2030-31) of Udhwa was prepared departmentally and approved in January 2022, MP for Topchanchi WLS had not been prepared as of March 2024. The MEE Report, 2018-19 of the WII had suggested merging of Topchanchi and Parasnath WLSs into a single PA for effective management as both WLSs were part of the same contiguous landscape. However, merging of these WLSs had not been considered by the Department during preparation of MP for Parasnath WLS. As such, Topchanchi WLS is being managed without any approved MP. Consequently, it was noted that due to management deficiencies, bare ground and built up areas in these WLSs (Parasnath and Topchanchi) had increased¹⁶ by 0.42 sq. km. and 0.27 sq. km. respectively, and area covered by trees had decreased by 0.62 sq. km. in 2021 as compared to 2017.

- Audit noticed that Hazaribagh WLS did not have any MP for nine years (2001-05 and 2015-20) although MPs were in place for the years 2005-15 and 2020-30. This was indicative of the fact that the Sanctuary had been managed in an *ad-hoc* manner without following any plan since its creation (May 1976) leading to continuous degradation of the wildlife habitat despite taking steps¹⁷ for improvement of the Sanctuary. Increase in forest offences and decrease in the wildlife population in the Sanctuary was also noticed by Audit, as discussed in **Paragraphs 2.4.1.4 and 2.4.3.2.**
- Audit noticed that MP of Dalma WLS had been prepared for the periods 2000-10 and 2020-30. However, the MP for the period 2010-20 had not been prepared and the PA was managed without any MP in place during these years. It was further noticed from the MP (2020-30) that the management plan procedure was not at all followed even in the plan period *i.e.*, 2000-10 and there was lack of proper monitoring and evaluation of the PA by the Department.

Thus, MPs for the PAs in Jharkhand were not prepared for the complete period after they were notified. Further, due to non-establishment of MPDC at the State level, regular and timely preparation of MPs and its monitoring could not be ensured as envisaged. In the absence of MPs, PAs were managed in an unplanned manner which led to degradation of wildlife habitat, significant decrease in wildlife populations and increase in forest offences. Moreover, there were deficiencies in implementation of activities included in the MPs and their monitoring, even during the periods for which MPs were available, as discussed in **Paragraphs 2.2.3 and 2.2.4.**

The Department accepted the facts and stated (August 2024) that the MP of Topchanchi WLS could not be prepared departmentally due to lack of survey

¹⁶ Combined LULC data of Parasnath and Topchanchi WLSs, prepared by the Department.

¹⁷ Construction of quarters for the front-line staff, watchtowers/ check dams/ water holes, plantations in degraded forest, management of forest fires *etc.*

data in view of the huge vacancy of field level officers. It was further stated that MoEF, GoI, had been requested for engagement of experts from the Wildlife Institute of India (WII) to develop a model management plan conforming to the NWAP guidelines.

2.2.3 Deficiencies in the Management Plans

The MPs of PAs highlighted lack of water sources, degradation of wildlife habitat and corridors, and invasion of unwanted weeds in PAs as major threats. However, the MPs did not identify area specific threats and formulate site specific plans to mitigate these threats as envisaged in NWAPs and guidelines for Management Planning for PAs. The wildlife divisions had also undertaken various activities in the PAs *viz.*, construction of check dams/water bodies, soil conservation work/ block plantations and eradication of weeds without preparing site specific plans, as discussed below.

2.2.3.1 Hazaribagh, Dalma and Parasnath WLS

The Department had engaged (January 2017) an Agency for preparation of MPs of three WLSs¹⁸ at ₹ 29.17 lakh. The Agency was also required to prepare Detailed Project Reports (DPRs) of activities to be taken up during the plan period for improvement of the PAs, based on the approved MPs. Though these MPs were approved (March 2020) by the PCCF (WL), the Agency had not prepared DPRs of activities, as of July 2023. However, payment of ₹ 29.17 lakh was made to the Agency up to March 2020.

Audit noticed that the approved MPs prescribed detailed survey of degraded areas, weed sites and assessment of water resources for site specific development of wildlife habitat, to mitigate these threats in the PAs. The MP of Hazaribagh WLS identified a few such sites, and the Division undertook construction of water bodies, soil conservation/ plantation work and weed eradication, at these sites, during 2018-23.

However, in the MPs of the other two PAs (Dalma and Parasnath), there were no such sites identified in the MPs. Despite this, water bodies¹⁹ were constructed by the concerned divisions in these PAs at a cost of ₹ 12.20 crore, without mapping of water sources and assessing site specific requirements. As such, Audit could not ascertain the impact of these water bodies in mitigating the threats as mentioned in their MPs.

Further, NWAP-2 (2002-2016) stipulates promotion of natural regeneration, to protect the PAs from adverse impact of growth of non-native plants, as this is the surest way to ensure the perpetuity or return of wild indigenous flora and fauna. For plantation, it prohibits the introduction of exotic species or monoculture *i.e.*

¹⁸ Dalma: ₹ 11.79 lakh, Hazaribagh: ₹ 11.36 lakh and Parasnath: ₹ 6.02 lakh.

¹⁹ 1. Dalma WLS: 69 check-dams (₹ 8.45 crore), 16 ponds (₹ 1.10 crore) and other water conservation/ harvesting structures (₹ 2.48 crore); and 2. Parasnath WLS: 02 check-dams (₹ 17.00 lakh)

cultivation of a single plant species, as it harms the interest of wildlife conservation.

Audit noticed that the MPs of the PAs also proposed re-generation of degraded forest areas but did not suggest suitable alternate species of plants. The divisions took up plantation work in degraded forest areas without assessing the suitability of the species with respect to the climatic condition, topography and flora & fauna.

Thus, the divisions did not evaluate site specific requirements to mitigate the threats of water scarcity, degradation of forests and weed infestation in PAs and undertook activities without doing any survey or resource mapping. As such, Audit could not ascertain the impact of such mitigating activities on threats to the PAs as mentioned in the MPs.

In reply, the Department stated (August 2024) that site selection for silviculture and other forestry works were approved based on suitability reports and site-specific estimates submitted by the Range Forest Officers (RFOs).

The reply is not convincing as site-specific plans for forestry works, justifying the requirement, was not prepared in advance as prescribed in MPs. Further, the RFOs had submitted only estimates of forestry works which included name, area and co-ordinates of the sites, but did not include any justification for selection of the proposed sites.

2.2.3.2 Wildlife Corridor Management Plan

The MP (2020-30) of Dalma WLS indicated that the Sanctuary is a natural abode of elephants, and migratory elephants stay in the WLS for a limited period during their movement. Five²⁰ elephant corridors connect Dalma WLS to other forest areas of Jharkhand and West Bengal.

Further, the MPs of three WLSs (Koderma, Lawalong and Gautam Buddha) indicated presence of an interconnected wildlife corridor of about 600 kms., connecting the Sanjay National Park (Madhya Pradesh) with the Bhimbandh Sanctuary (Bihar). This corridor had also been identified (in 2019) by NTCA as a tiger corridor (Gurughansi Das-Palamau-Lawalong Tiger Corridor). The MP of Palkot WLS also identified four²¹ corridors and two²² inter-connecting passages, spread over an area of 200.94 sq. km., which were used by elephants for movement to Chhattisgarh from the Saranda forest of Singhbhum Elephant Reserve, between November and March every year.

Audit, however, noticed that the MPs of these WLSs did not include any corridor management plan nor did the concerned divisions make any specific proposal for identified corridors during 2018-23. The divisions also did not maintain the records of activities undertaken particularly in wildlife corridors. As such, Audit

²⁰ Dalma-Chandil, Dalma-Rugai, Dalma-Asanbari, Jhunjhaka-Banduan and Dalapani-Kankrajhor as per "The Right of Passage" (2017) published by Wildlife Trust of India.

²¹ Bagesra-Ramja: 53.86 sq. km., Ramja-Bagesra: 52.61 sq. km., Bagesra-Tengaria: 19.85 sq. km. and Kuruskela-Tengaria: 38.42 sq. km.

²² Salkaya-Bilingbera: 10.09 sq. km. and Sanyakona-Rengola: 26.11 sq. km.

could not ascertain whether requisite activities were undertaken in the wildlife corridors to ensure availability of natural food sources and water bodies to sustain wildlife, encouraging them to remain within designated areas.

Thus, the Department did not ensure effective management of wildlife corridors which led to man-animal conflicts resulting in damage to life and property, as discussed in **Paragraph 2.4.5.1**.

The Department stated (August 2024) that Dalma WLS is part of the core area of the elephant reserve and activities in the Sanctuary were taken up as per its MP. For elephant corridors located outside the reserve, preparation of action plan of activities is under progress. Regarding the tiger corridor, it was stated that the corridor between Palamau Tiger Reserve (PTR) and Hazaribagh WLS through Lawalong WLS is mostly continuous. It was further stated that villages have been enlisted to constitute a conservation reserve in order to ensure continuity of the corridor between Gautam Buddha and Koderma WLSs.

The reply regarding management of elephant corridor in Dalma WLS is not acceptable as the MP (2020-30) of Dalma WLS did not have any plan for the management of elephant corridors and activities were taken up without making any specific corridor management plan. In respect of other wildlife corridors, the Department was yet to prepare action plans for their management.

2.2.3.3 Non-reduction of anthropogenic pressure

Management Plans of 11 PAs (except Topchanchi WLS) mentions 1,451 villages²³ (**Appendix 2.4**), which were creating anthropogenic pressure on the PA land. However, as per Eco Sensitive Zone (ESZ) notifications (issued between March 2012 and August 2019), there were 1,412 villages²⁴ in the 12 PAs (**Appendix 2.4**). Moreover, as per LULC data for the year 2021, there were 730 villages inside these 12 PAs. Despite discrepancy in the figures of the number of villages inside and around the PAs in different reports, the Department did not reconcile the data of villages to formulate a proper plan for reducing anthropogenic pressure created by them on the PAs. As a result, bare and built up areas increased in the PAs while area covered by trees decreased over the years, as discussed in **Paragraph 2.4.3.1**.

The Department accepted the facts and stated (August 2024) that the discrepancy in the number of villages was due to non-inclusion of villages falling inside Topchanchi WLS, for which the MP was under preparation. It was further stated that villages inside the PAs and left out in the ESZ notification would be reconciled. During the Exit Conference (July 2024), the Department assured that focus would be given to improve the MPs of PAs and data would be included in the MPs after due survey and research.

²³ Inside the PA: 577; and Around the PA: 874.

²⁴ Inside the PA: 763; and Around the PA: 649.

Recommendation 2: The Department may ensure preparation of site-specific plans for conservation activities for each PA, for the remaining plan period of the approved MPs, after detailed survey and resource mapping.

2.2.4 Deficiencies in Annual Plan of Operations

Guidelines on Management Planning (Para 5.8) stipulate that activities planned in the MP are to be conducted through Annual Plan of Operations (APOs). APOs are to be prepared at the PA level and approved by the Chief Wildlife Warden. Further, a PA book is to be maintained (Para 6.1) to record all events that have a bearing on the directions of the plan prescriptions and to record deviations against the target for inclusion in the next MP. Control forms are also to be maintained (Para 6.2) to record the compartment-wise details of activities viz., site, area, nature, cost, suitability and problems, to capture annual trends.

Audit noticed that the test-checked divisions, while preparing APOs (for both Central and State schemes) considered threats as per their MPs. However, there was lack of details of mitigating activities in the related MPs and these were included in APOs without any detailed site survey. As such, Audit could not ascertain whether the activities considered in APOs by the test-checked divisions were sufficient to mitigate threats as indicated in the MPs, as discussed in **Paragraph 2.2.3**.

Audit also noticed that GoI had sanctioned activities for wildlife awareness, maintenance of existing water holes and animal health surveillance under the Integrated Development of Wildlife Habitat (IDWH). Against APOs of ₹ 26.45 crore, GoI had approved proposals of only ₹ 14.37 crore under IDWH during 2018-23. However, as PA books and control forms were not maintained by the divisions, left-out activities of ₹ 12.08 crore²⁵ could not be included in the APOs of other schemes i.e., State/ CAMPA in the succeeding years.

Thus, activities were included in the APOs without proper site survey as prescribed in MPs. Further, the six test-checked divisions also did not maintain PA books and control forms as required, to record deviations from APOs and achievements against annual targets so that these could be reflected in APOs for the subsequent years.

On being pointed out, the Department stated (August 2024) that the activities in each financial year are processed through PCCF (Wildlife) and CWLW and implemented after approval by the Department. It was also assured that PA books and control forms would be maintained at the field level.

The reply regarding APOs is not acceptable as details of activities to be taken up during the plan period were not prepared in advance based on detailed survey as per the roadmap envisaged in the MPs.

²⁵ (₹ 26.45 crore - ₹ 14.37 crore)

2.2.5 Management of Elephant Reserve

As per the revised Guidelines (November 2013) of “Project Elephant”, a Centrally Sponsored Scheme, elephant conservation cannot be achieved by management of a small section of a forest because of the non-territorial behaviour and large home range requirements of wild elephants. The Scheme aims to conserve and protect wild elephants in their natural habitats through restoration of their habitats/traditional corridors/migratory routes through inter-state co-ordination, if required, so as to reduce man-elephant conflict. The preservation of migration routes and corridors, used by elephants for their movement between different parts of their home ranges, is necessary for the survival of the species. The Guidelines also envisage preparation of a perspective management plan for each elephant reserve for its scientific management. Based on the perspective management plan, a comprehensive plan (for five years) was to be prepared and the CWLW was to submit the APOs, being part of the comprehensive plan, to GoI at the beginning of the financial year for release of Central grant for management of elephant reserves.

The guidelines also stipulate that the State should identify a Nodal Officer, at the State level to co-ordinate and monitor the performance of activities sanctioned under Project Elephant and implemented by various administrative divisions. A Field Coordinator is also to be notified in each elephant reserve (ER) to co-ordinate the implementation of the schemes.

The State Government had notified (September 2001) Singhbhum Elephant Reserve, covering core area of 2,577.38 sq. km. including the area (193.22 sq. km.) of Dalma WLS and buffer area of 1,952.52 sq. km. The ER falls under the jurisdiction of one Wildlife Division (Project Elephant, Jamshedpur, responsible for management of Dalma WLS) and six²⁶ territorial forest divisions.

2.2.5.1 Non-preparation of Comprehensive Management Plan

Audit noticed that perspective and comprehensive plans for Singhbhum ER had not been prepared by the CWLW (as of July 2024). While the MP of Dalma WLS had distinct plans for management of core and buffer areas, the Working Plans²⁷ (WP) followed by the territorial divisions did not have distinct plans for core and buffer areas. It was however seen that APOs were prepared by the divisions as per their individual WP/MP. Thus, the ER was not being managed through a single comprehensive plan to oversee both the core and buffer areas in a uniform synchronised manner so as to conserve and protect wild elephants in their natural habitats.

The Guidelines on Management Planning for PAs envisage adoption of zone based planning²⁸ for proper protection of fragile and critical habitats, wilderness

²⁶ Chaibasa (North), Chaibasa (South), Dhalbhum, Kolhan, Porahat and Saranda.

²⁷ Prepared for 10 years as per National Working Plan Code, 2014.

²⁸ For the management purpose, a PA is divided in different zones viz. core critical zone, buffer zone, eco-tourism zone and eco-development zone. Different planning is adopted for different zones.

experience for visitors and community access to forest resources for livelihood, by demarcating the core critical area and the buffer area (tourism zone and a traditional use zone).

Out of the notified core area of 2,577.38 sq. km. of the ER, Dalma WLS comprised core area of 193.22 sq. km, while four²⁹ territorial divisions had core area of 2,384.16 sq. km. However, Dalma WLS had considered a core zone of only 59.27 sq. km. (in the MP for 2000-10) and 58.05 sq. km. (in the MP for 2020-30) in two stretches of the WLS, based on concentration of population of vertebrates therein, for the purpose of core management. As such, the notified core area of 135.17 sq. km. (70 *per cent*) was kept out of core critical habitat management.

The Working Plans (WPs) of territorial divisions prepared by the Department for the period of ten years also did not have distinct management plans for core areas to make it secure and inviolate. Though the WP (2014-24) of Jamshedpur (Territorial) Forest Division indicated fragmentation of the forests and biotic pressure of villages on the ER, it did not contain analysis of area specific threats and mitigation measures. The Division had, however, submitted (October 2020 and September 2021) study reports on the ER and three³⁰ elephant corridors, falling under its jurisdiction, to the Department for submission to MoEF & CC (Elephant Division), GoI. The Reports highlighted threats³¹ in hurdle free movement of elephants in the ER and suggested restoration of habitats and migratory routes to keep elephants in their natural habitats and reduce man-elephant conflict. However, the Department did not initiate specific and time bound action to mitigate the identified threats, as of March 2024.

The impact of absence of comprehensive planning for the ER was increase (between 2017 and 2021) in bare ground and built up area by 12.38 sq. km. and 3.71 sq. km. respectively in Dalma WLS. Besides, out of 3,434 instances of human animal conflict in Dalma WLS and Jamshedpur (Territorial) Forest Division during 2018-23, 3,145 (92 *per cent*) conflicts occurred within the jurisdictional area of Jamshedpur (Territorial) Forest Division causing loss of human life (27 cases), human injuries (41 cases) besides the unnatural death of two elephants.

The Department while accepting (August 2024) that the ER was managed through Dalma WLS management plans and WPs of territorial divisions stated that an independent post of Director, Project Elephant had been notified in the year 2007 for better administration of the Project Elephant area. Later on (2017) the post had been integrated with Dalma WLS as Deputy Conservator of Forest

²⁹ Chaibasa South: 159.90 sq. km., Kolhan: 701.89 sq. km., Porahat: 663.55 sq. km., Saranda: 858.82 sq. km.

³⁰ Jhunjhaka-Banduan, Dalapani-Kankrajhore and Dumaria-Nayagram.

³¹ Cutting of an elephant proof trench by the West Bengal Government near the inter-state border to obstruct movement of elephants, lack of sufficient food and water in degraded forests of ER, encroachment in ER & elephant corridors and construction of linear infrastructure *viz.*, railways, roadways, high-tension lines and irrigation canals in ER without providing safe passages for elephants.

and Field Director (DCF&FD), Project Elephant, Jamshedpur. An agency has also been selected in February 2024 to prepare "Strategy and Action Plan for Conservation of Corridors (SAPCC) in Jharkhand". In addition, a high-level committee led by the CCF (Wildlife) was formed in January 2024 to develop a Comprehensive Action Plan to reduce human-elephant conflicts. It was further stated that there is no distinction in the core area within Dalma WLS. During the exit conference (July 2024), management challenges were attributed to lack of legal provisions in the WPA for elephant reserves.

The reply confirms that the ER was not being managed through a uniform comprehensive plan. The reply regarding Dalma WLS is not acceptable as the core area included in the approved MPs was far lower than the notified core area. The contention regarding absence of legal provisions in WPA for management of ER is also not acceptable, as the ER including its core area could have been managed under the Indian Forest Act, 1927, which empowers the State Government to impose certain restrictions within notified reserves or protected forests and adopt suitable measures to protect them.

Recommendation 3: The Department may prepare and implement a perspective plan for the ER to ensure that the natural habitats and migratory routes of the elephants are restored and man-elephant conflicts are minimised.

2.2.6 Zonal Master Plan

As per NWAP-2 (2002-2016), areas outside the PA network are often vital ecological corridor links and must be protected to prevent isolation of fragments of biodiversity. It further recommended that all identified areas around the PA and wildlife corridors be declared as ecologically fragile under the Environment (Protection) Act, 1986.

Further, as per Guidelines of GoI (February 2011) for declaration of Eco-Sensitive Zones (ESZs) around PAs, the purpose of ESZs is to create some kind of a shock absorber for the PAs and to also act as a transition zone from areas of high protection to areas involving lesser protection. The basic aim of ESZs is to prohibit commercial activities like mining, saw mills, industries *etc.*, and to regulate felling of trees, establishment of hotels & resorts and to stop drastic changes in agriculture systems around the PAs to minimize the negative impact of such activities on the fragile ecosystem encompassing the PA.

Audit noticed that the GoI had notified (between March 2012 and August 2019) nine ESZs in Jharkhand covering all the 12 PAs (**Appendix 2.5**). As per the notifications, the State Government had to prepare and approve Zonal Master Plans (ZMPs) for each ESZ within two years from the date of notification of the ESZ in consultation with the local people and stakeholders of different Departments³² of the State Government. The ZMPs were to factor-in, improvement of infrastructure and eco-friendly activities *viz.* restoration of

³² Forest, Agriculture, Revenue, Urban Development, Tourism, Rural Development, Panchayati Raj and Public Works Departments.

denuded areas, conservation of water bodies, management of catchment areas, ground water management, soil and moisture conservation, needs of the local community and such other aspects of the ecology and environment that needed attention. GoI also constituted a Monitoring Committee³³ under the Chairmanship of the Commissioner of the concerned region for effective monitoring of the provisions of the notifications and the approved ZMPs.

However, Audit noticed that ZMPs had not been prepared for any ESZ, even after more than three to 11 years since their notifications, despite allotment of ₹ 80 lakh³⁴ by GoI/GOJ for this purpose in three WLSs during 2019-21. It was further noticed that the Xavier School of Management, Jamshedpur, had been selected (March 2022) for the preparation of the ZMP of Dalma WLS within a period of 24 months, but the same had not been prepared as of March 2024. Further, for the other PAs, no action had been taken by the State Government for preparation of ZMPs.

In the absence of ZMPs, the status of prohibited activities in ESZ areas on the ecology and environment of the PAs could not be clearly established. Further, lack of proper planning also raised the risk of lack of concerted efforts to control such prohibited activities. The Monitoring Committees, in its meetings, had also observed that prohibited activities continued in and around the PAs, adversely impacting its ecosystem.

Absence of ZMPs also resulted in lack of efforts towards integration of other rural development programmes to create alternative sources of livelihood for the local people, so as to reduce biotic pressure on the PAs.

The Department accepted the facts and stated (August 2024) that the ZMP of Dalma WLS could not be completed due to inadequate allocation of funds under CSS (IDWH). It was further stated that the work on ZMP of Dalma WLS would be re-started and efforts for preparation of ZMPs for the other 11 PAs would be accelerated. During the exit conference, the Department assured (July 2024) that ZMPs for all ESZs in the State would be prepared.

Recommendation 4: The Department may prepare ZMPs for all ESZs to regulate prohibited activities in ESZs, based on a detailed assessment of activities that have adverse impact on the ecology of the PAs.

³³ With a member from the State Pollution Control Board, four nominated members (one from the Forest Department, one from an NGO working in the field of wildlife conservation, an expert on Bio-diversity and an expert on Ecology from a reputed institution or university of the State), the territorial Divisional Forest Officers concerned as members, and the Divisional Forest Officer as the Member Secretary.

³⁴ Koderma (₹ 30 lakh), Topchanchi (₹ 10 lakh) and Dalma (₹ 40 lakh).

2.3 Financial Management

2.3.1 Budget provision and expenditure

Funds for management of PAs are provided through Central schemes, State schemes and Compensatory Afforestation Fund Management and Planning Authority (CAMPA).

During 2018-23, the expenditure of the Forest, Environment and Climate Change Department was ₹ 4,049.41 crore of which, ₹ 3,732.30 crore was spent through the budget and ₹ 317.11 crore through bank account (under CAMPA). The expenditure of ₹ 4,049.41 crore included ₹ 2,781.37 crore (69 *per cent*) spent on forestry schemes meant for upgradation and conservation of forests including PAs, as shown in **Table 2.2**.

Table 2.2: Details of release and expenditure on forestry schemes

(₹ in crore)

Year	Central schemes		State schemes		CAMPA		Total	
	Release	Expenditure	Release	Expenditure	Release	Expenditure	Release	Expenditure
2018-19	16.57	14.17	303.02	263.52	286.25	239.46	605.84	517.15
2019-20	23.49	18.04	337.21	301.58	300.43	223.57	661.13	543.19
2020-21	36.22	32.20	276.13	255.33	251.79	214.93	564.14	502.46
2021-22	13.81	9.78	270.83	252.03	280.92	240.99	565.56	502.80
2022-23	10.00	5.81	418.95	393.46	354.93	316.50	783.88	715.77
Total	100.09	80.00	1,606.14	1,465.92	1,474.32	1,235.45	3,180.55	2,781.37

(Source: Data provided by the Department)

It can be seen from **Table 2.2** that ₹ 2,781.37 crore was utilised on forestry schemes against a release of ₹ 3,180.55 crore. The short utilisation of ₹ 399.18 crore is attributable to non-implementation of schemes (**Appendix 2.6**) as seen in the test-checked divisions during audit.

2.3.2 Expenditure on management of PAs

During 2018-23, the test-checked divisions had incurred an expenditure of ₹ 356.64 crore against a release of ₹ 397.86 crore (**Appendix 2.7**) by the State Government. The savings of ₹ 41.22 crore were due to non-implementation of schemes *viz.* afforestation, soil conservation, wildlife conservation, capacity building *etc.* as discussed below.

- Hazaribagh Wildlife Division was unable to utilise ₹ 7.18 crore (57 *per cent*) out of ₹ 12.63 crore received during 2019-22 under CAMPA for wildlife habitat development, including silviculture, water body construction, weed eradication, and water supply for wildlife during summer, mainly due to manpower shortages, as reported by the DFO.
- PTR North and South Divisions could not utilise ₹ 2.53 crore (20 *per cent*) out of ₹ 12.87 crore received between 2018-23 under CAMPA, State, and Central schemes for development and maintenance of grassland in PTR, despite the NTCA Committee's observation in January 2022 that the grassland area was small and needed expansion to enhance the prey base.

- Project Elephant, Jamshedpur Division, could not utilise ₹ 4.77 crore released under CAMPA in 2021-23 for silviculture, water conservation, bamboo plantation and construction of check-dams. Similarly, the Division could not utilise ₹ 38.98 lakh, released in 2021-22 under IDWH, for corridor development.
- Ranchi Wildlife Division could not utilise ₹ 55.40 lakh received in 2020-21 under State Plan schemes for study and evaluation of human-elephant conflict in the State and capacity building of 11 Quick Response Teams (QRTs) for relocation of elephants even though human-elephant conflict was a major issue in the State, as discussed in **Paragraph 2.4.5**.

Thus, the test-checked divisions could not fully utilise funds made available for implementation of schemes required for conservation and protection of wildlife in PAs and for minimising man animal conflicts.

The Department accepted the facts and stated (August 2024) that expenditure against the released funds is ensured in normal circumstances. However, late release of funds, restriction on spending beyond 15 *per cent* in the month of March and shortage of human resource due to retirements and huge vacancies were the reasons for non-utilisation of funds.

The reply regarding late release of funds is not acceptable as the Department could have made arrangements for release of the funds to the divisions in time as per approved plans.

2.3.3 Palamau Tiger Conservation Foundation

Under Section 38X (1) of the WPA, 1972, the GoJ had constituted (January 2014) the Palamau Tiger Conservation Foundation (PTCF) to facilitate and provide additional support for the management of PTR. PTCF was to arrange funds through grants-in-aid from government or organisations, donations, contributions or gifts. As per Para 11 of the PTCF Manual notified in January 2014, three³⁵ bank accounts were to be operated by CCF & FD (PTR) and DFOs (Core and Buffer Areas) and separate cash books were to be maintained for each bank account.

Audit noticed that against the prescribed three bank accounts, eight³⁶ bank accounts were operated by CCF&FD and DFOs, as of July 2023. Moreover, CCF & FD and DFOs were also not maintaining cash books, as prescribed, against any of the bank accounts to record day to day transactions. As per the Annual Accounts of PTCF for the period from 2018-19 to 2021-22, the total receipts were ₹ 33.32 crore and the total payments were ₹ 6.34 crore (**Appendix 2.8**).

³⁵ In the name of PTCF to be operated by CCF & FD, Palamau Tiger Project, the DFO, Core Area (now PTR, North) and the DFO, Buffer Area, (now PTR South). The account of the CCF & FD was to be the main account for receipt of all funds of PTCF. Funds were to be provided from this account to the other two accounts for further expenditure.

³⁶ CCF & FD: SBI (xxxxxxx8331) and HDFC (xxxxxxxxxx3817); DFO, Core Area: Canara Bank (xxxxxxxxxx0474 and xxxxxxxxx1226) and HDFC (xxxxxxxxxx4679) and DFO, Buffer Area: ICICI (xxxxxxxxxx0907), Union Bank (xxxxxxxxxx5684) and HDFC (xxxxxxxxxx7412).

Further scrutiny of the Annual Accounts and other records related to PTCF revealed the following:

- The Governing Body³⁷ (GB) of PTCF had approved (March 2023) a WP of ₹ 9.50 crore against a grant (September 2022) given by GoJ. The DFO, PTR (South) had also submitted (June 2023) utilisation report of ₹ 9.50 crore to the CCF&FD, PTR. However, Audit could not analyse the veracity of the expenditure as cash books had not been maintained.
- The GB of PTCF decided (February 2018 and November 2021) to utilise PTCF funds temporarily on urgent works and for payments to daily wage workers, subject to recoupment of the funds after getting regular allotment from the State. During 2018-22, the CCF&FD, PTR, transferred ₹ 2.39 crore to DFOs, PTR (South and North), against which, the DFOs incurred expenditure of ₹ 1.35 crore on daily wages and ₹ 10 lakh on maintenance of rest houses. However, the DFOs returned only ₹ 88.68 lakh to the CCF&FD, PTR (**Appendix 2.8**). In the absence of cash books of PTCF with DFOs, Audit could not verify the purpose of the reported expenditure with the regular allotment received by DFOs. Further, the CCF&FD, PTR had transferred ₹ 78.79 lakh to PTR North and ₹ 1.19 crore to PTR South during 2022-24 (till July 2023). However, utilisation (as of July 2023) could not be verified as cash books had not been maintained by the DFOs.
- The CCF&FD, PTR and DFO, PTR North advanced ₹ 92.09 lakh to the Range Forest Officer (RFO) in 2018-19. The RFO had also returned ₹ 33.93 lakh to the DFO, PTR North in 2018-19 but, in the absence of cash books, Audit could not ascertain the purpose for which the advance was given and the status of the balance amount lying with the RFO.
- As per the conditions laid down in the Environmental Clearance issued by GoI to Amtipani Bauxite Mining Project in Gumla district, M/s Hindalco Industries Limited had transferred (August 2022) ₹ one crore to PTCF for conservation activity in the impact area viz., PTR, ESZ of PTR and Mahuadanr Wolf Sanctuary. The amount was to be utilised based on Annual Plan of Operation (APO) approved by the GB. Audit noted that, no APO for 2022-23 or 2023-24 had been prepared, as of July 2023 but despite this, the CCF&FD transferred (September 2022) the amount to DFOs, PTR North and PTR South.

Thus, as cash books were not maintained by PTCF, Audit could not verify the expenditure incurred and the status of temporary advances provided to the DFOs/RFO.

The Department accepted (August 2024) the facts and stated that remedial action would be taken. Assurance that cash books and related records would be

³⁷ Constituted (September 2016) by the Department under Para 5 of the Manual, to formulate policies and budget of PTCF, and to approve work plans to supplement the activities in PTR.

maintained was also given by the Department during the exit conference (July 2024).

Recommendation 5: The Department may ensure maintenance of cash books by PTCF and recoup advances made to the DFOs.

2.4 Conservation and Protection of wildlife and its habitats

Management Plans of PAs indicated that inadequate manpower & infrastructure, heavy biotic pressure and degraded forests were the main concerns affecting conservation of PAs. Accordingly, common objectives viz., (i) conservation of the forest ecosystem in its natural condition (ii) restoration of degraded forests (iii) improvement of watersheds (iv) reduction of dependency of people, living in and around, on resources of the PAs (v) promotion of Eco-tourism to spread nature education amongst the people (vi) management-oriented research and monitoring (vii) minimising man animal conflict (viii) skill development at all levels of responsibility (ix) control of illicit activities in the PAs and (x) maintenance of landscape connectivity, were given focus in the MPs.

To achieve the objectives, the focus areas for PAs were broadly classified into (i) Protection (ii) Fire Management (iii) Habitat Management (iv) Animal Health Surveillance (v) Man-Animal Co-existence (vi) Development of Infrastructure and Communication (vii) Eco-tourism and (viii) Eco-development. Shortcomings noticed in implementation of related activities are discussed in the succeeding paragraphs.

2.4.1 Protection of PAs

In order to provide protection to the PAs, survey and demarcation of boundaries; regular patrolling to prevent and control forest and wildlife crime; development of infrastructure facilities to enhance mobility and communication; and deployment of adequate and skilled manpower are considered as major activities in the MPs.

2.4.1.1 Consolidation of PA boundaries

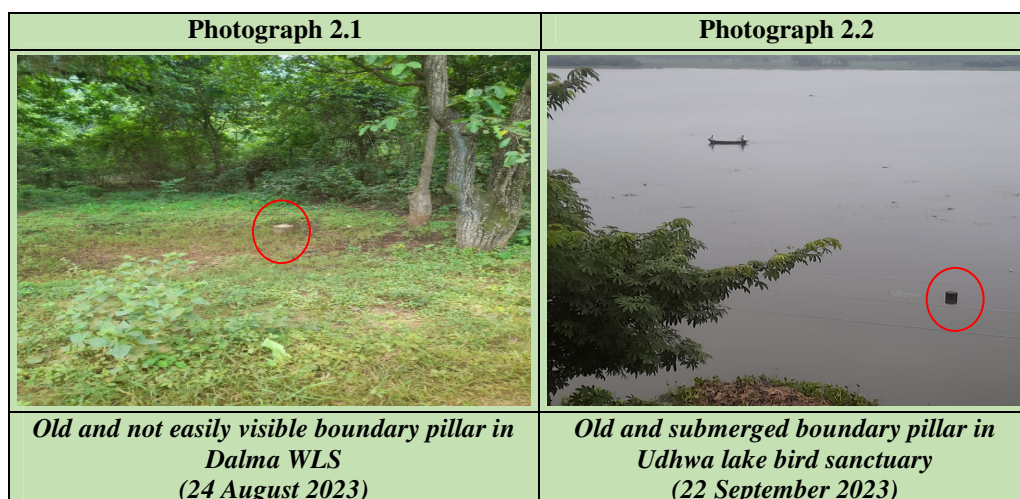
The limits of the area of a PA are notified by the State under WPA, 1972. This area has to then be consolidated through surveys, and demarcation of boundaries is to be carried out by erecting boundary pillars by the Department.

An analysis of MPs of the PAs in the test-checked divisions, indicated that encroachment of land for agriculture, illicit felling, cattle grazing and man-made fires for clearing shrubs *etc.*, are common threats which emanate due to lack of boundary (internal and external) demarcation in the PAs. These risks could be mitigated, to a substantial degree, by erection of *pucca* boundary pillars on the ground, using Differential Global Positioning System (DGPS) survey and other methods.

Audit noticed that the test-checked divisions had assessed a requirement of 73,448 boundary pillars for the 12 PAs in the State, ranging from 15 to 135 boundary pillars per sq. km. (**Appendix 2.9 A**). However, against this, there were

only 25,619 (35 *per cent*) boundary pillars in place in the PAs, as of March 2023, out of which only 9,318 pillars (36 *per cent*) had been erected with DGPS survey. The remaining 16,301 pillars were required to be validated with DGPS survey and their location cross-verified with the digitised data by the divisions concerned. It was further noticed in Audit that during 2018-21, the Department had released ₹ 2.70 crore to the four test-checked divisions for erecting 6,755 boundary pillars using DGPS survey. However, only 3,335 boundary pillars were erected by the divisions at an expenditure of ₹ 1.29 crore (**Appendix 2.9 B**). No funds were released by the Department during 2021-23 for erection of boundary pillars in the PAs.

Further, Audit observed from LULC data that digitisation of boundaries of 152 (21 *per cent*) out of 730 villages, situated within the PAs³⁸, had not been completed, as of October 2023. In the absence of digitisation of boundaries, erection of boundary pillars with DGPS survey could not be taken up. Besides, old boundary pillars which were not clearly visible, as can be seen from **photographs 2.1 and 2.2**, needed replacement for better marking of the PA area.



Thus, the Department did not ensure consolidation of boundaries of the PAs through erection of boundary pillars based on DGPS survey to restrict external activities which could adversely affect the ecology of the PAs. Besides, encroachment of PA land due to non-erection of boundary pillars could not be ruled out.

The Department accepted the facts and stated (August 2024) that erection of the remaining pillars along with digitisation of the PA boundaries will be completed as early as possible. During exit conference, the Department also assured (July 2024) that funds would be made available for erection of pillars and digitisation of boundary of villages located within the PAs.

Recommendation 6: *The Department may take steps to consolidate the boundaries of the PAs through erection of boundary pillars using DGPS survey.*

³⁸ 11 PAs except Udhwa Lake Bird Sanctuary.

2.4.1.2 Patrolling in PAs

WPA (Section 29) stipulates that no person shall destroy, exploit or remove any wildlife including forest produce from a sanctuary except under and in accordance with a permit granted by the CWLW. To check forest offences in the PAs, regular patrolling is needed. Further as per NTCA guidelines, daily patrolling log/register is required to be maintained in the patrolling camp. These registers shall record the date, time and GPS co-ordinates of the beginning of the patrol, the total number of persons and mode of the patrol. It shall also record all illegal activities in a data sheet along with time, date and co-ordinates. Records of signs and sighting of highly endangered species should also be recorded with GPS co-ordinates.

Further, the MPs of the PAs proposed constitution of patrolling squads³⁹. Patrolling squads were to be provided with sufficient vehicles, communication equipment, safety equipment /gear⁴⁰ along with required⁴¹ training. Further, MPs also proposed construction of new watch towers at strategic locations and improvement of existing towers with accommodation facility to be utilised as patrolling/anti-poaching camps or for effective night patrolling.

(i) Deficiencies in patrolling

During 2018-23, 361 to 479 local people had been engaged per year as trackers on daily wages by the divisions and their services were utilised for patrolling (**Appendix 2.10 A**) in the PAs. Ex-army/para-military personnel were not found appointed for patrolling in the 10 PAs except in PTR where 11 to 17 ex-army/police personnel were deployed under Strike Force squad in addition to 220 to 309 local trackers. Besides, there was shortage of 36 to 40 *per cent* of Forest Guards and 76 to 91 *per cent* of Foresters, who were to lead these patrolling squads, during 2018-23. Further, the test-checked divisions did not provide the required training to the local people engaged in patrolling. Patrolling registers were also not being maintained for recording the areas covered and events observed during patrolling, in three⁴² out of six test-checked divisions. In the absence of patrolling registers, Audit could not assess the impact of patrolling on illegal activities in the PAs. Thus, the divisions did not ensure patrolling of PAs by skilled patrolling squads as envisaged in the MPs.

In reply, the Department stated (August 2024) that local villagers, having good knowledge of the local terrain and intelligence, are being employed in patrolling to achieve the best possible protection. It was further stated that a patrolling register is maintained in the Range Offices.

The fact, however, remains that ex-army/ paramilitary personnel, as required in the MPs, were not deployed in the patrolling squads. Further, patrolling register was not found maintained in three test-checked divisions during audit.

³⁹ Comprising of the Forester, Forest Guards and ex-army/para-military personnel.

⁴⁰ Jungle boot, uniform, torch, medicines *etc.*

⁴¹ Unarmed combat, survival skills, usage of firearms, first aid, swimming, driving *etc.*

⁴² Hazaribagh, PTR South and Sahibganj.

(ii) Shortfall of vehicles

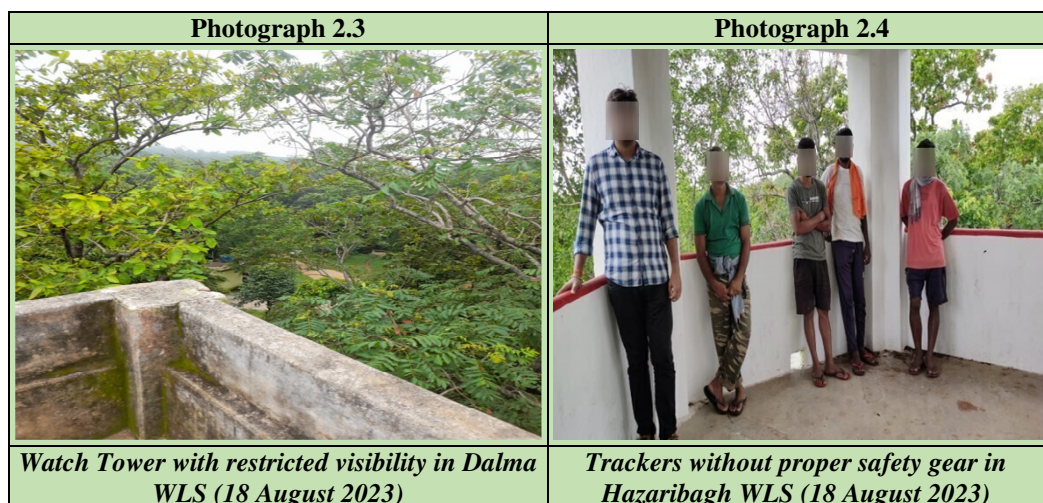
In the MPs of eight PAs, assessment of requirement had been made for additional 23 four wheeler and 132 two wheeler vehicles besides the existing 13 four wheeler and 21 two wheeler vehicles (as of March 2023) for patrolling (**Appendix 2.10 B**). There was no assessment of patrolling vehicles in the MPs of three PAs⁴³. However, the divisions concerned did not include proposals for procurement of the required vehicles in their annual plans and as such, vehicles were not procured, as of March 2024. Thus, due to shortage of vehicles with the divisions, effective patrolling of the PAs could not be ensured.

The Department accepted the facts and stated (August 2024) that there is a gap in the required and actual number of vehicles in the field, and the Forest Department has planned to purchase the vehicles in 2024-25.

(iii) Absence of proper equipment and communication network

MPs of PAs also highlighted the need for establishing a wireless network in each PA and procurement of wireless sets. However, the PAs having no wireless system did not assess and project requirements for the same in their MPs in order to establish an efficient communication network with the field staff and patrolling squads. Audit noticed that five out of the 12 PAs did not have wireless systems, as of March 2024 (**Appendix 2.11**). In the remaining seven⁴⁴ PAs, there were 113 wireless sets out of which only 66 wireless sets were functional in five PAs. Moreover, as the divisions did not maintain a detailed inventory of wireless sets including details of procurement, Audit could not assess the age or obsolescence (if any) of this equipment.

Patrolling personnel in Hazaribagh WLS were also seen deployed without proper uniform and safety gear, required for effective patrolling, as can be seen from **Photograph 2.4**.



⁴³ Betla NP, Palamu WLS and Udhwa Lake Bird Sanctuary.

⁴⁴ Dalma, Hazaribagh, Koderma, Mahuadanr, PTR (Palamu and Betla) and Udhwa.

The Department accepted the facts and stated (August 2024) that it is working on reviving the non-functional wireless systems in the PAs, and in the light of audit observation, all the PAs would be covered by a wireless network system.

(iv) Deficiencies in watch towers

Audit noticed that two (Lawalong and Parasnath WLS) out of the 12 PAs did not have watch towers required for keeping watch over the PAs and to be used as a night camp for patrolling squads. However, the Division had neither assessed their requirement nor sent any proposal regarding the same to the Department. Further, the existing watch towers in the remaining 10 PAs did not have proper basic amenities *viz.* living room, toilets, drinking water facility, electricity *etc.*, for regular deployment of patrolling personnel or their use as a patrolling camp. In addition, Audit observed, during field visit, that visibility of the PA area from the existing watch tower in Dalma WLS was restricted due to growth of trees (**Photograph 2.3**) in close proximity.

The Committee of National Tiger Conservation Authority (NTCA) had also recommended (January 2022) upgradation of the existing watch towers in PTR with basic amenities to use them as patrolling camps. Out of 114 watchtowers of PTR, only 30 watchtowers (26 *per cent*) had toilets while only 25 watchtowers (22 *per cent*) had drinking water facility, as of July 2023.

The Department stated (August 2024) that the security audit team of NTCA, during their visit, had accorded good ratings to all the manned watchtowers of PTR as all the Anti-Poaching Camps stationed there were provided with proper basic amenities. It was further stated that the watchtowers requiring special repairs would be identified and repaired at the earliest. The reply was, however, silent regarding watch towers in other PAs.

(v) Creation of Tiger Protection Force

Under Project Tiger, GoI had approved (October 2007) funds for creation of two squads of Tiger Protection Force (TPF) for PTR to complement the efforts of the field staff to strengthen protection. Each TPF had to be created with 10 ex-army personnel (including four gunmen) and 15 local people. The TPF had to be professionally oriented through capsule field training and equipped with wireless, weapons, vehicles and due authorisation to perform the tasks.

Audit noticed that the CCF&FD, PTR, had instructed (October 2016) the DFOs to deploy skilled personnel in TPF as deployment of unskilled personnel did not serve the purpose of gathering data required for monitoring of tigers. However, the divisions deployed 89 to 130 unskilled local people each year during 2018-23 in the TPF, and incurred an expenditure of ₹ 4.24 crore against the release ₹ 4.26 crore. Thus, skilled personnel were never deployed in TPF to achieve the objective of protection of the tiger reserve through deployment of professional manpower.

The Department stated (August 2024) that PTR has a strong team of 300 trackers/TPF, mostly locals, well versed with the terrain and trained from time to

time in various management activities. The trackers/TPFs are skilled in collecting animal signs, conducting surveys and in habitat augmentation work.

The fact, however, remains that ex-army personnel, as required, were not deployed in the TPF. Further, documents regarding training to locals deployed in TPF were not provided to Audit. It was also seen that the CCF&FD, PTR, was also not satisfied with the deployment of unskilled personnel in TPF as they were not competent for monitoring and protection of PTR.

Recommendation 7: The Department may ensure deployment of skilled personnel for patrolling of PAs with adequate vehicles, communication equipment and safety gear.

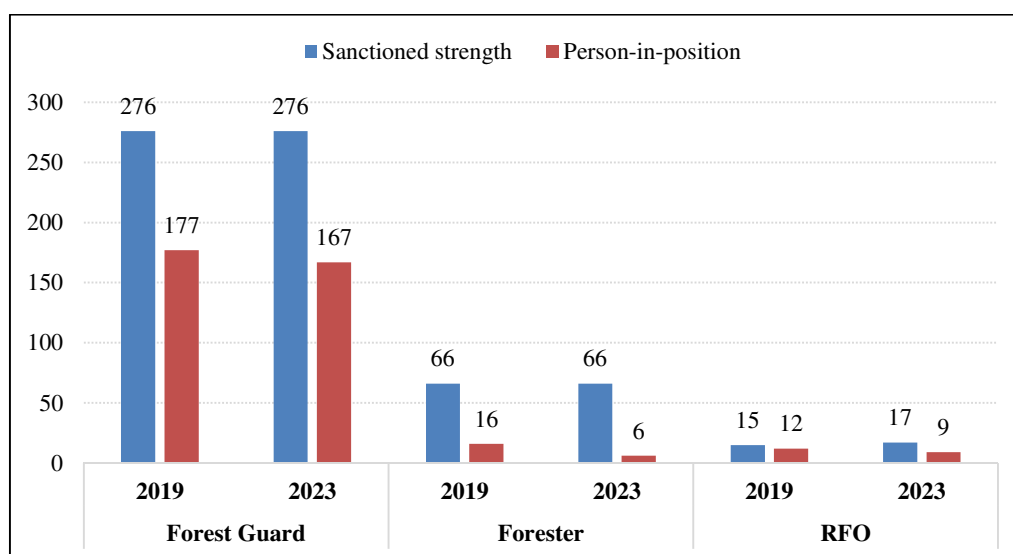
2.4.1.3 Management of human resources

The NWAP-2 (2002-16) had asserted that the challenging wildlife conservation scenario requires committed wildlife managers who possess scientific competence and social awareness aided by communication skills. They also need sharp detection and enforcement capabilities against organised criminal elements. Accomplished wildlife biologists and social scientists, having knowledge of conservation of the full range of biodiversity including use of modern technology, are also necessary. Frontline staff must also have similar skills at the grassroots levels. Further, establishment of a Wildlife Training Center in each State for continuous skill upgradation of frontline staff was also proposed.

(i) Shortage of frontline staff

As per the existing administrative structure of the Department, the RFOs, the Foresters and the Forest Guards look after Ranges, Beats and Sub-beats respectively, and are considered as frontline staff for management of the PAs. Sanctioned strength (SS) and Person-in-Position (PIP) of frontline staff, as of March 2019 and March 2023 in the wildlife divisions, is shown in **Chart 2.1**.

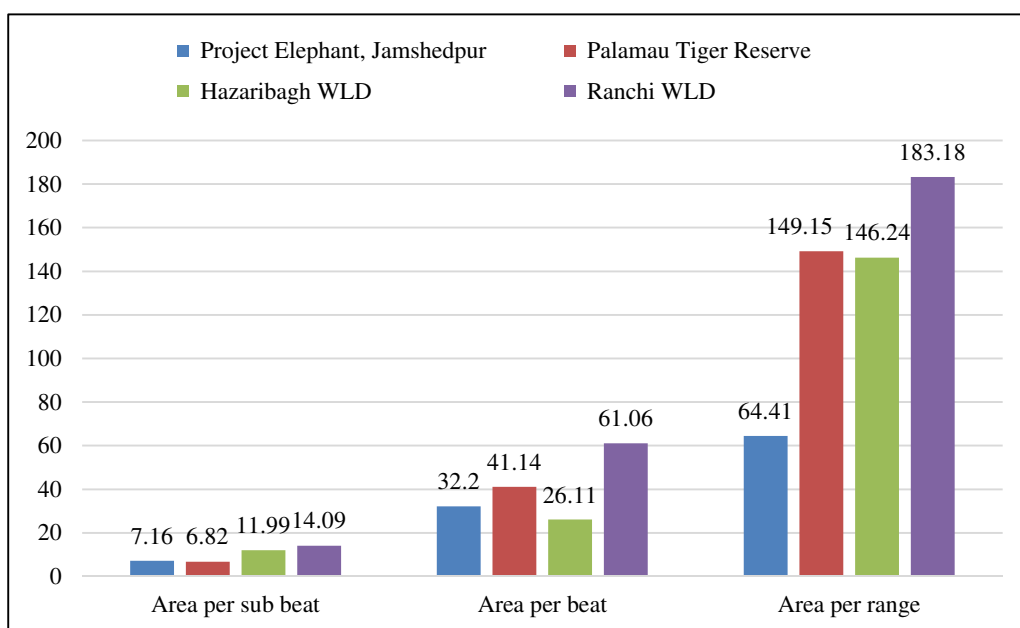
Chart 2.1: Sanctioned strength and person-in-position of frontline staff in wildlife divisions



Against the SS of 357, PIP as of March 2019 was 205 (57 *per cent*), which further reduced to 182 (51 *per cent*) in March 2023. However, the Department has not initiated action for recruitment of frontline staff during 2018-23, though it had targeted filling up all the vacancies by 2021 in the Vision Document of Jharkhand for 2018-30. Shortage of frontline staff impacted implementation of schemes and led to inadequate protection of the PAs.

Audit further noticed inconsistencies in the SS of frontline staff for management of PAs in terms of area (per square km), as shown in **Chart 2.2**.

Chart 2.2: Per sq. km. administrative area (Range, Beat and Sub-Beat) as per sanctioned strength of frontline staff in PAs



As shown in **Chart 2.2**, the administrative area per sub-beat ranged from seven to 14 sq. km., per beat from 26 to 61 sq. km. and per Range from 64 to 183 sq. km. As such, the administrative area per frontline staff in some PAs was more than double compared to other PAs indicating discrepancies in staff distribution and deployment across Ranges. Further, shortage of 49 *per cent* of frontline staff as compared to the sanctioned strength led to abnormal increase in the workload of the existing officials which adversely impacted the management of PAs.

The MPs of PAs had also recognised shortage of frontline staff as one of the reasons behind inadequate management of PAs and proposed additional strength of frontline staff, creation of separate Range and post of specialised officers, as discussed below.

- The MPs of Hazaribagh (2020-30) and Koderma (2021-31) WLSs had proposed additional posts of three Foresters and 14 Forest Guards, respectively.
- The MP (2021-31) of Udhwa Lake Bird Sanctuary had proposed (January 2022) a separate Range at Udhwa with two Beats and four Sub-Beats for daily collection of data to ensure effective management of the PA.

- Additionally, the MPs had proposed creation of posts of specialised officers⁴⁵ for doing research work, providing health care to wild animals, and ensuring better communication between the division and frontline staff for better management of the PAs.

However, the Department did not initiate action for sanctioning additional posts of frontline staff for PAs or for creating posts of specialised officers.

The Department accepted (August 2024) the facts and stated that the issue of recruitment of frontline staff was continuously raised with the State Government during 2018-23. However, the recruitment process could not be started due to issues relating to Recruitment Rules, which have now been resolved and the recruitment process is expected to start soon. Regarding specialised officers, it was stated that three biologists and two veterinary doctors have been deployed in PTR.

(ii) Skill development

The Deputy Inspector General of Forests, MoEF, GoI, had issued (March 2013) Guidelines to all States on 'Training of Foresters and Forest Guards'. The Guidelines prescribed mandatory induction training of six months and refresher courses, at least once in every five years, for Foresters/Forest Guards, to update their knowledge and skill. Specialised short duration courses were also prescribed as in-service training to staff engaged in specialised jobs. Further, a unified data base of trainees had to be maintained for proper career planning.

Audit noticed that the State has three⁴⁶ training institutes to impart training to Foresters and Forest Guards. However, out of 175 Forest Guards (FGs) posted in the test-checked divisions (as on July 2023), only 16 (nine *per cent*) FGs were imparted mandatory induction training of six months while 138 FGs had been given induction training of only one month (**Appendix 2.12**). Refresher training had also been provided to only 137 FGs during 2018-23. None of the 14 FGs posted in the Ranchi Wildlife Division, as of July 2023, had been imparted induction training since joining service (July and August 2017).

Further, specialised trainings on wildlife crime control (24 FGs), forest fire management (eight FGs), tranquilisation & conflict mitigation (16 FGs), forest survey (eight FGs) and nature guide (one FG) were imparted to only 57 out of 175 FGs. The MP (2020-30) of Palkot WLS had proposed specialised training on Wildlife Management for frontline staff as there was no trained staff in the PA. However, only four out of 14 FGs of Palkot were imparted these trainings by the Department during 2021-23.

Thus, induction and specialised trainings, as required, were not imparted to the frontline staff to ensure effective and scientific management of PAs as envisaged in the guidelines on training of Foresters & Forest Guards issued by GoI.

⁴⁵ Research Officers, Naturalists, Wireless Operators and Veterinary Doctors.

⁴⁶ Forester and Forest Guard Training Schools, Chaibasa, Hazaribagh and Mahilong, Ranchi.

In reply, the Department stated (August 2024) that 2,400 FGs had been recruited in the State in 2017. Since, training capacity of all the three training institutes, put together, was only 240, FGs posted in PAs could be imparted only one-month induction training. The formal six-month induction training has been started since 2022-23 and all the FGs will be trained as early as possible. Regarding specialised training, it was stated that such trainings are being taken up on regular basis in order to upskill the frontline staff.

The fact, however, remains that most of the FGs posted in the PAs had not been imparted the mandatory six-month induction training and other specialised on-job trainings essential for conservation of PAs.

Recommendation 8: The Department may initiate action to fill up vacancies of frontline staff and specialised officers on priority and impart induction and specialised training, as required.

2.4.1.4 Investigation of forest offences

The Indian Forest Act, 1927 (Section 52) stipulates that, when there is reason to believe that a forest-offence has been committed in respect of any forest-produce, such produce together with all tools may be seized by any Forest-Officer. Every Officer, seizing any property has to, as soon as may be, make a report of such seizure to the Magistrate having jurisdiction to try the offence. Further, the Handbook for Wildlife Crime Investigation, 2013, of the Wildlife Crime Control Bureau, GoI, prescribes that investigation of offences should start with the lodging of Offence Report (OR) in the jurisdictional Court and process against the accused should not be delayed after filing the complaint.

To mitigate forest offences, MPs of all the PAs proposed maintenance of offence registers, by the divisions concerned, with dossiers of habitual offenders and sharing of crime dossiers with the police, at least once in six months, and also sharing of the information with adjoining forest divisions.

Audit noticed that 1,057 offences had been reported in the test-checked divisions during 2018-23. However, out of these offences, Prosecution Reports (PRs) for only 748 cases (71 *per cent*) (**Appendix 2.13**) had been submitted to the Court by the DFOs concerned, as of March 2023. Audit further noticed (in test-checked 52 cases) that the DFOs concerned took time of nine to 68 months for submission of PRs to the Court after registration of the offences (**Appendix 2.14**). Other shortcomings noticed in the test-checked divisions are discussed below:

- Submission of PRs to the Court were delayed for more than five years in eight out of 52 test-checked cases (**Appendix 2.14**) in the absence of any prescribed timelines.
- The test-checked divisions did not map crime prone zones and prepare dossiers of habitual offenders to share with the police and adjoining forest divisions.

- The test-checked divisions did not maintain inventory of seized property to monitor their release, decay or disposal and assess the possibility of their usage in developmental works within the PAs.
- Hazaribagh Wildlife Division did not impose compensation and penalty in 39 PRs uniformly for similar nature of offence viz., damaging land, trees, shrubs, etc. in six⁴⁷ PAs, in the absence of guidelines in this regard. Further, Elephant Project, Jamshedpur and Sahibganj Forest Division did not assess or impose any compensation and penalties against the offences committed (**Appendix 2.14**).

Thus, offence management in the test-checked divisions was not effective as there were delays in submission of PRs to the Court, absence of mapping of crime zones, not sharing of information with the police & adjoining forest divisions and non-maintenance of inventory of seized articles. Possibility of under reporting or non-detection of offences, due to shortage of frontline staff and inadequate patrolling of the PAs, could also not be ruled out

The Department accepted (August 2024) the facts and stated that pendency/delay in submitting PRs was due to vacancies at the inquiry officer level and there is scope for improvement in the direction of investigation as pointed out by Audit. Workshops are being conducted to build capacity of the available staff. Regarding charging compensation, it was stated that the charges are brought out in PRs to highlight the severity of the offence and only the judicial courts are empowered to levy actual fines.

The reply regarding non-levy of compensation is not convincing, as Hazaribag Division had imposed compensation and penalty before submitting the PRs to the courts.

Recommendation 9: The Department may frame a Standard Operating Procedure for investigation of forest offences and submission of PRs to the Court in a time-bound manner.

2.4.2 Forest Fire Management

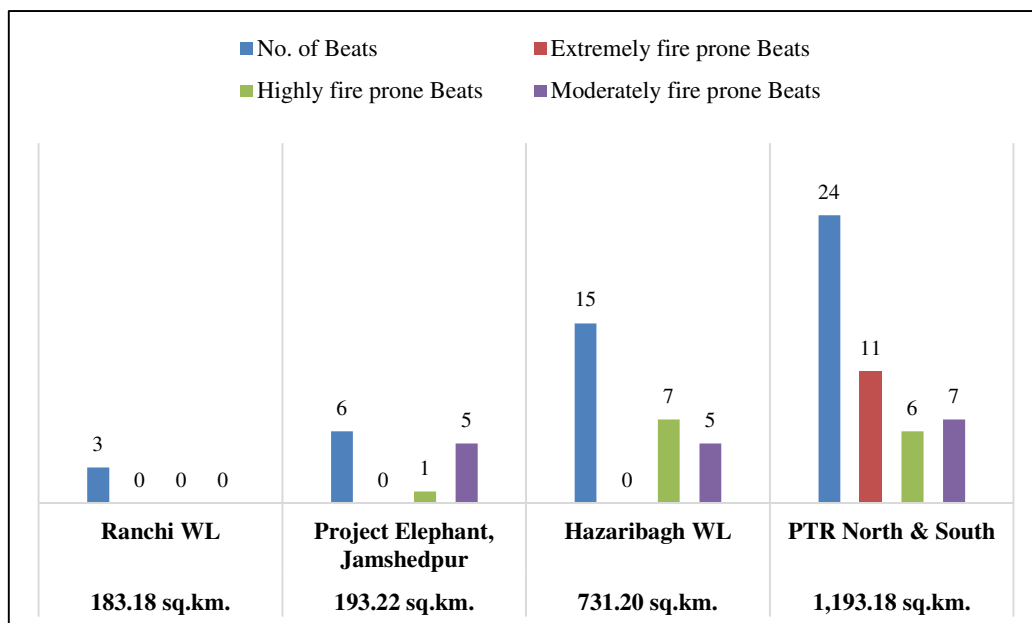
National Action Plan on Forest Fires (NAPFF), 2018, lays emphasis on preventing fires and prescribes improving resilience of the forest against fire hazards to be a priority in forest management policies and programmes. Forest fire management focusses on planning through mapping of fire risk zones and developing mechanisms for prevention, detection and suppression of fires through technological intervention, skilled field staff, fire watchers and community fire fighters. The Action plan lays emphasis on post fire management to restore the natural profile of the fire affected area.

⁴⁷ Gautam Buddha, Hazaribag, Koderma, Lawalong, Parasnath and Topchanchi.

2.4.2.1 Fire Management Plan

The Forest Survey of India (FSI) had initiated (since 2016) real time monitoring of forest fires in collaboration with the National Remote Sensing Centre (NRSC) and dissemination of fire signals to the State Forest Departments. The Indian State Forest Report (ISFR) 2021, had categorised 11.33 *per cent* (2,686.97 sq. km.⁴⁸) of the total forest cover (23,721 sq. km.) in Jharkhand under (i) extremely high and (ii) high fire prone zone and the remaining area⁴⁹ (21,034.03 sq. km) under moderate or less fire prone zone. Accordingly, the Department had identified (January 2023) different categories of fire prone zones in the PAs (division-wise), as shown in **Chart 2.3**.

Chart 2.3: Division-wise fire prone beats



It can be seen from **Chart 2.3** that 25 (52 *per cent*) out of 48 Beats in the PAs were in the extremely or highly fire prone zone with the maximum being in PTR.

Audit noticed that 6,221 (November 2018 to June 2019), 2,613 (November 2019 to June 2020) and 21,713 (November 2020 to June 2021) fire alerts, respectively, were sent to Jharkhand by the FSI during these three fire seasons during 2018-21. Out of 1,082 large forest fire incidents in Jharkhand during 2020-21, in 514 incidents, it had taken one to five days to douse the fire, whereas in 46 incidents, it had taken six to 10 days, and in three incidents it had taken 11 to 14 days. As per divisional records, 4,027 hectares of the PAs had been affected due to fire incidents during 2018-23 (**Appendix 2.15**). Test-checked divisions had not compiled data of fire alerts sent by FSI and hence, Audit could not ascertain the action initiated against these alerts.

Further, MPs of the PAs had prescribed preparation of Fire Management Plans every year. However, the test-checked divisions had not prepared these Annual

⁴⁸ Extremely fire prone: 47.36 sq. km., very highly fire prone: 480.45 sq. km. and highly fire prone: 2,159.16 sq. km.

⁴⁹ Moderately fire prone: 4,227.02 sq. km. and less fire prone: 16,807.01 sq. km.

Fire Management Plans during 2018-23. The divisions had placed demands for funds for fire mitigation measures viz. maintenance of fire lines and deployment of fire squads with the Department without analysing causes, impact and intensity of past fire events or proper need assessment.

The Department stated (August 2024) that creation & maintenance of fire lines had been taken up under the annual plans for control of forest fires in the State. Fire Action Plan and fire maps have been prepared and action taken reports are uploaded on the website of FSI. However, in the light of the audit observation, necessary action would be taken.

The reply regarding preparation of Fire Action Plan and action taken reports on fire alerts is not convincing as the test-checked divisions could not furnish Fire Action Plan and data of fire incidents (**Appendix 2.15**) which had occurred in the PAs during 2018-23.

2.4.2.2 Maintenance of fire lines

National Action Plan on Forest Fire (NAPFF), 2018, stipulates review of the maintenance status, functionality and adequacy of fire lines⁵⁰ and assessment of new fire lines, considering past fire data, forest types, habitations, and other relevant factors.

MPs of the PAs had also proposed mapping and clearance of the existing fire lines, cutting of new fire lines and maintenance of Range-wise fire line register, for inspection at predetermined intervals by the competent authority.

Audit noticed that the length of fire lines/trenches in the PAs, as of March 2023, was 1,268 km (**Appendix 2.16**). Despite increase in the fire affected areas from 224.09 hectare to 2,009.07 hectares during 2018-22 (**Appendix 2.15**), only 635 (50 per cent) to 727 km. (57 per cent) of fire lines had been cleared of dry leaves and bushes during 2018-23. Shortcomings in maintenance and need assessment of fire lines are discussed below.

- The PTR, North Division had reported 367 km. of fire lines in PTR up to 2017-18. This had been reduced to 121 kms since 2018-19 despite 17 out of 24 Beats⁵¹ of PTR being in the extremely/highly fire affected zone.
- Fire lines of 145 kms in Mahuadanr Wolf Sanctuary were not maintained at all during 2018-23, though there were 37 reported cases of fire incidents affecting an area of 59.24 hectare in the PA during 2018-20 and 2022-23. Data for 2020-22 had not been maintained by the Division.
- The length of fire lines ranged between 0.27 km. per sq. km. (Koderma WLS) and 2.29 km. per sq. km. (Mahuadanr Wolf Sanctuary) in the PAs. However, in PTR, which had the maximum fire affected zone, the length of fire lines was only 0.41 km. per sq. km.

⁵⁰ Refers to cleared or controlled areas where vegetation has been removed to create a barrier to prevent the spread of forest fires. These lines act as a containment measure slowing down the progress of the fire and providing a safer zone for firefighting efforts.

⁵¹ Including Beats of Mahuadanr Wolf Sanctuary.

- The test-checked divisions had also not assessed requirement of new fire lines during 2018-23 nor maintained the prescribed Range-wise fire line register.

Thus, the divisions had neither assessed requirement of fire lines with respect to vulnerable fire prone zones nor maintained fire lines to minimise the impact of fire incidents, in the PAs.

The Department accepted (August 2024) the facts and stated that clearance and maintenance of fire lines is taken up as per availability of funds which is lower than the requirement. It was also stated that the Management Plan prescriptions would be reviewed in view of audit observations.

The reply regarding insufficient funds is not acceptable as demands of funds for maintenance of fire lines were raised by the test-checked divisions without assessing actual requirements or preparing annual fire management plans.

2.4.2.3 Fire-fighting skills and equipment

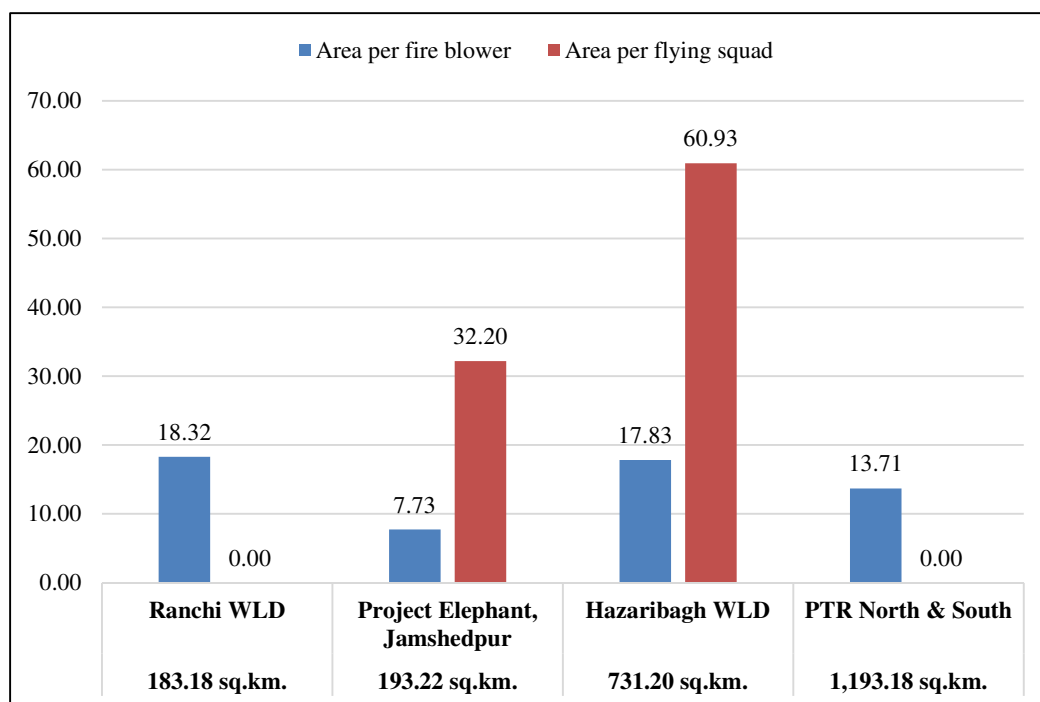
NAPFF 2018 had envisaged training to field officers/ staff, seasonal firewatchers and community volunteers involved in fire-fighting. They had to be equipped with adequate fire-fighting equipment including leaf litter blowers and protective clothing. Mock drills had to be organised before the fire season in extremely fire prone areas. The MPs of the PAs had also prescribed skill development of fire fighters and procurement of fire-fighting equipment viz. fire blower, gumboots, fire resistant suits *etc.*, based on Annual Fire Management Plans.

Audit noticed that the test-checked divisions had not assessed the requirement of fire-fighting equipment or arranged training for staff and local people deployed in the fire-fighting squad during 2018-23. Mock drills were also not conducted by any of the test-checked divisions in fire prone beats during 2018-23. The test-checked divisions had also not maintained movement register of fire-fighting squads, as required. As a result, Audit could not assess area specific movement and response time of the squads.

Audit further noticed that fire-fighting squads (comprising generally five persons) had been deployed in only seven out of the 12 PAs during the fire season (**Appendix 2.10**). No separate fire-fighting squads were deployed in PTR, Mahuadanr Wolf Sanctuary and Palkot WLS during 2018-23. For mitigating fire incidents in PTR and Mahuadanr Wolf Sanctuary, the divisions were dependent on community volunteers whereas in Palkot WLS, it was handled by the quick response teams⁵².

The test-checked divisions did not assess the requirement of fire-fighting equipment. The divisions had 163 (75 *per cent*) serviceable fire blowers out of available 216 fire blowers, as of March 2023. The availability of serviceable fire blowers and fire squads per sq. km. was inconsistent in different PAs, as depicted in **Chart 2.4**.

⁵² An anti-depredation team formed to check man-animal conflict.

Chart 2.4: Inconsistency across PAs in the availability of serviceable fire blowers and fire squads (per sq. km.)

It can be seen from **Chart 2.4** that the test-checked divisions had not adopted uniform measures in terms of availability of serviceable fire blowers and deployment of fire-fighting squads. Further, the availability of fire blower *vis-à-vis* extremely/highly affected fire prone Beats was also erratic as PTR (including Mahuadanr Wolf Sanctuary) having 71 *per cent* of such Beats had one fire blower per 14 sq. km. while Project Elephant (Dalma WLS) having 17 *per cent* of such Beats, had one fire blower per eight sq. km. Additionally, the five test-checked divisions, except Project Elephant⁵³, Jamshedpur, neither had fire kits⁵⁴ nor had procured them during 2018-23.

Thus, the test-checked divisions had not assessed the requirement of fire-fighting equipment or arranged required training of local people engaged in fire-fighting. Further, rational availability of fire blowers and deployment of fire-fighting squads with respect to the fire prone areas was also not ensured in the divisions which led to continuous increase in fire incidents during 2018-22.

In reply, the Department stated (August 2024) that availability of fire equipment in each PA has now been assessed and provision has been made, in 2023-24 and 2024-25, for procurement of more fire blowers and fire kits. It was further stated that fire protection squads have been constituted as per necessity and the impact of the fire incidents was managed successfully. In PTR, a separate team of villagers for each village is being employed as firefighting teams, whereas in Palkot WLS, fire watchers are employed during the fire season.

⁵³ The Division purchased 20 fire kits during 2018-19.

⁵⁴ Fire jacket, gumboots, fire ace, fire hooks, fire glass, helmets, etc.

The contention of the Department regarding constitution of the required fire-fighting squad is not convincing as the test-checked divisions had not assessed the requirement for fire-fighting squads. Moreover, training for staff and villagers engaged for firefighting and mock drills before the fire season, as stipulated in NAPFF, had not been ensured.

2.4.2.4 Restoration of fire affected areas

NAPFF 2018 had envisaged preparation of a proper restoration plan for fire affected areas to restore its natural profile. Adequate soil moisture conservation measures were to be adopted for enhancing the moisture retention capacity of the land and indigenous vegetative barriers were to be created around the fire affected area.

Audit noticed that 4,027 hectares of the PAs had been affected by fire during 2018-23 (**Appendix 2.15**). However, the test-checked divisions had neither assessed the loss due to fire nor prepared any restoration plan for the fire affected areas. In the absence of restoration plans, Audit could not ascertain whether the fire affected areas were covered under ongoing schemes of soil conservation and plantation. Thus, the test-checked divisions did not ensure restoration of the natural profile of the fire affected areas.

The Department stated (August 2024) that nature of forest fires was mostly ground/surface fire which did minimum damage. It was further stated that restoration of fire affected areas is prescribed in the MPs, and accordingly action had been taken in respective PAs.

The reply is not factually correct as restoration measures have not been prescribed in the MPs of test-checked PAs. Further, evidence of activities implemented, if any, during 2018-23 for restoration of fire affected areas could not be furnished to Audit.

Recommendation 10: The Department may ensure preparation of Annual Fire Management Plans and Restoration Plans for fire-affected areas. It may also ensure training of fire-fighting personnel, conducting mock drills, and providing adequate fire kits, communication equipment, and fire blowers for the squads.

2.4.3 Habitat Management

National Wildlife Action Plan-2 (2002-16) asserts that with mounting agricultural, industrial and demographic pressure, the repositories of wildlife and bio-diversity, have either shrunk or disappeared. The prime management objective thus, must be to protect the PAs from adverse impact and promote natural regeneration, as this is the surest way to ensure the perpetuity or return of wild indigenous flora and fauna. Further, conservation zones and degraded habitats should be identified for each PA and special management measures formulated for these areas.

2.4.3.1 Forest cover

Audit noticed that the Recorded Forest Area (RFA) in Jharkhand was 23,605 sq. km. in 2015 and 25,118 sq. km. in 2021. However, the forest cover⁵⁵ within RFA in Jharkhand was 51 *per cent* in 2015 and 49 *per cent* in 2021 which was below the national average⁵⁶ of 62 *per cent* in 2015 and 67 *per cent* in 2021. Change in RFA and forest cover in 2021 as compared to 2015, is shown in **Table 2.3**.

Table 2.3: RFA and forest cover in Jharkhand

Categories	(Area in sq. km.)		
	ISFR, 2015	ISFR, 2021	Change 2015 to 2021
Recorded Forest Area	23,605	25,118	(+) 1,513
Total Forest Cover	23,478	23,721	(+) 243
Forest Cover inside RFA	12,149	12,282	(+) 133
Forest Cover outside RFA	11,329	11,439	(+) 110

As shown in **Table 2.3**, the RFA increased in Jharkhand by 1,513 sq. km. in 2021 compared to 2015. However, the forest cover increased by only 133 sq. km., though the Department had implemented several forestry schemes (**Appendix 2.6**).

As per land use land cover (LULC) data of the 12 PAs covering an area of 4,228.95 sq. km.⁵⁷, the area covered by trees within the PAs had decreased by 67.89 sq. km. (2.60 *per cent*) in 2021 compared to 2017. During the same period, bare ground had increased by 75.04 sq. km. (13.51 *per cent*) and built-up area had increased by 22.43 sq. km. (22.35 *per cent*) in these 12 PAs. Maximum decrease in the area covered by trees was noticed in Gautam Buddha WLS (by 18 *per cent*), Lawalong WLS (by 9 *per cent*) and PTR (by 1 *per cent*). Decrease in area covered by trees and increase in built-up and bare areas were attributable mainly to non-implementation of Zonal Master Plan in eco-sensitive zones (**Paragraph 2.2.6**) and inadequate protection & conservation measures (**Paragraphs 2.4.1** and **2.4.2**) within the PAs.

Thus, despite the Department incurring expenditure of ₹ 356.64 crore (**Paragraph 2.3.2**) in the test-checked divisions on various forestry schemes for conservation and protection of the PAs, forest cover within the PAs could not be improved.

The Department accepted (August 2024) the facts and stated that plantation works are taken up in the PAs in areas prone to encroachment or cleared of

⁵⁵ The area of land covered by trees, defined as any land with a tree canopy density of at least 10 *per cent* and an area of more than one hectare.

⁵⁶ As per ISFR 2015, against RFA of 4,10,806 sq. km. (for 12 states only), forest cover within RFA was 2,53,373 sq. km.

⁵⁷ The area included notified PA area of 2,155.76 sq. km. and other than notified PA area (*Raiyati*, Government etc.) of 2,073.19 sq. km. within the boundary of PAs. The area was mapped in eight categories *viz.*, bare ground, built-up area, crops, flooded vegetation, grass, shrubs, trees and water.

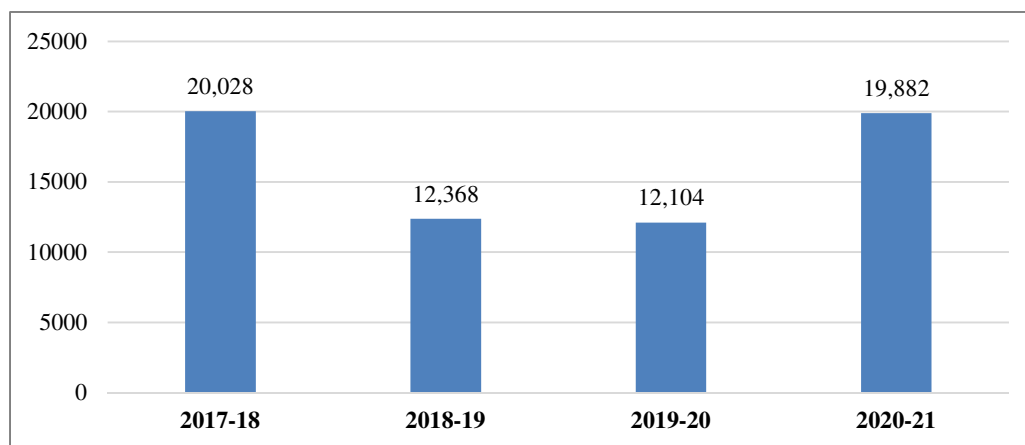
encroachment. It was also stated that efforts are being made by the Department to improve the forest and tree cover through major habitat restoration works.

In the exit conference (July 2024), it was stated that decrease in area covered by trees within PAs would be examined by the concerned field officers.

2.4.3.2 Wildlife Population

The Wildlife Protection Act categorises wild animals under six schedules (I to VI). In the PAs of Jharkhand, mainly leopards, wolves, sloth bears, deer, elephants, jackals, chital, sambhars, wild boars, hyenas *etc.*, are found. Audit noticed that the estimated total wildlife population in the PAs had come down from 20,028 in 2017-18 to 19,882 in 2020-21. The Department did not conduct annual animal census, during 2021-22 in seven⁵⁸ PAs. Year-wise estimated population of wildlife is shown in **Chart 2.5**.

Chart 2.5: Wildlife population



It can be seen from **Chart 2.5** that there was a sharp decline in the estimated wildlife population during 2018-19 and 2019-20. The wide fluctuations in the wildlife population, by 38 *per cent* (decrease of 7,660) in 2018-19 and 64 *per cent* (increase of 7,778) in 2020-21, compared to the previous year's population, indicated the possibility that the Department had not adopted scientific census mechanism *viz.*, third eye surveillance, scat analysis, footmark survey *etc.*, to validate the census data gathered through transect walk and waterhole data recording. The six-fold increase (4,333 from 669) in the number of wild animals in Palkot WLS (**Appendix 2.17**) during four years (2017-21) and sudden spotting of 25 leopards in PTR during 2020-21, where no leopards had been spotted during 2017-20 (**Appendix 2.18**), also raised the risk that census was not being conducted scientifically.

Audit further noticed that:

- There was wide variation, ranging between two (Lawalong WLS) and 24 (Palkot WLS) per sq. km., in the population density of wild animals per sq. km. in the PAs (**Appendix 2.17**). The Management Effectiveness Evaluation (MEE) Report 2017-18 of the Wildlife Institute of India (WII)

⁵⁸ Hazaribagh, Lawalong, Koderma, Gautam Buddha, Topchanchi, Parasnath and Palkot.

also pointed out the extremely low wildlife population in Gautam Buddha and Lawalong WLSs and recommended improvement in the condition of the habitat of the PAs. However, the Department could not improve natural habitats within the PAs and secure wildlife corridors, as discussed in **Paragraph 2.2.3**.

- Audit analysis of trends in the change of population of five⁵⁹ common animals included in Schedule I to III (**Appendix 2.18**), revealed that the number of deer (*Traguius Momima*), a Schedule I animal; monkeys and langoors (Schedule II); and hyenas and wild boars (Schedule III), had decreased significantly, mainly in Topchanchi, Parasnath, PTR, Koderma and Gautam Buddha PAs.
- There was only one⁶⁰ tiger in the State, as per the tiger census of 2022, though the State has a dedicated Tiger Conservation Reserve on which ₹ 277.70 crore was spent during 2018-23 and where 34 to 46 tigers had been tracked during 2000 to 2005.

Thus, the overall wildlife population in the PAs of Jharkhand had not improved over the years mainly due to non-creation of inviolate space for wild animals by reducing biotic pressure on the PAs, lack of prey base for carnivores, insufficient grassland for herbivores and lack of a conducive environment for wildlife fauna.

The Department accepted (August 2024) that the density of wildlife population in the PAs was low and stated that intensive site specific habitat improvement works have been introduced in the PAs to address this. The Department further stated that in the estimation of wildlife population in the PAs, the number as well as the species of wild animal varies depending on the time, season of count and animal activity, as the process is estimation only and cannot be considered as absolute figures. Regarding presence of tigers in PTR, it was stated that the decline in the number of tigers in the intervening period was due to various security issues and the counting method. PTR has reported presence of four tigers during 2024-25.

The reply regarding fluctuation in the number and species of wildlife during their annual estimation is not fully acceptable as the Department had not adopted other scientific techniques *viz.*, third eye surveillance system, scat analysis, footmark survey *etc.* to validate the census data even after detection of large variation in the number of wild animals or sudden spotting of some species.

⁵⁹ Deer, Hyena, Langoor, Monkey and Wild boar.

⁶⁰ Scat DNA based population.

Recommendation 11: The Department may consider taking up independent evaluation of forestry schemes in the PAs to ascertain the reasons for decrease in forest/tree cover and to suggest suitable mitigation measures. Scientific census methodologies may be adopted for estimation of the wildlife population in the PAs and appropriate conservation plan may be formulated.

2.4.3.3 Management of Udhwa Lake Bird Sanctuary

Udhwa Lake Bird Sanctuary (Area: 5.65 sq. km.), notified in August 1991, is covered by two⁶¹ lakes connected with two water channels⁶². The lakes support profuse aquatic flora and fish fauna and provide an excellent place for nesting, breeding and roosting of avifauna. The Sanctuary is an important wetland of India located on the migratory path of the Central Asian Flyway⁶³ and has also been identified as an Important Bird Area (IBA in Rammani *et al.*, 2016). As per a study conducted during 2009-18, 146 species of birds, including 39 species of migratory birds, were found in the Sanctuary.

The MP (2005-06 to 2015-16) of Udhwa Lake Bird Sanctuary was prepared with the objectives to (i) conserve bio-diversity with emphasis on endangered, threatened and rare elements of aquatic flora and fauna (ii) control siltation and obnoxious weed infestation (iii) study and monitor lake water chemistry and its biotic composition (iv) update the checklist of resident and migratory birds, as well as aquatic flora and (v) take immediate steps for habitat improvement programmes and management of the Sanctuary.

Audit noticed that the number of birds in the Sanctuary had increased from 3,434 during 2017-18 to 3,882 in 2018-19, but had decreased subsequently during 2019-20 (3,765) and 2020-21 (3,260). As per the MP (2021-31), the development of the bird sanctuary was jeopardised because of non-creation of required infrastructure within the Sanctuary. Barhale lake goes dry during the summer season due to siltation in Hathida Nala and backflow of water after the monsoon in Udhwa Nala. Therefore, the MP proposed de-siltation and deepening of the nalas and construction of a structure with sluice gate at the mouth of the Udhwa Nala to prevent backflow of water and to maintain uniform water level in the lake throughout the year. However, the required proposal for de-siltation and construction of a structure with sluice gates was not prepared by the concerned Division, as of July 2023.

Further, GoI extends financial support to the States/UTs for management of wetlands under the National Plan for Conservation of Aquatic Ecosystems⁶⁴ (NPCA). The Division had submitted (May 2023) a proposal to the Department for declaring the Sanctuary as a wetland of International Importance as per the

⁶¹ Barhale (410 ha) and Pataura (155 ha) lakes.

⁶² Hathida Nala and Udhwa Nala.

⁶³ A major migratory route spanning across Central Asia extending from the Arctic regions of Siberia and Northern Asia down to South Asia.

⁶⁴ NPCA came in to effect in February 2013 after merging National Wetland Conservation Program (NWCP) started in 1986 and the National Lake Conservation Plan (NLCP) started in 2001.

Ramsar⁶⁵ convention to get international co-operation for the improvement of the wetland. However, the Department had did not notify the Sanctuary as a wetland as of March 2024, though it had appeared in the National Wetland Atlas, 2010⁶⁶. As a result, the Department lost the opportunity to get additional financial assistance under NPCA from GoI.

The Department attributed (August 2024) dip in the arrival of migratory birds as the reason behind the low number of birds in the Sanctuary during 2019-21. It was further stated that a proposal has been submitted to GoI for declaring the Sanctuary as a Ramsar Site and documentary evidence would be submitted to the State Authority for notifying the Sanctuary as a wetland. Proposal for improving communication, infrastructure and research activity has been included in the Integrated Management Plan (IMP) prepared under NPCA. In the exit conference (July 2024), the Department assured that necessary action will be taken to notify the Sanctuary as a wetland.

2.4.3.4 Management of PTR

To save the tiger from extinction, GoI introduced (August 1974) Project Tiger in nine tiger reserves across the country, including PTR in Jharkhand. The Scheme aims to provide attention for preservation of the entire biotope⁶⁷ and to undertake special measures to eliminate hunting, grazing, felling of forests and other disturbing factors from the core area.

Section-38V of WPA envisages preparation of a Tiger Conservation Plan (TCP) for the proper management of a tiger reserve to ensure protection of the reserve and to provide site specific habitat inputs for a viable population of tigers, co-predators and prey animals without distorting the natural prey-predator ecological cycle in the habitat. Accordingly, TCP (2013-14 to 2022-23) of PTR was approved (November 2015) by NTCA. The TCP focused on establishing a sound and scientific information base for protection and management of the tiger and its prey, reduction of anthropogenic pressure and creation of inviolate habitats. The vision of the TCP was to reverse the trend of the declining population of tigers, co-predators and prey.

Audit noticed that there were 34 to 46 tigers in the PTR between the years 2000 and 2005. However, the number⁶⁸ of tigers in the PTR decreased continuously thereafter, and only a single tiger was detected in 2022, while comparatively the

⁶⁵ The Convention on Wetlands, an international environmental treaty, signed on 2 February 1971 in Ramsar, Iran, under the auspices of UNESCO. It came into force on 21 December 1975. India gave its ascent to the Ramsar Convention in September 1982. It provides for national action and international co-operation regarding the conservation of wetlands.

⁶⁶ Prepared by Space Applications Centre (Indian Space Research Organisation) and Jharkhand Space Applications Centre.

⁶⁷ An area of uniform environmental condition, providing a living place for a specific assemblage of plants and animals.

⁶⁸ Status of Tigers, Co-predators, and Prey in India Report, 2022 (published by NTCA): 2006 (India: 1,411 and Jharkhand: 0), 2010 (India: 1,706 and Jharkhand: 10), 2014 (India: 2,226 and Jharkhand: 3), 2018 (India: 2,967 and Jharkhand: 5) and 2022 (India: 3,682 and Jharkhand: 1).

number of tigers increased, pan India, from 1,411 in 2006 to 3,682 in 2022. Similarly, there was a decrease in the estimated prey base from 85,666 in 2012-13 to 4,411 in 2022-23 in PTR which was one of the major reasons behind decrease in the number of tigers in PTR. As such, the tiger population is on the verge of extinction in PTR despite special attention by GoI on management of tiger reserves and expenditure of ₹ 277.70 crore (including administrative expenses) on conservation of PTR during 2018-23.

Major shortcomings in the conservation and protection of PTR, noticed during Audit, are discussed below:

- The WPA, 1972 (Section 38 V), read with the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (Section 4), envisages voluntary relocation of forest right holders from the core or critical habitats, on mutually agreed terms and conditions, for the purpose of creating inviolate areas for wildlife conservation.

Audit noticed from TCP (2013-23) that there were eight⁶⁹ villages inside the core/critical tiger habitat, putting varying degrees of biotic pressure on the PTR. GoI had approved (December 2019) relocation plan for two (Latu and Kujrum) out of eight villages and released (December 2019) its share of ₹ 12.60 crore to the State for paying compensation to the affected persons. The Department released (March 2021) ₹ 21 crore (with matching State share) to PTR, South Division, for rehabilitation and resettlement. Additionally, ₹ five crore was released for relocation in 2020-21 under CAMPA. The Department had also issued (March 2021) directions to keep the whole amount of ₹ 26 crore in the bank account of PTCF. It was noticed that, against the available funds of ₹ 27.56 crore⁷⁰, the Division had transferred ₹ 3.60 crore to the joint bank accounts of Eco Development Committees (EDCs) of villages and the Deputy Director, PTR. However, the PTCF did not maintain records related to transfer of funds and its utilisation. The remaining amount of ₹ 23.96 crore was lying in the bank account of PTCF, as of September 2023. Further, relocation proposal of the remaining six villages had not been submitted to GoI, as of September 2023.

Further, as per the site specific wildlife management plan for mitigation of impact of the North Koel Reservoir Project (Mandal Dam), the core area of PTR was extended (May 2022) to 545.59 sq. km from 414.08 sq. km. by the State Government on the recommendation of the National Board for Wildlife. The extended core area covered an additional number of 26 villages for which survey and relocation proposals had not been prepared (September 2023). Thus, the Department did not ensure timely relocation of villages situated within the core critical habitat of PTR.

The Department accepted (August 2024) the facts and stated that relocation of villages is voluntary in nature and a complex socio-economic process, especially

⁶⁹ Latu, Kujrum, Ramandag, Bijaypur, Gopkhanr, Ghutuwa, Pandra and Henar.

⁷⁰ Including interest of ₹ 1.56 crore earned till August 2023.

in a tribal State with its land and cultural dynamics. Further, they stated that the relocation of three villages is in its final stages, whereas process is in line for the remaining five villages.

- NTCA had issued (May 2022) a forest fire audit protocol to conduct fire audit in the PTR in January 2023, to establish indicators against prevention of fire, preparedness, detection, suppression and post fire management. Audit noticed that the FSI had sent alerts about 4,664 forest fire points in PTR from 2017 to 2022 which affected an area of 2,405.86 hectare. However, fire audit had not been conducted in the PTR as of July 2023. In the absence of fire audit, PTR could not prepare a specific plan to protect the habitat from fire and for restoration of the affected areas.
- MStrIPES (Monitoring System for Tigers: Intensive Protection and Ecological Status), an online application system of NTCA, uses three modules (Patrol, Ecological and Conflict) to maintain a spatial database of patrol track logs, crime scenes with geo-tagged photographs, observations of patrol teams, occupancy of carnivores and large ungulates⁷¹, anthropogenic impacts on PAs and wild animal attacks on humans/ livestock/ crop/property. The phone app of the application allows real time visualization of events through preloaded base maps in areas having no internet connectivity. The database is analysed for better management of wildlife resources.

Analysis of MStrIPES database, maintained by PTR since October 2020, revealed that the data regarding patrol *viz.* patrol ID, Range, Beat, patrolling details (person, type, methodology, date and distance with longitude & latitude) were being captured in the database. However, the fields relating to direct & indirect sighting, water resources, animal mortality, human impact and site photographs were not being captured in the database. In the absence of these information, status of crimes, occupancy of carnivores and large ungulates, anthropogenic impacts on the PA, wild animal attacks and crop/property damage could not be analysed from MStrIPES to formulate management needs of the PTR. Thus, the PTR management did not ensure efficient utilisation of MStrIPES to capture data required for protection of the habitat, mitigating human-wildlife conflict and recovery of the population of predators and prey for effective management of PTR.

The Department attributed (August 2024) various logistic and technical challenges in recording data on MStrIPES and stated that the PTR management is trying to improve upon the skills of the manpower. It was further stated that the NTCA team has also been roped in for capacity building of the manpower and a more comprehensive use of MStrIPES will be ensured in future.

⁷¹ A hoofed herbivore, quadruped mammal *viz.* pigs, cows, deer, horses, elephants, rhinoceros *etc.*

- Audit further noticed that a Committee of NTCA had observed (November 2021) various deficiencies in PTR viz., absence of effective inviolate area, very low prey base, highly fragmented forests, small and weed infested grass land etc., which were required to be resolved to hold ungulate population and recovery of the tiger population in PTR. Thus, current management practices of PTR were not effective to support the tiger population in the reserve.

The Department accepted (August 2024) the facts and stated that the suggestions of the NTCA Committee have been included in the new TCP (2023-33) which has been approved (April 2024) by NTCA. The latest prey base study by WII has estimated the carrying capacity of more than 18 tigers in PTR. A slew of measures are being undertaken for quick revival of PTR and in the next five to ten years, there will be significant revival. The Department also stated in the exit conference (July 2024) that efforts are being made to improve the habitat of PTR and translocation of herbivores to augment the prey base.

Recommendation 12: The Department may expedite the process of voluntary relocation of villages situated in the core area to create an effective inviolate area for tigers. MSTripES application may also be optimally utilised for capturing data needed for protecting the habitat, mitigating human-wildlife conflict and supporting the recovery of the predator and prey populations.

2.4.4 Animal health surveillance

As per NWAP-3 (2017-31), wildlife habitat fragmentation and change in land-use patterns force wild animals to come into frequent contact with humans, and as such wildlife health has become an important issue for wildlife managers. MPs of the PAs also proposed treatment/ rehabilitation of wild animals and immunization of domestic cattle, living in or around the PAs, to check spread of contagious diseases among the wild animals. It further suggested proper documentation of wildlife pests and diseases, establishment of rescue centres for wild animals, setting up of laboratories and permanent deployment of a Veterinary Doctor in the PAs.

2.4.4.1 Health Management of wildlife

Audit noticed that 58 wild animals had died during 2018-23 in different PAs due to poaching (09), road/rail accidents (18), electrocution (02), natural death/stillbirth (08), illness (05), mutual fights (04), dog bites (04) and other reasons (08) (**Appendix 2.19**).

Audit further noticed that there was no veterinary hospital in the State for wild animals except in the Zoo (Birsa Zoological Park) at Ranchi. There were four rescue & rehabilitation centres-cum-enclosures for wild animals in four⁷² out of the 12 PAs. PTR had a veterinary care unit but did not have any enclosure for rehabilitation of rescued wild animals. Further, no permanent veterinary doctor

⁷² Dalma WLS, Hazaribagh WLS, Koderma WLS and Udhwa Lake Bird Sanctuary.

was deployed nor was laboratory established, in any of the PAs. Audit also noticed the following in the rescue and rehabilitation centres at Dalma WLS and Hazaribagh WLS.

- There were 116 deer in the Makulakocha Deer Rescue Centre as on August 2023. Though ₹ 1.45 crore was spent during 2018-23 on feeding and medicines, no data was maintained regarding the number of deer rescued, reasons for their rescue and period of medication/stay in the rescue centre. Further, no deer was released and rehabilitated to their natural habitat during 2018-23.
- Though Hazaribagh WLS had a similar Centre, the Division had not maintained data of rescued animals and their release despite an expenditure of ₹ 4.30 lakh during 2018-23 on feeding and medical care. During field visit, a fawn was found being taken care of in makeshift arrangements in a damaged staff quarter in the absence of wellness centre within the rescue centre, as shown in **photographs 2.5 and 2.6**.



- Thus, the Department did not ensure setting up of health care facilities in all PAs with permanent veterinary doctors and well-equipped laboratories for rescue and rehabilitation of wild animals. Further, the existing centres were utilised for keeping rescued animals for long durations instead of releasing them in their natural habitat after being treated.

In reply, the Department stated (August 2024) that the animals housed in the rescue centres are mostly injured or suffering from serious health issues and are not fit to be released into the wild. The Department accepted non-posting of regular trained veterinarians in PAs of Jharkhand and stated that the Forest Department has taken the initiative to select 10 veterinarians of Animal Husbandry Department (AHD) and sent all of them for advanced training.

2.4.4.2 Health Management of domestic cattle

As per Section 33A (I) of the WPA, the Chief Wildlife Warden has to take measures for immunisation of the livestock living in or within the five kilometre area of a sanctuary, against communicable diseases. No person can take, or cause

to be taken, or graze any livestock in a sanctuary without getting it immunized. As per the MPs, sanctuaries are burdened with cattle grazing pressure as locals were mostly landless or marginal farmers and could not produce fodder on their own for rearing cattle and therefore adjoining forests are used for cattle grazing. Accordingly, the MPs proposed detailed survey of livestock to carry out regular immunization of village cattle to prevent spread of communicable diseases among wild animals.

Audit noticed that the MPs of five⁷³ PAs did not have data of the livestock dependent on the PAs. The remaining seven PAs, including PTR, had grazing pressure of about 3.39 lakh cattle as per their MPs. The test-checked divisions, however, could utilise only ₹ 36.82 lakh on cattle health/immunisation camps in 10 PAs against available funds of ₹ 48.08 lakh during 2018-23 (**Appendix 2.20**). Audit noticed shortcomings in health care/immunisation, as discussed below.

- Immunisation programme was not arranged in two PAs⁷⁴ during 2018-23 despite availability of ₹ 3.20 lakh.
- ₹ 90,000, released in 2020-21, for study on impact of cattle grazing in three sanctuaries (Hazaribagh, Parasnath and Topchanchi) could not be utilised.
- The test-checked divisions did not arrange regular immunisation programmes for cattle in three⁷⁵ PAs during 2018-23 despite availability of funds.
- The test-checked divisions (except PTR, South) did not compile data of immunised cattle. Further, the divisions never surveyed the impact of communicable diseases on wild animals.

Thus, the PAs did not ensure complete immunization of domestic cattle, living in and around the PAs, to check spread of communicable diseases among wild animals.

The Department stated (August 2024) that cattle immunisation around the PAs are being taken up by the Forest Department, as well as by the AHD. The PA administration in co-ordination with AHD has taken up immunisation programme for domestic cattle.

The reply is not fully acceptable as the test-checked divisions had not maintained database of immunised cattle living in and around the PAs.

Recommendation 13: The Department may make arrangements for release of treated animals from the rescue centres to their natural habitat. It may also ensure and document immunisation of livestock in and around the PAs against communicable diseases.

⁷³ Gautam Buddha, Koderma, Lawalong, Topchanchi and Udhwa.

⁷⁴ Parasnath and Topchanchi WLSs.

⁷⁵ In Hazaribagh during 2020-22, in Dalma in 2021-22 and in Palkot during 2018-23.

2.4.5 Man Animal co-existence

National Wildlife Action Plan (2002-16) envisages that local communities traditionally dependent on natural biomass have the first lien on such resources. Man animal conflict is an outcome of shrinkage, fragmentation and deterioration of wildlife habitats and generates animosity against wild animals and PAs.

2.4.5.1 Man Animal conflict

As per NWAP-3 (2017-31), human-wildlife conflict (HWC) causes loss of crops, livestock, property and human lives. Loss of wildlife habitats increases the chances of wild animals moving out of their natural habitat and encountering cultivation and people. The NWAP suggested conflict mitigation measures to be taken by PAs based on meaningful engagement with and participation of local communities. Besides this, constituting a well-trained and equipped workforce to address HWC situations, implementing awareness programmes and conducting surveys to collect primary and secondary data on HWC were also highlighted.

Audit noticed that the current MPs of four PAs⁷⁶ did not carry out any analysis of past HWCs in PAs nor did they take up mitigation programmes. HWC had not been considered as a serious issue in the MP (2016-26) of Mahuadanr Wolf Sanctuary, though there was a sizable number of HWC cases (cattle killing: 92, human death: 05 and human injury: 21) in the WLS during 2012-18. The MPs of Dalma, Palkot and PTR highlighted man-elephant conflict as a major component of the HWC in PAs due to fragmentation of the corridor/migratory path of elephants and cultivation of paddy crop in the PAs that attract elephants.

Details of HWC cases in the State and PAs, during 2018-23, are shown in **Table 2.4**.

Table 2.4: Details of HWC cases in the State and the PAs during 2018-23

Sl. No.	Impact of HWC	Number of cases in the State		Number of cases in PAs	
		2018-19	2019-23	2018-19	2019-23
1	Crop damage	8,864	33,221	675	2,142
2	Food grain damage		4,992		81
3	Property damage		7,872		163
4	Cattle killings		782		552
5	Human death	87	388	3	22
6	Human injury	178	718	33	82
Total		9,129	47,973	711	3,042

It can be seen from **Table 2.4** that crop/food grain/property damage constituted a major part of HWC cases in the State during 2018-23. These damages were mainly due to man-elephant conflict. Besides, cattle killings were due to lack of wild prey base for predators in the PAs.

Audit further noticed that the MPs of the PAs contained proposals for a detailed study of HWC, digging elephant proof trenches, solar fencing at strategic locations, formation of anti-depredation teams with fire crackers and lights, and

⁷⁶ Gautam Buddha (2021-31), Koderma (2021-31), Lawalong (2021-31) and Parasnath (2020-30).

citrus plantation in elephant conflict zones to mitigate the man-elephant conflict. Villagers were to be encouraged to take up stall feeding of cattle to avoid cattle killing by predators during grazing in the PAs. HWC related training and awareness programmes were also suggested under other mitigation measures. However, Audit observed the following shortcomings in tackling HWC in the 12 PAs.

- The test-checked divisions did not conduct zone and species-wise study of HWCs to adopt suitable mitigation measures in the PAs.
- To tackle man-elephant conflicts, the PAs were mainly dependent on distribution of firecrackers, torches, jute bags, used Mobil oil and wire to anti-depredation teams and villagers, to keep the elephants away from human habitations. WhatsApp groups were also created to communicate movement of elephants to the local community. However, other measures like digging elephant proof trenches, solar fencing, HWC related training and citrus plantation were insignificant during 2018-23.
- As per NWAPs, Nature Interpretation Centres (NIC) were to be created to raise awareness among the public and elicit public support for wildlife conservation through education about relationship between nature, human beings and wild animals.

Audit noticed that six⁷⁷ out of 12 PAs did not have NICs. Though NICs of PTR, Hazaribagh WLS and Udhwa Lake Bird Sanctuary were functional, activities performed therein had not been documented by the concerned divisions to get an assurance that sufficient awareness programmes were conducted. Further, in Dalma WLS, the renovated NIC, with facilities of light and sound show, 3D models of wild animals, background painting, special sound effects, watch points *etc.*, could not be made functional, as of August 2023, despite incurring an expenditure of ₹ 4.31 crore during 2017-22. No skilled manpower was also deployed to look after the facilities created.

- The State Board for Wildlife (SBWL) instructed (February 2022) the Department to start educating school students on eco-system and wildlife conservation. For this, every PA was to be provided with a multi-purpose vehicle for publicity of related issues through documentaries and films. Resource persons, preferably local graduates in ecology, botany and zoology, were to be deployed on honorarium basis for providing education in local schools. However, none of the divisions made any proposal for implementation of the instructions of SBWL, as of July 2023.

Thus, the test-checked divisions did not conduct required analysis of HWCs to develop suitable mitigation measures. They also did not ensure sufficient fencing/trenches and awareness programmes among the public to minimise HWCs.

⁷⁷ Gautam Buddha, Lawalong, Mahuadanr, Palkot, Parasnath and Topchanchi.

The Department stated (August 2024) that cattle killings in the PAs cannot just be attributed to low prey base but also to the stray cattle population in the PAs. For mitigation of HWC, several steps *viz.*, development of Elephant Tracking Mobile Application, Radio (FM) alert to public on daily basis, engagement of Quick Response Teams (QRTs) in PAs, distribution of crackers/ kerosene oil/drums to scare away elephants *etc.* have been initiated besides communicating SoP of GoI to all the divisions. It was further stated that the functional NICs are frequently visited by school children and the public, and proposal for new NICs has been raised under CAMPA in 2023-24. It was also stated that PA Management is also actively engaged in awareness generation activities with local school children and the public.

The reply regarding cattle killing is not acceptable as the TCP (2023-33) itself indicates that the prey base is extremely low. Further, the Department could also not encourage or incentivise villagers to take up stall feeding of their cattle. The SoP of GoI was also not followed by the divisions to minimise HWCs. In addition, the Department did not ensure creation of NICs in all PAs to spread awareness.

Recommendation 14: The Department may prepare an SOP to effectively tackle HWC in the PAs and adopt suitable mitigation measures.

2.4.6 Eco-tourism

National Wildlife Action Plan-2 (2002-16) stipulates regulated and low-impact tourism as a vital tool for wildlife conservation to win public support. It aims to impart education and respect for nature amongst the public rather than merely providing sightings of wild animals. Eco-tourism must also be developed in such a way so as to involve and benefit local communities through employment opportunities.

2.4.6.1 Planning of eco-tourism

The Jharkhand Eco-tourism Policy, 2015, defines eco-tourism as responsible travel to natural areas, keeping in view the carrying capacity of that area. Further, the policy for eco-tourism (September 2018) of GoI lays emphasis on an eco-tourism plan containing identified locations, routes of travel, permissible activities, time & means of travel and constitution of a Local Level Committee (LLC)⁷⁸, under the Chairmanship of the DFO, to oversee eco-tourism activities.

Audit noticed that MPs of ten out of 12⁷⁹ PAs had identified 145.39 sq. km. of eco-tourism zones for development of eco-friendly tourism infrastructure⁸⁰ and for generating employment opportunities for local people through capacity

⁷⁸ With representatives from the Tourism Department, Local Panchayat, Local Communities and wildlife experts.

⁷⁹ Mahuadanr Wolf Sanctuary has no tourism zone and MP of Topchanchi WLS was not yet prepared.

⁸⁰ Such as camping facilities, resting places, nature interpretation centres, safari vehicles, watch towers *etc.*

building in areas of hospitality, culture and natural heritage, interpretation & communication skills. However, test-checked divisions had not prepared specific eco-tourism plans for any PA having identified eco-tourism zones.

Eco-tourism infrastructure could not be created in four⁸¹ PAs having eco-tourism zone of 95.34 sq. km. as the concerned divisions did not submit any such proposal to the Department, as of July 2023. Further, although eco-tourism was in practice in the remaining six⁸² PAs during 2018-23, no eco-tourism plans outlining carrying capacity of PAs, permissible activities and construction, locations of visit, travel routes, means of travel *etc.*, were prepared. The LLC had also not been constituted in any PA to monitor the ongoing eco-tourism activities. Active participation of the local community in eco-tourism, through skill development, was also not ensured by the divisions to create job opportunities.

In case of PTR, it was noticed that there was no approved eco-tourism plan in place and ₹ 21.20 crore had been spent on creation of tourism infrastructure in Betla without prior approval of NTCA as per guidelines.

Thus, eco-tourism activities were not ensured in four PAs having identified tourism zones. In the other six PAs, it was not carried out in a systematic manner following any eco-tourism plans which led to adverse impact on the eco-system of the PAs, as discussed in the succeeding paragraphs.

In the exit conference (July 2024), it was stated that local people would be engaged in eco-tourism activities after providing them proper training.

2.4.6.2 Operation of vehicles in PTR

As per the NTCA Guidelines (clauses 2.2.4 (v) and 2.3.3), the tourism plan should ensure visitor entry into tiger reserves through vehicles registered with the Management of the tiger reserve, accompanied by an authorised guide. All guides and drivers, were to compulsorily be provided a short course training in interpretation and rules & regulations, followed by an oral examination, before being certified by the Tiger Conservation Authority.

Audit noticed that the Steering Committee⁸³ of PTR had decided (February 2018) to purchase 10 safari vehicles for tour within PTR. The PTR, North Division had purchased two vehicles (one traveller and one pickup) at a cost of ₹ 40 lakh from PTCF funds during 2021-22. However, these vehicles were found stranded in the office campus, as of August 2023, as they have not been registered with the Transport Department by the Division.

⁸¹ Gautam Buddha: 18.90 sq. km., Koderma: 26.62 sq. km., Lawalong: 24.31 sq. km. and Palkot: 25.51 sq.km.

⁸² Betla, Dalma, Hazaribagh, Palamau, Parasnath and Udhwa.

⁸³ Constituted under Section 38U of the WPA under the Chairmanship of the Chief Minister.

Audit further noticed that private vehicles were providing services to tourists for visits in PTR without being registered with the PTR management, as of August 2023. The drivers and guides associated with these private vehicles had also not been certified by the PTR management. In the absence of registration of private vehicles, the PTR management had no control over hire charges and movement of private vehicles as reported (August 2018) by the FD, PTR to the CWLW.

Thus, inability of the PTR management to operate departmental vehicles in PTR, as decided by the Steering Committee, led to uncontrolled movement of unauthorised private vehicles in the Reserve.

The Department accepted (August 2024) the facts and stated that at present, safari vehicles are being operated by private vehicle owners in Betla NP. Apart from that, visitors are also allowed to ply their own vehicles in the jungle safari with compulsory eco-guide. A certification course for eco-guides is also underway.

The fact, however remains that plying of private vehicles within PTR could not be controlled and limited as they were not registered with the PTR Management.

2.4.6.3 Absence of monitoring of eco-tourism in PTR

The NTCA Guidelines (clauses 2.1.8, 2.1.9 and 2.3.4) stipulate setting up of a Local Advisory Committee⁸⁴ (LAC) to ensure site specific norms on buildings and infrastructure and to regularly review the tourist facilities viz., area of coverage, type of construction, number of employees etc. for suggesting mitigation and retrofitting measures.

Audit noticed that LAC had not been constituted in the PTR, as of August 2023. It was further seen that apart from the departmental lodging facility, there were five hotels (four private hotels and one belonging to the Jharkhand Tourism Development Corporation) and four restaurants/*dhabas* near Betla NP in the eco-sensitive zone (ESZ) of PTR. Though the activities of private hotels were required to be regulated under notification of ESZ to minimise their negative effect on the eco-system of PTR, this impact could not be monitored due to non-constitution of LAC. The PTR management had also not developed any Standard Operating Procedure (SOP) for operation of privately owned facilities in the vicinity of Betla NP.

The Department stated (August 2024) that the eco-tourism policy of PTR was thoroughly discussed in the Governing Body of PTCF and a proposal for appointing a tourism manager and incorporating revenue sharing model in the policy has been approved. It was further stated that private operators fall outside the jurisdiction of the PTR management.

⁸⁴ Under the Chairmanship of the Divisional Commissioner or an officer of equivalent rank with various members viz., member of the State Legislature of the concerned area, the District Collector, Field Director of the Tiger Reserve, local Territorial Divisional Forest Officers, official of State Tourism and Tribal Departments, representative from local panchayat, wildlife and social scientist and local conservationists.

The reply is not convincing as the activities of private operators are required to be regulated under ESZ notification. Further, proper monitoring of the eco-tourism activities including development of eco-tourism infrastructure around PTR could not be ensured due to non-constitution of LAC.

2.4.6.4 Unregulated movement in Parasnath WLS

Parasnath (a Jain temple site) within Parasnath WLS is a tourist place of international importance⁸⁵ and attracts a large numbers of pilgrims. The MP of Parasnath WLS highlighted lack of tourism infrastructure⁸⁶ in the WLS, shortage of staff, lack of sufficient security arrangements and absence of a comprehensive eco-tourism plan to deal with a large number of pilgrims every year, between October and June.

Audit noticed that the Hazaribagh WL Division did not take any initiative to develop eco-tourism infrastructure and to regulate visitors in Parasnath WLS during 2018-23. The Division also did not carry out any assessment of the carrying capacity of the WLS or the numbers of visitors, so as to regulate movement of visitors in the Sanctuary area. Thus, in the absence of an eco-tourism plan, the movement of visitors in the WLS could not be regulated during 2018-23.

The Department stated (August 2024) that being a religious place, it is not feasible to regulate the movement of tourists. Further, Madhuban is a township at the foothill of Parasnath, having good accommodation facilities, and hence there is no need to create more facilities in the WLS.

The reply is not convincing as the Division did not frame any eco-tourism plan containing identified locations, routes of travel, permissible activities, time & means of travel with respect to carrying capacity of the WLS as required under the Jharkhand Eco-tourism Policy, 2015, and GoI policy for eco-tourism (September 2018) to regulate movement of pilgrims/tourists for protecting wildlife and its habitat. The Department was also silent on creating infrastructure viz., interpretation centre, watch towers, well trained guides, security arrangements *etc.*, as highlighted in the MP.

2.4.6.5 Eco-tourism in Udhwa Lake Bird sanctuary

Audit noticed that the Udhwa Lake Bird Sanctuary had been notified (February 2019) as a tourist site of international importance by the Tourism, Art & Culture, Sports and Youth Department, GoJ. However, the Division did not maintain any data regarding visitors to the Sanctuary. During field visit by Audit in September 2023, it was noticed that footfall was very low in the Sanctuary mainly due to lack of infrastructure viz., connecting roads, lodging & food facilities, boats and well-trained guides.

⁸⁵ As notified (February 2019) by the Tourism, Art & Culture, Sports and Youth Affairs Department, GoJ.

⁸⁶ Dormitories, rest houses, interpretation centre, watch towers, signage, well trained guides *etc.*

Audit further noticed that there were other tourist sites of National and State importance viz., a Fossil Park at Mandro for conservation of fossils of the Jurassic (Mesozoic) era (199.6 to 65.5 million years ago), a waterfall (Moti-Jharna), two religious sites (Kanhaiya Asthan and Shivgadi Dham) and three historical monuments (Man Singh Dalan, Jami Masjid and Barahdwari) within a range of 25 to 60 km. from the Sanctuary. However, despite having the opportunity to develop the entire area as a tourist circuit and generating employment opportunities for the local people, the Department did not devise a comprehensive plan in co-ordination with other concerned departments nor did it carry out any widespread publicity.

Thus, due to absence of a comprehensive plan to develop the area as a tourist circuit, lack of proper publicity and non-creation of sufficient eco-tourism infrastructure, the Department could not promote eco-tourism in the Sanctuary and raise the livelihood of the local people through employment generation.

The Department accepted (August 2024) the facts and stated that development of eco-tourism infrastructure in the PA is under process.

2.4.6.6 Entry fee from tourists

Eco-tourism Policy of GoI, 2018, envisages that the State Governments may charge a conservation fee from tourists to address local livelihood issues, human wildlife conflict management and conservation through eco-development. The eco-tourism plan was to incorporate a feasible revenue sharing mechanism for the stakeholders viz., local communities.



Audit noticed that the Department had not prescribed any entry fee for the PAs. During 2018-23, 4.37 lakh tourists had visited four⁸⁷ out of six PAs, where eco-tourism was available. The concerned divisions collected entry fee from each tourist vehicle in all four PAs. However, there was no uniformity in the rates applicable. In Dalma WLS, an additional entry fee of ₹ 2 per tourist was also collected from 2.46 lakh tourists, whereas it was not collected in Hazaribagh WLS and PTR from 1.92 lakh tourists. In the remaining two PAs (Parasnath and Udhwa), the divisions neither maintained the data of tourists nor did they collect any entry fee. As such, the divisions did not ensure collection of entry (conservation) fee in all the PAs.

An amount of ₹ 1.66 crore⁸⁸ had been realised during 2018-23 as revenue from eco-tourism on account of entry fee, lodging and other charges by the divisions. The amount realised in Hazaribagh and Dalma WLSs was deposited into the Government account while in PTR, it was deposited with the PTCTF. However, the Department did not assess any feasible mechanism for revenue sharing with the local communities. This adversely impacted the active participation of local communities in conserving the PAs, as envisaged in the MPs.

⁸⁷ PTR (Palamu WLS & Betla NP): 1,26,515, Dalma: 2,46,030 and Hazaribagh: 64,256.

⁸⁸ Hazaribagh WLS (₹ 10.07 lakh), Dalma WLS (₹ 61.91 lakh) and PTR (₹ 94.42 lakh).

It was also noticed that these eco-tourism zones were not being properly maintained by the divisions. During site visit (September 2023), completely banned articles like polythene/plastic materials were found littered in Dalma WLS, despite erection of awareness boards for visitors at various locations displaying messages regarding maintaining cleanliness and not carrying banned articles, as can be seen from **photographs 2.7** and **2.8**.

Photograph 2.7	Photograph 2.8
	
Tourist route near Dalma Top (07 September 2023)	Makulakocha Tourist Complex (04 September 2023)

Thus, the Department neither ensured charging of entry fee in all PAs nor did it assess the feasibility of sharing a part of the revenue with local communities to ensure their active participation in eco-tourism in PAs.

In reply, the Department stated (August 2024) that each eco-tourism site has a different potential to attract tourists, and hence, uniformity in charging the entry fee is not feasible. It was further stated that the local EDCs are actively involved in eco-tourism in PAs, especially in PTR, and the members of EDCs are sent from time to time for capacity building in hospitality. The benefit of revenue sharing mechanism has presently been ensured in Dalma WLS and a similar arrangement would be replicated in other PAs of the State.

The reply regarding collection of entry fee is not convincing as entry fee could have been collected in all PAs having eco-tourism to address local livelihood issues and conservation of PAs through eco-development. Active involvement and skill development of EDCs in eco-tourism is also not factual, as EDCs have been formed only in 40 *per cent* of the villages in the PAs, as discussed in **Paragraph 2.4.7.1**.

Recommendation 15: *The Department may devise specific eco-tourism plan for each PA, detailing its carrying capacity, travel routes, means of travel, entry fee etc. Skill development and awareness generation of the local community may be ensured for their active participation in eco-tourism activities.*

2.4.7 Eco-Development

National Wildlife Action Plan-2 (2002-16) underlines the fact that local communities face a lot of hardship, after notification of an area as a PA, because

of denial of forest usufructs⁸⁹ and other natural produce. For effective wildlife conservation, it is necessary to compensate them for the loss of opportunities and for damage caused to life and property by wild animals. The NWAP emphasises holding public hearings, once every year, to cover such damage, as well as adversity to the wildlife from forest fire, livestock grazing, encroachments and illegal activities to plan prevention and control measures and its implementation with the participation of the people affected.

2.4.7.1 *Non-formation of EDC*

The GoJ had issued (September 2001) a Resolution regarding formation of Eco-Development Committees (EDCs), in all villages, located inside or adjacent up to 5 km of the PAs. EDCs aimed at providing sustainable development to villagers living on the fringe of the PAs, to decrease their dependence on forest resources and bringing awareness about the necessities of the forest and forest resources in order to motivate them to stand for the protection of wildlife and their habitat. As per the Resolution, an Executive Committee⁹⁰ of EDC, to be selected (except ex-officio members) by the *Aam Sabha* of the village for a period of two years, was to be formed. The selected Executive Committee was to be registered with the concerned DFO.

Audit noticed, in the test-checked divisions, that EDCs had been constituted (as of July 2023) in only 571 (40 *per cent*) villages out of 1,412 villages situated in and around the PAs and creating biotic pressure on the PAs as per ESZ notifications. Of these, the Executive Committees of 254 EDCs (44 *per cent*) had valid registration for period up to two years with the DFOs, as on July 2023 (**Appendix 2.4**).

Thus, the test-checked divisions did not ensure participation of the local communities in planning and implementing activities for protection of wildlife and its habitat through formation of EDCs in all villages that were creating biotic pressure on the PAs.

The Department accepted (August 2024) the facts and stated that EDCs have been constituted in most of the villages that have a direct impact on the PAs. Efforts are on to form new committees and renewal of EDCs through fresh elections. A baseline survey has also been conducted to understand the needs of the villages. It was also stated that the concerned divisions would ensure formation of EDCs in the left over villages.

2.4.7.2 *Non framing of Micro Plan*

As per GoJ Resolution (September 2001), the EDC has to prepare a site specific village level Micro-Plan, generally for 10 years, for the development of the village and to gradually reduce dependency of the villagers on the forest. The

⁸⁹ Legal right that gives a person or party the temporary right to use, benefit from, or derive income from Forests.

⁹⁰ With 18 to 25 members comprising of the Chairperson, the Vice-Chairperson, ex-officio Secretary (the Forester) and the Deputy Secretary (the Forest Guard) and other members.

Micro-Plan is to be approved by the Conservator of Forests (CF). Based on the approved Micro-Plan, Annual Work Plans are to be prepared and approved by the competent authority (DFO and CF) as per their financial delegation. Funds for implementation of the Annual Work Plans are provided by the Department.

Audit noticed that:

- Out of 571 EDCs, 429 EDCs⁹¹ had prepared their Micro-Plans during 2016-20. Of these, while 299 Plans⁹² had been approved (between July 2019 and September 2020) by the respective Conservator of Forests, the remaining 130 Plans were not approved, as of July 2023, as discussed below.
 - (i) Out of 96 Micro-Plans of PTR (prepared during 2016-20) which had not been approved, 43 were returned by the CCF, PTR, for modifications. Two Plans had not been approved, as these villages, being in the core zone, were to be relocated. The PTR Divisions (North and South) did not provide information regarding status of the remaining 51 Plans.
 - (ii) The Ranchi Wildlife Division could not provide the status of 29 Micro-Plans (prepared in 2019-20) related to Palkot WLS which were pending for approval by the CCF, Wildlife, since March 2020 for reasons not available on records.
 - (iii) Project Elephant, Jamshedpur submitted (July 2020) five Micro Plans with modification to the CCF, Wildlife, for approval. However, status of their approval was not furnished to Audit.
- The MEE Report of 2018-19 highlighted that the eco-development programmes in two PAs (Parasnath and Topchanchi) were very weak, as EDCs were almost defunct, due to lack of resources from the Department. Audit noticed that 33 EDCs had been constituted in these PAs but only four were functional (as of July 2023). As such, the concerned divisions did not revamp the EDCs despite this being highlighted in the MEE Reports.
- The EDCs had not prepared annual work-plans based on the approved Micro-plans. Though three divisions⁹³ had released ₹ 9.04 crore to the EDCs during 2018-23 for developmental activities, the EDCs had not submitted annual accounts, indicating utilisation details of funds, to the divisions, as of July 2023. Therefore, activities carried out by them could not be ascertained by Audit.

Thus, the divisions did not ensure formation of EDCs in all villages causing biotic pressure on the PAs or renew the registration of the constituted EDCs. Non-approval of the Micro-Plans by the competent authority led to

⁹¹ Dalma: 82, Gautam Buddha: 15, Hazaribagh: 40, Koderma: 15 and Lawalong: 30, PTR: 168 and Palkot: 79.

⁹² Dalma: 77, Gautam Buddha: 15, Hazaribagh: 40, Koderma: 15 and Lawalong: 30, PTR: 72 and Palkot: 50.

⁹³ Hazaribagh Division: ₹ 76 lakh, Dalma: ₹ 7.40 crore and Palkot ₹ 87.88 lakh

non-implementation of developmental activities in the villages to reduce their dependence on the PAs. The divisions also did not ensure submission of accounts by the EDCs against funds provided to them.

The Department accepted the facts and stated (August 2024) that the approval of the remaining 130 micro plans was under process and preparation of the remaining micro plans would be taken up as early as possible. However, the reply was silent on non-submission of accounts by EDCs.

Recommendation 16: The Department may ensure constitution of EDCs in all villages having biotic pressure on the PAs. Preparation and approval of micro plans, for taking up developmental activities in the villages, may also be ensured.

2.5 Impact evaluation and monitoring

2.5.1 Sustainable Development Goal

Sustainable Development Goal (SDG) 15 relates to “Life on land” which aims to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests and halt biodiversity loss.

To achieve SDG 15, NITI Aayog had suggested six indicators viz. (i) forest cover (ii) tree cover (iii) area covered under afforestation schemes (percentage against the total geographical area) (iv) percentage of degraded land over the total land area (v) percentage increase in the area of desertification and (vi) wildlife crime per million hectare of the PA. Based on these indicators, NITI Aayog had also assessed the performance of States wherein Jharkhand had scored 71 out of 100 (SDG India Index and Dashboard 2020-21) and was at the eighth position amongst 28 States.

Audit noticed that the Department had been preparing outcome budget since 2021-22 by showing yearly targets and output/outcome indicators. Annual targets were fixed for schemes for afforestation & soil conservation, forest fire management and consolidation of boundaries. However, for other schemes viz., wildlife conservation & crime control, eco-tourism, Project Elephant, Project Tiger, Training, Publicity, Research & Evaluation *etc.*, annual targets were not fixed to monitor and analyse the achievements against the identified outcome indicators viz., improvement of wildlife habitat, decreasing man-animal conflicts, reducing wildlife crimes, increasing the numbers of wild animals, community awareness regarding wildlife conservation and skill development of forest officials and local people. As such, annual achievement of these schemes with respect to NITI Aayog indicators could not be assessed against SDG 15 (**Appendix 2.21**).

The Department stated (August 2024) that the target for each scheme is determined every year and the works are executed accordingly. The reply is not convincing as targets had not been fixed and achievements not monitored against each scheme, as seen in the annual outcome budgets.

Recommendation 17: *The Department may fix specific targets in the budget against each scheme related to conservation of the PAs and protection of wildlife. Progress against the proposed outcomes may be monitored to ascertain the achievement of SDG 15 in the State.*

2.5.2 Wildlife conservation goals

To protect the environment and to suggest sustainable growth options, the State Government had prepared the Jharkhand Vision and Action Plan 2021, in line with the Vision of the State for 2030. The Plan included performance indicators and targets against each indicator to be achieved by 2021, 2025 and 2030. Achievement against the targets set for 2021, is detailed in **Table 2.5**.

Table 2.5: Targets and achievements of Wildlife Conservation Goals

Indicator	Target for 2021	Audit observation
1. State forest cover	To complete the resource mapping of forests.	Threats such as absence of water sources, habitat degradation and invasion of unwanted weeds had been highlighted in the approved MPs (2020-31) without details of the specific sites. The MPs had proposed detailed survey and resource mapping of sites for undertaking activities in future to mitigate the threats.
2. Community Participation in forest protection	Cent per cent area to be covered and development of Information, Education and Communication (IEC)	EDCs were not constituted in all villages having biotic pressure on the PAs nor were the registration of already constituted EDCs renewed. The Management of PAs did not ensure raising awareness among the public and eliciting public support for wildlife conservation through nature education.
3. Conservation of the elephant population	Preparation of MP for forthcoming years for elephant protected areas	Perspective plan for the Elephant Reserve had not been prepared. The concerned divisions managed the Reserve on the basis of their working plans, which did not include site specific requirements.
4. Conservation of Important Bird Areas (IBA)	Development of a bird checklist for the State	Udhwa Lake Bird Sanctuary had been identified as an Important Bird Area (Rammani <i>et al</i> 2016) with 146 species of birds, during 2009-18. However, the Department had not notified the PA as a wetland since its notification in August 1991. Development of infrastructure within the PA was not given due importance to conserve the aquatic flora and fauna of the PA including resident and migratory birds.
5. Institutional capacity of Forest Department personnel	100% filling of vacancies	The Department had not ensured posting of adequate frontline staff and specialised officers for effective management of the PAs. Shortage of 49 <i>per cent</i> of frontline staff, as of March 2023, had an adverse impact on the management of the PAs.
6. Technology integration in forest and wildlife conservation	Establishment of fully integrated Geographical Information System (GIS) for forest and wildlife mapping	MSTriPES application is an online application system that assists in effective patrolling, assessment of ecological status and mitigates human-wildlife conflict in and around tiger reserves. The application was not fully utilised for management of PTR as the database did not capture the required data needed for protection of ecology, mitigating human-wildlife conflict and recovery of the predator and prey population.

Thus, as seen from **Table 2.5**, the Department did not achieve the targets set for 2021 for a balanced and sustainable preservation of the bio-diversity rich environment, as of March 2023.

The Department stated (August 2024) that the Vision and Action Plan was formulated in 2021 and action is being taken by the Department in line with the goals set for 2030.

The reply is not acceptable as the Department did not focus on achieving mid-term targets as was fixed in the Vision and Action Plan to be achieved gradually by 2021, 2025 and finally by 2030.

2.5.3 Control Forms and PA books

The Guidelines on Management Planning (paras 6.1, 6.2 and 6.3) envisage maintaining Control Forms to record all management activities⁹⁴, problems, their magnitude⁹⁵ and details of events⁹⁶. These control forms can be used as a reference for annual reports, plan revisions, management reviews and mid-course corrections. Further, Protected Area (PA) Book and Range Book are to be maintained in the PAs to track progress of management activities, including deviation proposals made and approved. Compartment history is also to be prepared annually for evaluating habitat trends, natural and man induced impacts and efficiency of management prescriptions.

The MPs also included formats of Control Forms to be maintained by the Range Forest Officer, the Forester and the concerned staff for compilation of information about the PA. However, the test-checked divisions had not maintained Control forms, PA Book, Range Book and Compartment history for monitoring activities and their impact on the eco-system of the PA. The Management also did not ensure maintenance of these records by field units prior to approval of annual plans and release of funds.

Thus, there was lack of monitoring on the part of higher authorities in ensuring maintenance of the prescribed records, required for evaluation of habitat trends, natural and man induced impacts on the PAs and efficiency of management practices, by the field units.

The Department accepted (August 2024) the facts and stated that due to huge manpower crunch in the divisions and ranges, control forms and PA books could not be maintained. It was further stated that the audit observation is duly noted and the concerned units would be directed to comply with it in future.

⁹⁴ Creation and maintenance of water holes, restoration of habitats, development and maintenance of infrastructure including communication and man power, eco-development and eco-tourism activities *etc.*

⁹⁵ Response of plantation, mortality of wildlife, disease outbreak in plants and animals, human animal conflict, damage of private property by wildlife, cattle grazing, fire outbreak, offence cases detected *etc.*

⁹⁶ Research, eco-tourism/eco-development activities, monitoring, details of funds allotted, revenue and expenditure, survey and inventories *etc.*

2.5.4 Absence of research activity

National Wildlife Action Plan (2002-16) prescribes that each PA Manager has to prepare research priorities for their respective PA, which would then be consolidated in a State Wildlife Research Plan, to be prepared every five years by the State Forest Department. As per NWAP-3 (2017-31), conservation strategies and Management Plans (MPs) for PAs have to be backed by sound scientific research.

Audit scrutiny revealed that the MPs (2020-31) had been prepared based on old research data and information. The MPs had proposed strengthening the research base to improve benchmark knowledge on important topics *viz.*, reintroduction of locally extinct species, population study of various species, mapping of vegetation types, study of invasive species that have negative impact on the ecosystem, scientific study of flora & fauna *etc.* For accomplishment of research activity, a post of Research Officer in each PA was prescribed in the MPs. However, Research Officers had not been engaged in any of the PAs and no research activity was initiated during 2018-23. Further, the Department had not created a fund for research related to wildlife and their habitats nor had it framed State Wildlife Action Plan in line with the NWAP.

In the absence of required research, conservation strategies of the PAs adopted in the MPs were not backed by scientific management practices required to meet the challenges of climate change and extreme weather events that could cause habitat alteration, emergence of diseases, rapid spread of invasive alien species and forest fires.

The Department accepted (August 2024) the facts and stated that regular Researchers and Naturalists have not been employed in the PAs of the State, except in PTR. However, provision has been made in 2024-25 for a Project Management Unit comprising of Researchers, Veterinary Doctors, Naturalists *etc.*, to ensure regular research work.

Recommendation 18: The Department may ensure maintenance of PA books, Range Books and Control Forms in all the PAs to strengthen the monitoring mechanism. A State Wildlife Action Plan may be prepared for initiating research activity and providing a sound scientific basis for management of the PAs.