



SPZP

ANNUAL REPORT

2025-2026



Contents

Sr. No.	Chapter	Page No.
1	Report of the Officer-in-Charge	5
2	Report of the Additional Director	8
3	History of the Zoo	12
4	Vision	14
5	Mission	14
6	Objectives of the Zoo	15
7	About Us	17
8	Organizational Chart	19
9	Human Resources	20
10	Capacity Building of the Zoo Personnel	24
11	Zoo Monitoring Committee	28
12	Zoo Veterinary Health Advisory Committee	31
13	Statement of Income and Expenditure of the Zoo	35
14	Daily Feed Schedules and Live Feed Culture	36
14.1	Daily Feed Schedules: Carnivores	36
14.2	Daily Feed Schedules: Omnivores	38
14.3	Daily Feed Schedules: Herbivores	39
14.4	Daily Feed Schedules: Indian Aviary (Waterfowl, Fowls, Parakeets, Storks, Cranes and Softbill Birds)	41
14.5	Daily Feed Schedules: Exotic Aviary (Parrots, Waterfowl, Pheasants, Cranes and Other Softbills)	43
14.6	Daily Feed Schedules: Ostrich and Emu	44
14.7	Daily Feed Schedules: Primates	46
14.8	Daily Feed Schedules: Orangutan and Chimpanzee	48
14.9	Daily Feed Schedules: Reptiles	50
14.10	Live Feed Culture: Rodents and Insects	53

S. No.	Chapter	Page No.
15	Veterinary Diagnostics and Preventive Health	60
15.1	Disease Investigation Laboratory	60
15.2	Vaccination Schedule of Animals	65
16	Deworming Schedule and Ectoparasite Control	66
17	Cleaning and Disinfection of Animal Areas	67
18	Health Check-up of Employees for Zoonotic Diseases	71
19	Infrastructure and Operational Upgrades	72
20	Education, Interpretation and Outreach	86
21	Important Events and Happenings	97
22	Seasonal Special Arrangements for the Upkeep of Animals	99
23	Research Work and Publications	105
24	Conservation Breeding Programme	107
25	Animal Acquisition / Transfer / Exchange During the Year	109
26	Rescue, Treatment and Rehabilitation of Wild Animals	112
27	Annual Inventory of Animals	116
28	Mortality of Animals	121
29	Nativity of Animals	122
30	Compliance with Conditions Stipulated by the Central Zoo Authority	123
31	List of Free Living Wild Animals within the Zoo Premises	127
32	Acknowledgements	137
33	Annexures	138
33.1	Annexure 1: Selected Veterinary Case Records and Clinical Plates	138
33.2	Annexure 2: Notable Findings - Disease Investigation Laboratory	146
33.3	Annexure 3: Animal Enrichment Programme	149
33.4	Annexure 4: Animal Training and Cooperative Care Programme	154
33.5	Annexure 5: Diet-related Feed Resources, Fodder, Browse and Feed Ingredients	161

1. Report of the Officer-in-Charge

It gives me great pleasure to present the Annual Report of Sardar Patel Zoological Park (SPZP) for the year 2025–26. This has been an important year for the zoo, marked by steady progress, institutional strengthening, improved visitor engagement, and continued commitment to animal welfare, conservation education and professional zoo management.

During the year, SPZP recorded a visitation of 12.11 lakh visitors. Major public events such as Ekta Prakash Parv and Bharat Parv, commemorated during October and November 2025, contributed significantly to this footfall and brought a large number of visitors into meaningful contact with wildlife and nature. These numbers are encouraging, not merely as a measure of popularity, but as a reminder of the responsibility that a modern zoo carries. SPZP has an important role in creating memorable experiences for visitors from Gujarat, India and beyond, while also helping them understand the value of biodiversity and the need for conservation.

One of the most significant milestones of the year was the opening of the chimpanzee exhibit to the public. This exhibit reflects the direction in which SPZP is moving: towards habitats that are engaging for visitors but, more importantly, designed around the physical, behavioural and psychological needs of the animals. Watching chimpanzees climb, explore, interact and use the vertical complexity of their environment has been a powerful experience for visitors. It has also reinforced a principle that must guide our future development: the best visitor experience is created when animal welfare is placed at the centre of exhibit design and management.

Guided by the National Zoo Policy and the broader objectives of modern zoological practice, every effort undertaken during the year reflected resilience, responsibility and a shared commitment to improving standards. SPZP continues to evolve not only as a visitor destination but also as a living institution where animal care, education, research, staff capacity and visitor experience must move together.

At the heart of our work remains the Animal Care team: our veterinarians, para-veterinarians and animal keepers. Their dedication ensured continuity of care across the year, from routine husbandry and preventive healthcare to emergency response and complex clinical interventions. Working round the clock, the team managed a wide range of cases across carnivores, herbivores, birds, reptiles and rescued wild animals. The strengthening of the Disease Investigation Laboratory added greater depth to our diagnostic capacity, improved disease surveillance and supported timely clinical decisions. Critical rescue cases, including injured nilgai calves, reptiles and avian species, were handled with care, while procedures such as fracture management, amputation, wound repair and infection control reflected both technical competence and compassion.

The contribution of the veterinary and animal management teams extended beyond the zoo premises through active coordination with the Forest Department and Animal Husbandry Department. The zoo also continued to serve as a training ground for veterinary interns, students and visiting delegates, thereby contributing to capacity building in the larger field of wildlife and zoo medicine. I am proud of the operational teams who continue to push animal welfare forward while also helping visitors understand the care, science and commitment behind the scenes.

The year also brought moments of loss. Animal mortalities recorded during the year, and confirmed through detailed post-mortem examinations, included species such as gaur, gharial, Indian muntjac, chinkara and dhole. Each mortality was carefully investigated through necropsy and diagnostic evaluation to understand the cause of death and to draw management lessons wherever required. These assessments are an essential part of responsible animal care. They help us refine preventive medicine, clinical protocols, enclosure management and species-specific monitoring systems.

Alongside these losses, the year also brought many positive outcomes in breeding and natality. Successful births were recorded in important species such as gaur, blue wildebeest, oryx and capuchins, along with several reptile and avian species. These births are encouraging indicators of appropriate husbandry, enrichment, nutrition, environmental management and overall animal wellbeing. Each successful birth also strengthens our resolve to continue improving the conditions under which animals live, breed and express natural behaviours.

Education and outreach continued to be one of the strongest pillars of SPZP. Throughout the year, the Education team conducted a wide range of activities for visitors, students, interns and volunteers. The year began with academic engagement through dissertation mentoring and structured veterinary internships, giving students practical exposure to zoo management, animal care and clinical practices. World Veterinary Day was used as an opportunity for collaborative learning within the veterinary team and interns.

The zoo observed several important international and environmental days, including International Leopard Day, World Migratory Bird Day, Endangered Species Day, International Biodiversity Day, World Dhole Day, World Parrot Day, World Environment Day, World Rainforest Day, World Chimpanzee Day, International Tiger Day and Wildlife Week. These programmes were designed not as token celebrations, but as opportunities to engage visitors through guided walks, interactive interpretation, enrichment demonstrations, awareness activities and direct conversations with zoo personnel.

World Forestry Day was celebrated with the active participation of students from The Maharaja Sayajirao University of Baroda, who joined as volunteers and contributed enthusiastically to visitor engagement activities, including face painting and public interaction. World Wetlands Day was another important event, with around 60 participants taking part in a canal bird count. This activity combined public participation with citizen science and helped draw attention to wetland ecosystems and avian diversity.

Flagship educational initiatives such as the “Kaun Banega Conservationist” quiz competition helped engage young minds in a lively and meaningful way. Workshops such as “Exotic Care 101” and expert sessions by international specialists further strengthened professional learning and knowledge exchange. During the year, SPZP also expanded its academic footprint through Memorandums of Understanding with Kamdhenu University and Gujarat University, supporting NEP-aligned internships, research collaborations and skill-development initiatives. These partnerships have strengthened SPZP’s role as a centre for experiential learning and applied zoo-based research.

Operationally, the park continued to improve through infrastructure upgrades, enclosure improvements and strengthened management systems. Enhancements in veterinary facilities, laboratory capacity, maintenance systems and administrative coordination contributed to greater efficiency and better animal care. Teams across departments worked together to ensure smooth daily operations, effective handling of VVIP visits and a safe, welcoming environment for visitors.

In animal management, the year also saw progressive and innovative interventions. A notable example was the trial of a prosthetic limb in a female blackbuck. Such efforts reflect SPZP's willingness to explore advanced rehabilitation options where they may improve the quality of life of individual animals. This approach is consistent with our larger belief that modern animal care must be compassionate, evidence-based and open to carefully evaluated innovation.

Environmental sustainability also remained an important priority. Plantation drives, bird counts and biodiversity documentation were carried out within the zoo premises, further highlighting the ecological value of the campus. These initiatives remind us that a zoo is not only a place that houses animals, but also a managed landscape that can support local biodiversity and inspire broader ecological awareness.

As I reflect on the year gone by, what stands out most is the spirit of teamwork across departments. Every member of the SPZP team contributed to the progress recorded in this report, whether through animal care, veterinary service, education, administration, maintenance, security, visitor management or field operations. On behalf of the management, I extend my sincere appreciation to the entire zoo team for their hard work and dedication throughout the year.

I would also like to acknowledge the leadership and support of GZRRCs, along with the valuable contributions of our docents, interns and academic partners. I record my gratitude to the outgoing Member Secretary, Kevadia Jungle Safari Society, Mr. Agneeswar Vyas, IFS, and to the new Member Secretary, Mr. Ravi Prasad, IFS, for their continued support. I also extend my sincere thanks to Dr. Bharat Pathak, IFS (Retd.), Chairman, Monitoring Committee, for his time, guidance, expertise and dedication in helping the zoo strengthen its systems and prepare for the future.

I am proud to present the Annual Report of Sardar Patel Zoological Park for 2025–26: a year in which we consolidated important gains, addressed challenges with resolve, and moved another step forward in building SPZP as a modern, welfare-oriented and conservation-focused zoological institution.



Bipul Chakrabarty

Director & Officer-in-Charge

Sardar Patel Zoological Park, Ekta Nagar, Gujarat

2. Report of the Additional Director

The year has been an important year in the continuing development of Sardar Patel Zoological Park. For me, the most encouraging part of this year has not been any one single event, exhibit or number, but the steady maturing of the zoo as an institution. A zoo does not become better only because new exhibits are opened or visitor numbers increase. It becomes better when the daily systems improve, when teams start thinking more deeply, when animal care becomes more consistent, when documentation becomes stronger, when mistakes are discussed honestly, and when people on the ground begin to take ownership of standards.

This year, SPZP recorded 12.11 lakh visitors, which is a significant increase from the previous year. This is encouraging, but it also increases our responsibility. Every visitor who enters the zoo is not only buying a ticket; they are entering a space where we have the opportunity to shape how they look at animals, habitats, conservation and responsible interaction with nature. Our responsibility is therefore not simply to manage footfall, but to convert visitation into meaningful engagement.

The opening of the chimpanzee exhibit was a major milestone for the zoo. It was also a reminder of the direction in which we must continue to move. Exhibits must not be designed only to display animals. They must be designed to give animals choices, complexity, control, shade, retreat, movement, challenge and security. Good visitor experience should come from good animal welfare, not at the cost of it. This principle has guided many of our discussions during the year, whether related to new enclosures, modifications, enrichment, thermal comfort, vegetation, animal movement or visitor viewing.

A large part of the progress recorded this year belongs to the animal management team. The keepers, attendants, zone supervisors, curatorial team and support staff have carried much of the real weight of the institution. Their work is repetitive, physically demanding, and often invisible to visitors. Feed has to be prepared, shifted and checked every day. Enclosures have to be cleaned, inspected and repaired. Animals have to be watched, not casually, but carefully. Small changes in appetite, posture, movement, aggression, social behaviour or hiding behaviour have to be noticed before they become larger problems. This is not glamorous work, but it is the foundation of a good zoo.

The animal management team deserves particular appreciation for the way routine husbandry has continued to become more species-specific. Feed schedules have been refined across carnivores, herbivores, primates, birds, reptiles and omnivores. The emphasis has moved beyond “feeding” towards nutrition, presentation, foraging opportunity, enrichment, body condition, seasonal adjustment and individual monitoring. The development of decentralised kitchens, improved feed-preparation systems, browse rotation, live-feed cultures and diet documentation has helped make feeding more organised and more purposeful.

The live-feed culture work is a good example of the kind of progress that may not look dramatic from outside but matters greatly inside a zoo. Maintaining rodent and insect cultures in-house has improved control over hygiene, prey size, feed quality, availability and biosecurity. It has also allowed us to use live feed more intelligently as nutrition, enrichment, appetite stimulation, training reward and recovery support.

The teams managing rats, mice, crickets, roaches, mealworms, superworms and waxworms have contributed quietly but significantly to better nutrition and behavioural opportunities for many species.

Enrichment and animal training also developed further during the year. I am especially happy that these are no longer being seen as decorative add-ons. Enrichment is not about hanging a random tyre and declaring victory. It must have purpose. It must encourage natural behaviour, reduce boredom, improve enclosure use, support physical and mental health and help the animal engage with its environment. Similarly, animal training at SPZP is being developed as cooperative care, not entertainment. Target training, recall, crate familiarisation, weighing, handfeeding, body presentation, touch tolerance and desensitisation to medical equipment all help reduce stress and make daily management safer for both animals and staff. This shift in thinking is important.

The veterinary team has had a demanding and productive year. The strengthening of the Disease Investigation Laboratory, improved diagnostic processing, procurement of equipment, expansion of in-house testing and continued collaboration with external laboratories have improved our clinical decision-making. During the year, the laboratory processed a large number of samples in-house while also coordinating specialised testing through external institutions. This is exactly the direction a modern zoo veterinary system should take: more evidence, better records, earlier diagnosis and improved preventive planning.

The Zoo Veterinary Health Advisory Committee has helped bring structure and external expert review into veterinary governance. Discussions on diagnostics, biosecurity, zoonotic screening, clinical case documentation, antibiotic sensitivity testing, preventive healthcare, equipment planning and research have supported the veterinary team in moving from reactive care towards a more organised and evidence-based system. This is not a small shift. It takes discipline to document, review and learn from cases rather than simply move from one emergency to the next.

Several clinical and rehabilitation cases during the year showed both skill and compassion. The treatment of rescued reptiles and birds, surgical interventions in injured wild animals, veterinary support to the Forest Department, management of nilgai calves, and the prosthetic limb work in a blackbuck reflect a team willing to try difficult things when they are in the interest of animal welfare. Such work should always remain careful, ethical and evidence-based, but I am proud that the team is developing the confidence to explore better options for individual animals rather than accepting limitations too quickly.

The Education and Outreach Division had a very strong year. With 37 conservation observance programmes, 52 Keeper's Talks, 27 birdwatching sessions, 22 veterinary internship programmes, two intensive docent training programmes, engagement with 621 schools and colleges across six Indian states, direct outreach to 75,620 students and hands-on learning for 286 veterinary students, the division has significantly expanded the educational footprint of the zoo. These numbers are important, but the more important point is that the education programme is becoming more connected to actual zoo work.

Education in a zoo cannot remain separate from animal management, veterinary care, research and field realities. Interpretation must be scientifically correct, relevant and

rooted in what we actually do. During the year, the education team worked through guided walks, visitor interpretation, conservation pledges, keeper talks, student programmes, internships, citizen-science activities and distinguished visitor engagements. The canal water bird count on World Wetlands Day, with documentation of 95 bird species and 797 individuals across fixed observation points, was a strong example of how education, biodiversity monitoring and public participation can come together.

The internship and training ecosystem also expanded meaningfully. Veterinary interns, zoology students, docents, NEP-aligned interns, Life Science Education Trust trainees, university groups, international delegates and visiting professionals all used SPZP as a learning space. This is an area we must continue to build. A good zoo should not only keep animals well; it should produce better students, better keepers, better veterinarians, better educators and better future zoo professionals. I want SPZP to become a place where young people do not just come for a certificate, but leave with a clearer understanding of what responsible animal care actually means.

Capacity building of our own staff remained a major area of progress. Training programmes on incubation, exotic bird and reptile management, monsoon preparedness, animal behaviour, keeper instruction, fire safety, security, CPR, public interaction and avian health have helped strengthen the team. The Train-the-Trainers Keeper Instructor Course was particularly important because it moved us towards internal training capacity. We cannot depend forever on external experts to teach us everything. External expertise is valuable, but long-term improvement will happen only when our own staff become trainers, mentors and standard-setters.

The horticulture team also deserves sincere appreciation. Their work directly affects animal welfare, visitor comfort, landscape quality, shade, browse availability, fodder support and the overall feel of the zoo. The development of nursery operations, in-house sapling production, browse and fodder resources, microgreens, plantation work, composting support and enclosure planting has strengthened the living landscape of SPZP. In a zoo, plants are not decoration. They are shade, food, enrichment, barrier, nesting support, microclimate, visual relief and habitat complexity. The horticulture team's role in this is central.

Infrastructure and maintenance work during the year also deserves recognition. The strengthening of veterinary infrastructure, decentralised kitchens, electric fencing, preventive maintenance systems, DG sets, pumps, HVAC systems, enclosure pulley mechanisms, drainage, visitor amenities and operational support systems has improved the zoo's ability to function safely and consistently. Maintenance teams are usually noticed only when something fails. The fact that so much daily work continues smoothly is itself a reflection of their effort.

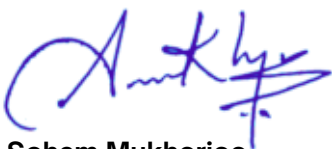
Conservation breeding, natality, population planning and rescue support remained important areas of work during the year. SPZP recorded 62 births across 19 species, reflecting the combined effect of appropriate enclosure conditions, nutrition, compatibility, keeper observation and veterinary support. At the same time, planned transfers of surplus sambar deer, blackbuck and spotted deer reinforced the importance of responsible population management — knowing when to breed, when to hold, when to transfer and when to redesign.

The veterinary and animal care teams also continued to support rescue, treatment and rehabilitation work in coordination with the Forest Department and other authorities, handling cases involving leopards, reptiles, birds, nilgai calves, langurs and other wildlife. Such work is demanding, especially when animals arrive stressed, injured or with limited history. There were difficult moments too, including mortalities and clinical challenges. These must never be brushed aside. Every loss and every gap must help us improve systems, encourage early reporting, strengthen documentation and build a culture where accountability means learning and doing better, not hiding problems.

I extend my sincere appreciation to the animal keepers, attendants, zone supervisors, veterinarians, para-veterinary staff, curators, biologist, education team, horticulture team, maintenance staff, security personnel, drivers, housekeeping staff, administrative team and all support staff who have kept the zoo running through ordinary days, crowded days, difficult days and emergency days. Much of their work is not visible in photographs or reports, but it is visible in the health of the animals, the cleanliness of the enclosures, the quality of visitor experience and the confidence with which the zoo now functions.

I also acknowledge the support of GZRRCS, SoUADTGA, Kevadia Jungle Safari Society, the Forest Department, academic partners, Life Science Education Trust, external experts, docents, interns and volunteers who contributed to the progress of SPZP during the year. The guidance of the Monitoring Committee and Zoo Veterinary Health Advisory Committee has also helped us think more clearly about long-term institutional strengthening.

The progress of 2025–26 belongs to the teams who worked every day to make the zoo better. The responsibility for the next stage belongs to all of us.



Soham Mukherjee

Additional Director

Sardar Patel Zoological Park, Ekta Nagar, Gujarat

3. History of the Zoo

Sardar Patel Zoological Park (SPZP), originally established under the Kevadia Jungle Safari Society, was constituted by the Government of Gujarat through Resolution No. VPS-102019-S.F-4-W dated 1 June 2019. The institution was envisioned as a centre for wildlife conservation, education, research and nature-based tourism, with a mandate to support both ex-situ and in-situ conservation initiatives while promoting public awareness and appreciation of biodiversity.

In keeping with this vision, a modern zoological park was conceptualised near the Statue of Unity, the world's tallest monument dedicated to Sardar Vallabhbhai Patel. After detailed planning and site assessment, a previously unused industrial site belonging to M/s Jaiprakash Associates was identified for development. The site, spread over approximately 56 hectares (138.32 acres), lies along the banks of the Narmada River within the Vindhyachal landscape. The land was subsequently transferred by the Sardar Sarovar Narmada Nigam Limited (SSNNL) to the Kevadia Jungle Safari Society. The master layout of the park was approved by the Central Zoo Authority (CZA) on 28 October 2019.

Development activities commenced soon after, with the creation of animal habitats, visitor facilities, veterinary infrastructure and education-related amenities. On 30 October 2020, coinciding with the 145th birth anniversary of Sardar Vallabhbhai Patel, the park was formally inaugurated by the Hon'ble Prime Minister of India, Shri Narendra Modi.

Popularly known as the "Jungle Safari", SPZP was designed as an immersive wildlife destination with a distinctive seven-tiered landscape ranging from 29 to 180 metres in elevation. The park recreates different global biogeographic zones, including African, Asian and Australian landscapes, and houses a collection of native and exotic fauna within a setting enriched by indigenous and ornamental flora. Its safari-based visitor experience allows controlled close-range viewing while maintaining necessary standards of animal welfare, biosecurity and scientific management.

Over the years, SPZP has grown beyond its initial identity as a recreational attraction. It has increasingly developed into a platform for conservation awareness, experiential learning and public engagement with wildlife. Through guided interpretation, education programmes, student internships, enrichment demonstrations and visitor activities, the park encourages people of different age groups to understand wildlife, ecosystems and the role of modern zoos in conservation. The institution continues to align itself with the broader philosophy of contemporary zoos, where animal care, conservation education, research and visitor experience are closely connected.

Several administrative milestones have shaped the growth and governance of SPZP. On 19 December 2020, the Statue of Unity Area Development and Tourism Governance Authority (SoUADTGA), under the Urban Development and Urban Housing Department, Government of Gujarat, assumed administrative oversight of the Society. Subsequently, on 28 July 2023, the Government adopted a Public-Private Partnership (PPP) framework to strengthen professional zoo management and operational efficiency. Under this arrangement, Greens Zoological Rescue and Rehabilitation Centre Society (GZRRCS), Jamnagar, was appointed as the operational partner in accordance with the Recognition of Zoo Rules, 2009 and Central Zoo Authority guidelines.

Following a structured transition process, GZRRCS formally assumed day-to-day operational management of SPZP on 1 October 2023. This transition further strengthened professional stewardship and supported continued improvement in animal care, conservation education, veterinary services, visitor management and overall zoo operations.

SPZP has also become an important contributor to eco-tourism and educational tourism within the Statue of Unity region. The park attracts visitors, students, researchers, photographers and wildlife enthusiasts from across the country, adding value to Gujarat's growing nature-based tourism landscape. Its integration of wildlife interpretation, landscape design, conservation messaging and immersive visitor experience has helped establish SPZP as a distinctive destination for conservation-oriented recreation and learning.



Indian rhinoceros (*Rhinoceros unicornis*) at SPZP, reflecting the zoo's focus on species-specific habitats, animal welfare and immersive visitor experiences.

Today, Sardar Patel Zoological Park stands as a flagship zoological attraction within the Statue of Unity ecosystem. By bringing together conservation, education, research, recreation and sustainable tourism, the park continues to evolve as a modern zoological institution with a strong emphasis on animal welfare, scientific management, public engagement and responsible interaction between people and nature.

4. Vision

To be a leading zoological park committed to wildlife conservation, education and research, while offering visitors an engaging, meaningful and enriching experience with nature.



Immersive wildlife viewing at SPZP, creating meaningful opportunities for visitors to observe, learn and connect with nature.

5. Mission

To promote wildlife conservation through education, research, scientific management and sustainable practices. SPZP aims to strengthen public awareness and appreciation of biodiversity, support ex-situ and in-situ conservation efforts, and foster a deeper connection between people and the natural world through immersive and responsible visitor experiences.

6. Objectives of the Zoo

1. **Conservation and Species Management:** To contribute to wildlife conservation through scientifically managed ex-situ and in-situ conservation initiatives, including conservation breeding, responsible species management, habitat support, rescue and rehabilitation, and collaborative conservation programmes in accordance with the National Zoo Policy and Central Zoo Authority guidelines.
2. **Animal Welfare and Ethical Care:** To maintain high standards of animal welfare by providing species-appropriate habitats, preventive healthcare, balanced nutrition, enrichment programmes, behavioural opportunities and ethical management practices that support the physical and psychological wellbeing of all animals under human care.
3. **Education, Awareness and Behavioural Change:** To promote environmental awareness, conservation ethics and empathy for wildlife through interpretive education, guided experiences, exhibitions, workshops, outreach programmes and interactive learning opportunities. The zoo aims not only to inform visitors, but also to encourage positive behavioural change towards wildlife, ecosystems and sustainable living.
4. **Research and Scientific Advancement:** To facilitate and support research in animal behaviour, enrichment, veterinary care, nutrition, genetics, breeding biology, conservation management, visitor studies and related fields, thereby contributing to evidence-based zoo management and wider conservation planning.
5. **Rescue, Rehabilitation and Wildlife Support:** To support wildlife rescue, rehabilitation and emergency response activities in collaboration with authorised agencies, forest departments, veterinary institutions and conservation organisations, with the objective of improving the welfare and survival prospects of distressed wild animals.
6. **Sustainability and Environmental Responsibility:** To integrate sustainable and environmentally responsible practices into zoo operations through efficient resource use, water conservation, waste reduction, green infrastructure, responsible maintenance practices, biodiversity-friendly landscaping and climate-conscious management.
7. **Visitor Engagement and Experience:** To provide meaningful, safe and immersive visitor experiences that encourage emotional connection with wildlife and nature, while promoting responsible behaviour, conservation support and repeat engagement with the zoo.
8. **Community Participation and Outreach:** To strengthen community involvement through volunteer initiatives, student engagement, awareness campaigns, citizen-science activities, collaborative programmes and participatory conservation efforts that encourage shared responsibility towards wildlife and environmental protection.
9. **Collaboration in Conservation:** To work with zoological institutions, conservation organisations, academic bodies, rescue centres, government agencies and subject experts at regional, national and international levels to support coordinated efforts in biodiversity conservation, animal welfare, research and professional development.

- 10. Training and Capacity Building:** To support the professional development of zoo personnel, veterinarians, educators, researchers, interns, volunteers and conservation practitioners through training programmes, workshops, exposure visits, internships and skill-enhancement initiatives in contemporary zoological practices.
- 11. Innovation and Institutional Development:** To continuously improve institutional standards through innovation in exhibit design, animal management, interpretation, veterinary care, visitor facilities, digital systems and operational processes, while adopting relevant best practices in modern zoo management.
- 12. Digital Interpretation and Communication:** To use digital technologies, immersive interpretation systems and innovative communication tools to enhance visitor learning, accessibility, engagement and the effective dissemination of conservation knowledge.
- 13. Cultural, Recreational and Nature-Based Tourism Value:** To serve as a culturally enriching and recreational destination that integrates wildlife conservation with nature-based tourism, landscape aesthetics and regional identity, offering memorable and educational experiences for diverse visitor groups.
- 14. Advancing the Modern Zoo Concept in India:** To contribute to the transformation and modernisation of Indian zoos by adopting progressive approaches in animal welfare, conservation education, exhibit planning, sustainability, scientific management and public engagement, while serving as a model institution for future zoological development in the country.



A well-designed habitat does more than display animals — it helps animals feel secure, allows visitors to observe them meaningfully, and turns a zoo visit into a quiet moment of learning and connection.

7. About Us

Basic Information about the Zoo

Sr. No.	Particulars	Information
1	Name of the Zoo	Sardar Patel Zoological Park
2	Year of Establishment	2019
3	Address of the Zoo	Sardar Patel Zoological Park, Near Statue of Unity, Ekta Nagar, Dist. Narmada, Gujarat 393151.
4	State	Gujarat
5	Telephone Number	02640-299173 (Landline)
6	Fax Number	-
7	E-mail Address	director@sardarpatelzoo.com
8	Website	www.sardarpatelzoo.com
9	Distance from Nearest	Airport: 95 km (Vadodara) Railway Station: 9 km (Ekta Nagar) Bus Station: 8 km (Ekta Nagar)
10	Recognition Valid up to	18/07/2027
11	Category of the Zoo	Mini
12	Area (in Hectares)	56
13	Number of Visitors (2025-26)	Adults: 8,84,948 10.60% ↑ Children: 3,26,798 46.03% ↑ Total Visitors: 12,11,746 18.34% ↑
14	Visitors Facilities Available in the Zoo	Online ticket booking, drinking water kiosks, toilets, rest areas, sit-outs, food court, canteen, cloak room, perambulator for children, first-aid facility, help booth, battery-operated vehicles, zoo maps, publications, souvenir shops, accessible toilets, ramps and wheelchair access / wheelchair-accessible facilities
15	Weekly Closure of the Zoo	Monday

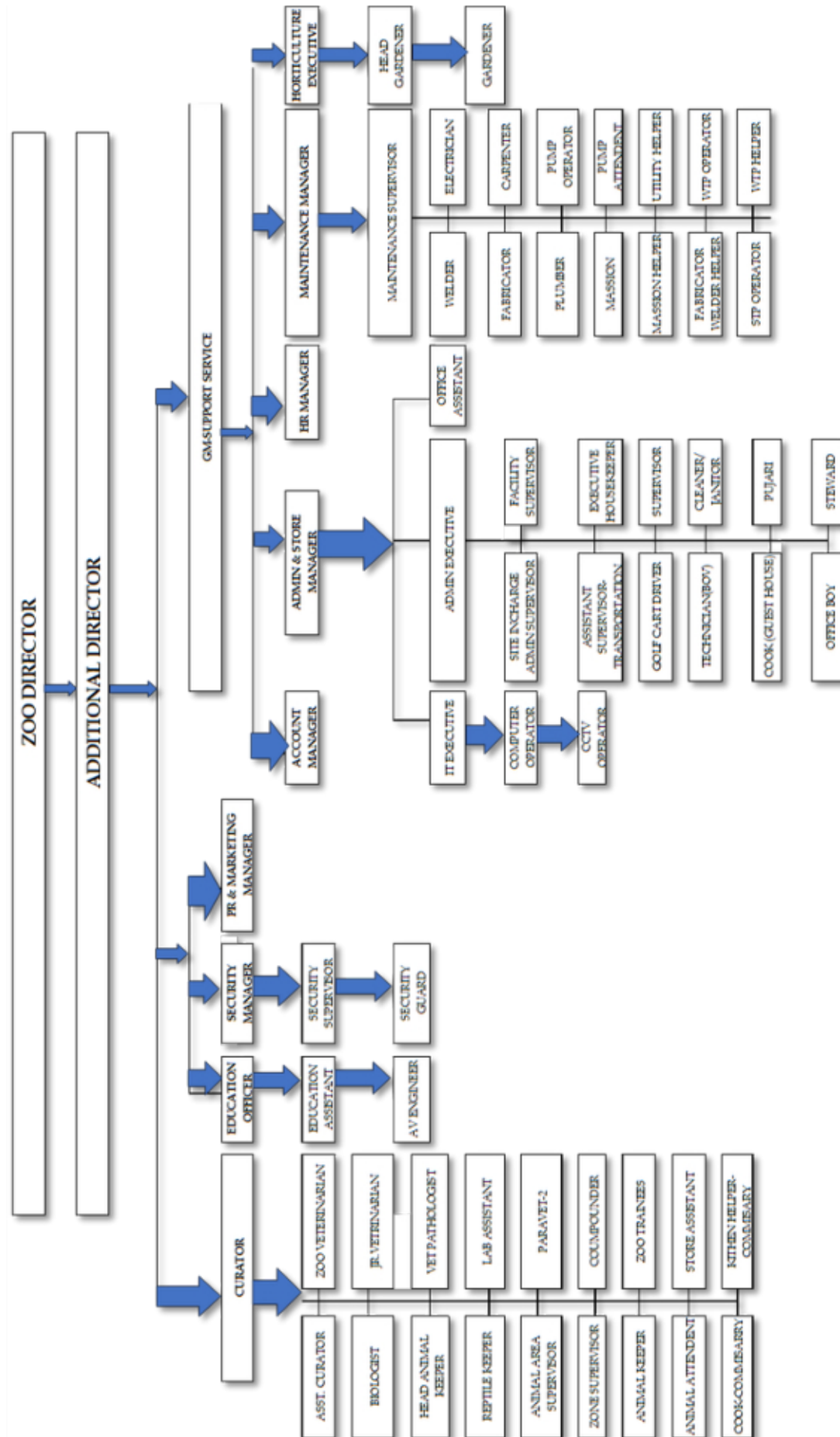
Management Personnel of the Zoo

Sr. No.	Particulars	Information
16	Name with Designation of the Officer-in-Charge	Mr. Bipul Chakrabarty
	Name of the Additional Director	Mr. Soham Mukherjee
	Name of the Curators	Dr. Chetan Patond Ms. Akanksha Mukherjee
	Name of the Veterinary Officer	Dr. Ushma Patel
	Name of the Biologist	Dr. Dhruv Prajapati
	Name of the Education Officer	Dr. Shashikant Sharma
	Name of the Compounder/ Lab Assistant	1.Mr. Shubham Lakhara 2.Mr. Jay Sharma 3.Mr. Yagnik V.

Owner/ Operator of the Zoo

Sr. No.	Particulars	Information
17	Name of the Operator	Statue of Unity Area Development and Tourism Governance Authority
18	Address of the Operator	Chief Executive Officer, Administrative Building, Ekta Nagar, Dist. Narmada 393151, Gujarat
19	Contact Details/Phone Number of Operator	-
20	E-mail Address of the Operator	Ceo-sou@gujarat.gov.in

8. Organisational Chart



9. Human Resources

Management Team Members

Sr. No.	Designation	Number of Post	Name of Incumbent
1	Director	1	Mr. Bipul Chakrabarty
2	Additional Director	1	Mr. Soham Mukherjee
3	Curator	2	Dr. Chetan Patond Ms. Akanksha Mukherjee
4	Assistant Curator	1	Mr. Mitesh Patel
5	Veterinary Officer	1	Dr. Ushma Patel
6	Veterinarian	1	Dr. Diksha Dhanwani
7	Veterinary Pathologist	1	Dr. Yash Bhate
8	Biologist	1	Dr. Dhruv Prajapati
9	Education Officer	1	Dr. Shashikant Sharma
10	Education Assistant	1	Darshit Shah
11	GM Support Services	1	Mr. Pradyumn Prakash
12	Protocol Manager	1	Vacant
13	HR Manager	1	Mr. Kandarp Shah
14	Admin. & Stores Manager	1	Mr. Amit Modha
15	Accounts Manager	1	Mr. Tushar Mankad
16	Maintenance Manager	1	Mr. Aalekh Patel
17	Security Manager	1	Mr. Bhanupratap Singh Rathore

Operations Team Members

Sr. No.	Designation	Number of Post	Name of Incumbent
1	Animal Keeper	63	Ajay I. T., Alkesh S. T., Anil S. T., Anil B. T., Anil Ka. T., Anil Kh. T., Arjun J. T., Asmita J. T., Atesh S. T., Bhadresh H. V., Bhagyashree K. T., Chandrakant D. T., Chetan M. T., Chetan S. T., Daksha R. T., Dakshesh R. T., Dakshit M. V., Daxa G. T., Dharmendra R. B., Dhaval K. T., Dilip C. T., Dinanath K. T., Gautam T. T., Gita V. T., Haresh K. T., Hemant G. T., Hetal S. T., Hitendra J. T., Jagdish J. T., Jaya D. T., Jigar D. T., Jignesh P. T., Jignesh N. T., Jyotish B. T., Kajal P. T., Kaushik K. T., Ketan B. T., Keyur J. T., Kirtan B. T., Mahesh C. V., Minesh G. T., Naresh V. T., Nayana J. T., Nayan G. T., Nilang K. T., Nital M. T., Nitesh R. T., Pradip N. T., Pratap J. T., Pravin R. T., Rajnikant A. T., Raksha R. T., Ramji C. V., Sarita K. T., Smita S. T., Sunil B. T., Tejash K. T., Umesh A. T., Vanita A. T., Vikram B. B., Vilash A. T., Yakun B. T. and Hari Mondal
2	Animal Attendant	10	Mukesh C.T., Mayank. T., Ashwin A. T., Parikshit S.T., Mayank A.T., Jayesh C. T., Kishan G. T., Vijay A. T., Chetan A. T., Anil T.
3	Computer Operator	3	Devyani S. T, Narmada R. T, Roshni D. T.
4	Receptionist	1	Shital A. Tadv
5	Office Assistant	1	Vihar J. C.
6	Driver	27	Yogesh S. T., Chirag A. T., Dinesh D. T., Kaushik R. V., Ankit G. T., Vipul D. D., Ramu L. T., Chiman R. T., Vipul R. T., Ashwin B. T., Anil R. T., Laxman S. T., Bhavesh B. T., Naresh A. T., Jaydev D. T., Ajay A. R., Fakirmahammad K. M., Amit S.T., Sachin A. T., Guarav P. D., Haresh S. T., Sachin V. T., Dilip M. T., Piyesh R. T., Satish B. T., Mehul B. T., Rahul B. T.
7	Horticulture Supervisor	1	Nilesh Popaniya

Operations Team Members

Sr. No.	Designation	Number of Post	Name of Incumbent
8	Head Gardener	2	Ananda S. V, Ranjit B. T.
9	Gardener	13	Navin R. T., Hitesh S. T., Dinesh R. T., Suresh S. T., Haridas R. T., Jaynti M. T., Mahesh G. T., Manjula R. T., Kaushik M. T., Vishal C. V., Padma M. T., Yogesh R. T., Tulsidas V.T.
10	Cleaner	5	Ramesh R. H., Mohan G. H., Punam M. H, Sudha S. H.
11	Electrician	4	Sukhram A. T., Nilesh G. T., Bhanu B. T., Mehul T.
12	Carpenter/ welder	3	Atul T., Kamlesh K. T., Chandresh C. T.
13	Pump operator/ attendant	2	Kalpesh A. B., Nilesh T.
14	Utility helper	3	Ishwar B. T., Babu T., Jayanti V.
15	Plumber	1	Yogesh T.
16	Maintenance supervisor	1	Gayasuddin
17	Fabricator	1	Haresh T.
18	Mason	1	Alpit T.
19	Office boy	2	Ajay R. T., Rakesh I. T.
20	Site in-charge	1	Md. Zuber Sheikh
21	Technician	2	Ankit T., Dipak T.
22	Admin & liaison supervisor	1	Jatin A. T.
23	Animal area supervisor	1	Raju T.

Sr. No.	Designation	Number of Post	Name of Incumbent
24	IT executive	1	Chirag T.
25	Laboratory assistant	1	Yagnik V.
26	Para vet	3	Shubham L., Ketan B., Jay S.
27	AV technician	1	Shahrukh S.
28	Housekeeping executive	1	Ramprasad S.
29	Housekeeping supervisor	0	<i>Vacant</i>
30	Steward	1	Ruptan N.
31	Janitor	5	Sunil M., Mithun K., Ajay S., Kamlesh K., Deepak K.
32	Cook & kitchen helper	5	Divyesh R. V., Shailesh P. T., Rahul C. T., Vijay S.T.
33	Zone supervisor	5	Kapil Bariya, Vaibhav Kansara, Jenish Panchal, Snehashish Mondal, Swarali Buchke
34	Security supervisor	2	Yogendra S., Mukesh T.
35	Security guard	60	Paresh I.T., Sanjay P.T., Premdas D.T., Sahabdas D.T., Vishnu G. T., Mithun S.T., Pravin M. T., Ajay K. T., Gopal A. B., Sanjay G.T., Ankit V.T., Dilip K.D., Sunil U. T., Amit M. T., Balu K. T., Balu N. T., Vijay A. T., Sanjay T. T., Rasik J. T., Vijay M. T., Nirav R. T., Dilip R. T., Harnesh R. T., Sadhsaran N. T., Arvind I.T., Vijay A. T., Pravin A. T., Bhalu M.T., Mukesh S. T., Vinod G. T., Gaurang K. T., Rajesh R. P., Rajnikant V. T., Naresh S. T., Dinesh S. B., Manoj S. T., Anil N. T., Upendra K. T., Kalpesh K. T., Chanda P., Khushbu S., Nimisha T., Praful R. T., Ronak D. T., Pummy M., Abhesing M. T., Nitin A. T., Alkesh D. T., Harisinh C., Bhavsingh J. T., Gajendra A. T., Ganpat R. T., Manoj B. T., Nagin J. T., Mayur K. T., Kishan A. B., Satguru R. T., Vithal K. T., Nilesh G. T., Vikram N.
36	Total	229	

10. Capacity Building of Zoo Personnel

Capacity building remained an important focus area for SPZP during the reporting year. Training programmes, workshops, conferences, webinars and exposure visits were undertaken for curatorial, veterinary, biological, education, animal management, operations and security teams. These initiatives aimed to strengthen technical knowledge, animal welfare practices, clinical competence, public interaction, safety preparedness, institutional training capacity and overall operational efficiency.

In-house Training and Capacity Building Programmes

Sr. No.	Name and Designation of the Zoo Personnel	Subject Matter of Training	Period of Training	Name of the Institution
1	Entire zoo staff	Fire & safety training	28 Apr & 28 Oct 2025, 23 Mar 2026	SPZP
2	Entire security staff	Security training	28 Apr, 23 Jun, & 29 Aug 2025, 23 Mar 2026	SPZP
3	Dr. Chetan Patond, Curator; Akanksha Mukherjee, Curator; Dr. Ushma Patel, Veterinary Officer; Dr. Dhruv Prajapati, Biologist; Dr. Shashikant Sharma, Education Officer; Zone Supervisors: Mr. Vaibhav Kansara, Mr. Darshit Shah, Mr. Kapil Bariya, Mr. Jenish Panchal, Mr. Mitesh Patel, Mr. Snehashish Mondal, Ms. Swarali Buchke Zoo Trainee: Ms. Khushi Dave and Ms. Archana K.	Incubation processes and monsoon management strategies for exotic birds and reptiles, conducted by Mr. Luboš Tomiska and Mr. František Juna from the Czech Republic	25-27 Jun 2025	SPZP in collaboration with knowledge partner Life Science Education Trust
4	Dr. Chetan Patond, Curator; Akanksha Mukherjee, Curator; Dr. Ushma Patel, Veterinary Officer; Dr. Dhruv Prajapati, Biologist; Dr. Shashikant Sharma, Education Officer; Zone Supervisors: Mr. Vaibhav Kansara, Mr. Darshit Shah, Mr. Kapil Bariya, Mr. Jenish Panchal, Mr. Mitesh Patel, Mr. Snehashish Mondal and Ms. Swarali Buchke; Zoo trainees: Ms. Khushi Dave and Ms. Archana K.	Train-the-Trainers Keeper Instructor Course conducted by Mr. Daniel Patrick O'Loughlin, Mr. Stephen Woollard, and Mr. Stephen Nash	11-12 Dec 2025	SPZP in collaboration with knowledge partner Life Science Education Trust
5	Curators, Assistant Curator, veterinarians and zone supervisors	Strategic Animal Behaviour: Application of Military Dog Strategies for Zoo Animal Training, conducted by Maj. Omkar Gajarwar	07 Feb 2026	SPZP

External Training, Conferences and Institutional Exposure

Sr. No.	Name and Designation of the Zoo Personnel	Subject Matter of Training	Period of Training	Name of the Institution
1	Dr. Ushma Patel, Veterinary Officer	Introduction to Conservation Medicine	18–20 Aug 2025	Vantara, Jamnagar
2	Dr. Yash Bhate, Veterinarian Pathologist	Observer-ship at Dhirubhai Ambani Wildlife Research Laboratory	06–08 Oct 2025	Vantara, Jamnagar
3	Dr. Ushma Patel, Veterinary Officer; Dr. Diksha Dhanwani, Veterinarian	Conference on “Role of Women Veterinarians in Strengthening One Health through Innovations in Animal Husbandry, Clinical Practices and Wildlife Domain”	27–29 Nov 2025	IAWV, Guwahati, Assam
4	Dr. Ushma Patel, Veterinary Officer	Round Table towards a National Action Plan addressing the harmful impact of manja on wildlife and ecosystems	02 Feb 2026	HCL Foundation, Gurugram
5	Dr. Chetan Patond, Curator; Dr. Ushma Patel, Veterinary Officer	Indian Society for Veterinary Surgeons Conference	25–28 Feb 2026	Indian Society for Veterinary Surgeons, Jabalpur
6	Dr. Chetan Patond, Curator; Dr. Ushma Patel, Veterinary Officer	Wildlife and Zoo Veterinarian Workshop	16–17 March 2026	National Veterinary Foundation, Delhi



Mr. František Juna demonstrating incubation substrate preparation during a hands-on capacity building session.



Mr. Daniel Patrick O'Loughlin leading the Train-the-Trainers Keeper Instructor Course for SPZP management and supervisory staff.



Dr. Diksha Dhanwani presented a case report at the Indian Association of Women Veterinarians Conference, Assam, Guwahati.



Dr. Ushma Patel engaged in a panel discussion on the kite string injuries seen in birds during Uttarayan and steps to help reduce them.



Maj. Dr. Omkar Gajjarwar presented a lecture on animal behaviour and positive reinforcement training for the SPZP staff.



Dr. Ushma Patel attended introduction to conservation medicine at Vantara, Jamnagar.



CPR demonstration session for security guards.



Fire safety training and mock drill for zoo staff.

Webinars

Sr. No.	Name and Designation of the Zoo Personnel	Subject Matter of Training	Date	Name of the Institution
1	Curators, Assistant Curator, Veterinarians and Zone Supervisors	Webinar on Medical Management of A Bird Collection by Dr. Lorenzo Crosta	16 May 2025	Life Science Education Trust
2	Curators, Assistant Curator and Veterinarians	Webinar on Husbandry of Finches by Chris Ventouris	16 Jun 2025	Life Science Education Trust
3	Curators, Assistant Curator, Veterinarians and Zone Supervisors	Webinar on Avian Propagation by Ms. Jessica Theule	21 Jun 2025	Life Science Education Trust
4	Curators, Assistant Curator, Veterinarians and Zone Supervisors	Webinar on Preventive Avian Health by Dr. Stacey Gelis	31 Jan 2026	Life Science Education Trust

Training Impact

The capacity-building initiatives conducted during the year strengthened both technical and operational capacity across departments. Veterinary participation in national conferences, conservation medicine training, clinical workshops and laboratory observer-ships supported improved understanding of wildlife medicine, surgery, diagnostics, One Health, conservation medicine and emerging issues such as the impact of manja on wildlife and ecosystems.

Subject-specific training on exotic bird and reptile management helped improve understanding of incubation, seasonal care and monsoon preparedness. Avian-focused webinars on finches, avian propagation and preventive health supported better species-level knowledge for bird management, breeding and preventive care. The session on strategic animal behaviour introduced the team to training approaches adapted from working-dog systems, with relevance to zoo animal training, behavioural observation, consistency and handler discipline.

The Train-the-Trainers Keeper Instructor Course was a significant step towards building long-term internal capacity. By preparing selected staff members to become future in-house trainers, the programme supported a more sustainable system of knowledge transfer, improved consistency in husbandry practices, and strengthened the link between staff development, animal welfare and operational excellence.

Fire and safety training enhanced emergency preparedness among staff, while public interaction training improved communication between frontline personnel and visitors. Security training strengthened the role of security personnel beyond routine surveillance by including CCTV operation, radio communication, parade discipline and animal footprint detection, all of which are important for safety, coordination and early detection of free-ranging wildlife movement within the zoo landscape.

11. Zoo Monitoring Committee

The Government of Gujarat constituted the Monitoring Committee for Sardar Patel Zoological Park vide Government Resolution No. UDUHD/MSM/efile/18/2023/7325/L dated 28 July 2023. The Committee provides guidance on institutional development, animal management, infrastructure, conservation education, compliance, visitor facilities, staffing and long-term planning of the zoo.

Sr. No.	Name	Designation
1	Sh. Bharat Pathak, IFS (Rtd.)	Chairman
2	Chief Executive Officer, SoUADTGA	Member
3	Member Secretary, GZRRCS	Member
4	Director, Sardar Patel Zoological Park	Member
5	Addl. Director, Sardar Patel Zoological Park	Member
6	Accountant, GZRRCS	Member
7	Deputy Conservator of Forests, Kevadia Forest Division	Member Secretary

Monitoring Committee Proceedings

The Fifth Meeting of the Monitoring Committee of SPZP was held on **26 November 2025**. The meeting reviewed the progress of the institution across key areas, including infrastructure development, animal management, veterinary services, conservation education, research, digital systems, staffing, visitor amenities, financial planning and compliance with Central Zoo Authority guidelines.

Prior to the formal meeting, the Chairman and Committee members conducted a detailed field inspection of zoo facilities, animal enclosures, visitor areas, education infrastructure and operational support systems. The field visit provided the Committee with an opportunity to review developments on site and assess practical requirements for further strengthening the zoo.

Infrastructure Development and Visitor Amenities

The Committee reviewed the infrastructure upgrades undertaken across the zoo during the year. These included development and redesign of animal enclosures, decentralised kitchens, veterinary facilities, patrol roads, shade structures, visitor resting areas, signage systems and thematic landscaping. The Committee recommended further strengthening of visitor comfort through additional covered walkways, shaded queue areas, improved illumination in sensitive zones, better visitor circulation and the creation of immersive nature-based rest spaces.

Animal Management and Collection Planning

The revised Animal Collection Plan and ongoing animal acquisition and exchange proposals were reviewed in accordance with CZA norms. The Committee appreciated the progress made in chimpanzee quarantine management, enrichment planning, species integration and enclosure modification. It also advised that future animal management planning should be supported by detailed ethological studies, improved thermal management, stronger predator-proofing measures and careful scientific planning for collection development.

Veterinary Care and Research Advancement

The Committee reviewed the progress made in veterinary infrastructure, diagnostics, disease investigation, laboratory strengthening and clinical management. The operationalisation of the MoU with Kamdhenu University was acknowledged as an important step towards improving academic collaboration and clinical learning. The Committee also appreciated the growing research culture within the zoo, including publications, parasitological studies, disease surveillance and advanced diagnostic work. Recommendations were made for structured veterinary research planning, standardised reporting systems and improved scientific documentation.

Education, Research and Outreach

The expansion of conservation education and experiential learning programmes was reviewed, including internships, docent initiatives, interpretation activities, biodiversity documentation and educational workshops. Preparatory work on the SPZP Education Plan and Research Plan was discussed, along with proposals for curriculum-linked learning programmes aligned with the National Education Policy. The Committee also recommended the development of a dedicated museum and educational repository for preserved specimens and biological artefacts to support interpretation, public awareness, research and training.

Digital Transformation and Institutional Systems

The Committee reviewed the implementation of the Antz animal management software system for real-time monitoring of animal inventory, health records, laboratory data, enrichment activities and husbandry operations. The ongoing development of the independent zoo website and digital visitor information systems was also discussed. Further integration of digital dashboards, QR-based record systems and modern reporting mechanisms was encouraged to strengthen institutional management and visitor engagement.

Governance, Staffing and Compliance

The Committee discussed staffing requirements, cadre restructuring, service rules, statutory committees and long-term workforce planning in line with the needs of a modern zoological institution. Progress on multiple CZA compliance conditions was reviewed, including the master layout plan, interpretation infrastructure, boundary strengthening, staff training and visitor facilities. The Committee emphasised timely completion of pending compliance measures and the need for structured follow-up mechanisms.

Security, Sustainability and Visitor Management

Advancements in surveillance infrastructure, crowd management, emergency preparedness and perimeter security were reviewed. The Committee recommended strengthening conflict-prevention measures, visitor movement planning and shaded pedestrian infrastructure.

Sustainability initiatives such as plastic bottle reduction, composting, biodiversity mapping and environmentally responsible landscape management were also discussed as important components of long-term zoo operations.

Finance and Operational Planning

The revenue and expenditure position of the zoo for the financial year 2025–26 was reviewed. The Committee acknowledged the operational investments being made towards animal welfare, infrastructure enhancement, staffing, visitor amenities and conservation-oriented development. Discussions were also held on long-term financial planning, capital expenditure management, visitor services and operational sustainability.

Overall, the Committee appreciated the progress made by SPZP and advised continued focus on animal welfare, scientific management, visitor comfort, conservation education, staff capacity, digital systems and compliance-based institutional development.



Committee members reviewing facilities and documentation during the zoo inspection.



Committee members examining educational specimens and interpretation material.



Hands-on training workshops on wildlife and zoo management were well appreciated by the committee.



Veterinary hospital and surgical facility upgradation reviewed during the committee visit.

12. Zoo Veterinary Health Advisory Committee

The Zoo Veterinary Health Advisory Committee (ZVHAC) of Sardar Patel Zoological Park has been constituted in compliance with Central Zoo Authority guidelines to provide structured expert guidance on veterinary governance, preventive healthcare, disease surveillance, biosecurity, clinical practices and animal health management.

The Committee serves as an advisory platform for reviewing veterinary operations, strengthening diagnostic and clinical systems, and guiding the zoo on matters requiring multidisciplinary veterinary and scientific input. It also supports collaboration with academic institutions, government veterinary departments and specialised laboratories, while ensuring that broader veterinary priorities are reviewed in a structured and periodic manner.

Sr. No.	Name	Designation
1	Dr. P. H. Tank Vice Chancellor, Kamdhenu University, Anand-388001	Chairman
2	Dr. Ushma Patel, Zoo Veterinary Officer, Sardar Patel Zoological Park, Ekta Nagar	Member and Convener
3	Prof. (Dr.) V. S. Dabas, Department of Veterinary Surgery, College of Veterinary Science and Animal Husbandry, Navsari, Kamdhenu University	Member
4	Prof. (Dr.) I. H. Kalyani, Department of Veterinary Microbiology, College of Veterinary Science and Animal Husbandry, Navsari, Kamdhenu University	Member
5	Deputy Director of Animal Husbandry, District Narmada, Gandhi Chowk, Vadia Road, Rajpipla	Member
6	Dr. Chetan Patond, Curator, Sardar Patel Zoological Park, Ekta Nagar	Member
7	Ms. Akanksha Mukherjee, Curator, Sardar Patel Zoological Park, Ekta Nagar	Member
8	Dr. Yash Bhate, Veterinary Pathologist, Sardar Patel Zoological Park, Ekta Nagar	Member
9	Dr. Diksha Dhanwani, Veterinarian, Sardar Patel Zoological Park, Ekta Nagar	Member

Permanent Invitees

Sr. No.	Name
1	Mr. Bipul Chakrabarty, Director, Sardar Patel Zoological Park, Ekta Nagar
2	Mr. Soham Mukherjee, Adl. Director, Sardar Patel Zoological Park, Ekta Nagar
3	Dr. Dhruv Prajapati, Biologist, Sardar Patel Zoological Park, Ekta Nagar

Meetings during the Reporting Year

The Zoo Veterinary Health Advisory Committee met two times during the reporting year on 25th Jul & 15th Dec 2025. During these meetings, the Committee reviewed the functioning of the veterinary team, progress in veterinary infrastructure, diagnostic capabilities, preventive healthcare, clinical case management, disease surveillance, biosecurity systems, research planning and training requirements.

Interesting and challenging clinical cases were presented before the Committee for expert discussion. The members provided practical guidance on diagnostics, treatment planning, laboratory strengthening, antibiotic sensitivity testing, preventive care and documentation. Action Taken Reports were reviewed during subsequent meetings to ensure follow-up on major recommendations.

Key Areas Reviewed and Actions Taken

1. Veterinary Diagnostics and Laboratory Strengthening

The Committee reviewed the strengthening of the Disease Investigation Laboratory and the expansion of in-house diagnostic capacity. Advanced diagnostic equipment, including microscopes, incubators and analysers, was procured and installed, with further procurement planned as per requirement.

Microbiological protocols were standardised, including the use of enriched media such as Brain Heart Infusion media and Blood Agar. The Committee also advised wider adoption of system-specific antibiotic sensitivity testing discs to support more precise therapeutic decisions. In-house sample processing increased during the year, while specialised testing continued to be outsourced to appropriate external laboratories where required. This combination of in-house and external diagnostic support helped improve clinical decision-making and disease surveillance.

2. Disease Surveillance, Preventive Healthcare and Biosecurity

The Committee reviewed vaccination, deworming and routine health-monitoring protocols across species. Strengthening of preventive healthcare remained a major focus, with emphasis on pathogen profiling, revised inoculation protocols, quarantine systems, disinfection practices and waste-management procedures.

The Committee recommended annual zoonotic screening of zoo personnel for priority risks such as tuberculosis, brucellosis, leptospirosis and campylobacteriosis, along with faecal examination where required. Reinforcement of personal protective equipment use, especially during reptile handling and high-risk veterinary procedures, was also emphasised.

3. Clinical Management and Case Documentation

The Committee noted improvement in clinical case handling, surgeries, immobilisations, diagnostics and follow-up care. Selected case-specific management plans were discussed, including long-term monitoring of chronic or complex conditions.

The Committee recommended systematic documentation of noteworthy clinical cases for training, internal learning and possible publication. Greater use of rapid diagnostics and point-of-care testing was also encouraged to support timely treatment decisions.

4. Data Management, Research and Publications

The Committee advised that veterinary records should be compiled and analysed periodically to support clinical review, preventive planning and scientific publication. A standardised quarterly data-presentation format was recommended, covering clinical cases, diagnostic findings, Disease Investigation Laboratory outputs, treatment outcomes and major health trends.

Research planning was discussed in relation to microbial classification, pathogen mapping, biochemical testing, disease surveillance and applied veterinary documentation. These recommendations are intended to support a stronger evidence-based veterinary system at the zoo.

5. Nutrition and Seasonal Management

The Committee reviewed species-specific feeding practices, enrichment-based nutrition and seasonal dietary adjustments. Summer diet modifications, winter feeding support, hydration strategies, environmental cooling and heat-stress management were discussed as important parts of preventive health.

The Committee also advised continued integration of behavioural feeding and nutritional enrichment, so that feeding practices support both physical health and natural behaviour.

6. Veterinary Infrastructure and Institutional Strengthening

Progressive enhancement of veterinary infrastructure, including the Disease Investigation Laboratory, hospital systems, medicine inventory and record-keeping practices, was reviewed by the Committee.

The Committee recommended that major veterinary equipment procurement proposals be routed through ZVHAC review or approval, so that equipment planning remains aligned with clinical need, diagnostic priorities and long-term institutional development.

7. Training, Capacity Building and Collaboration

The Committee reviewed the ongoing veterinary internship programme and noted the positive feedback received from students and participating institutions. Expansion and further structuring of veterinary training opportunities were discussed.

Periodic staff training on biosafety, standard operating procedures, sample handling, PPE use and emergency response was recommended. The Committee also encouraged continued collaboration with GZRRCS, central laboratories, academic institutions, other zoos and national-level scientific forums.

8. Governance and Operational Recommendations

The Committee recommended maintaining structured, agenda-driven quarterly meetings supported by Action Taken Reports. Physical meetings were encouraged wherever possible to improve engagement, field-level review and discussion of clinical and operational matters.

The Committee also advised that key veterinary issues should be presented selectively and strategically for expert guidance, while routine operational matters may continue to be addressed through appropriate internal channels.



Equipment upgrades in the disease investigation laboratory.



Equipment upgrades in the veterinary hospital, SPZP.



Dr. Chetan Patond teaching veterinary interns to fill pneumatic dart.



ZVHAC meeting at SPZP.

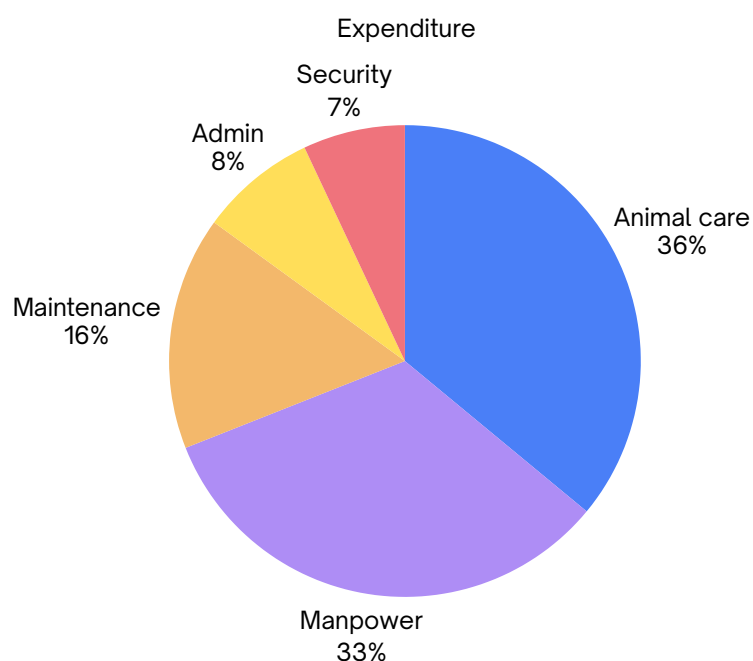
13. Statement of Income and Expenditure of the Zoo

The financial overview for the period 2025-26 is detailed below.

Revenue Generated: ₹20.02 crores

Total Expenditure: ₹19.42 crores

Expenditure Breakdown: The expenditures for this period are illustrated in the pie chart below, showing the percentage allocation across various categories.



Sr. no.	Expenditure Head	Amount in INR
1	Animal care	7,02,51,260.00
2	Manpower	6,28,75,225.00
3	Maintenance	3,17,00,549.00
4	Admin	1,52,60,559.00
5	Security	1,41,10,679.00
	Total	19,41,98,272.00

14. Daily Feed Schedules and Live Feed Culture

14.1 Daily Feed Schedules: Carnivores

Species	Group (♂/♀)	Daily ration (kg) ¹	Core meat source(s)	Weekly enrichment ²	Fasting per week
Bengal tiger	1 ♂ / 1 ♀	16 (10 ♂ + 6 ♀)	Carabeef, chicken, chevon etc. with bones (any one per day)	Quail / rabbit / day-old chicks / rodents (any one per time)	Twice
Asiatic lion	1 ♂ / 5 ♀	38 (8 ♂ + 30 ♀)			
African lion	1 ♂ / 1 ♀	16 (10 ♂ + 6 ♀)			
Indian leopard	1 ♂ / 3 ♀	8.5 (2.5 ♂ + 6 ♀)			
Jaguar	1 ♂ / 1 ♀	6 (3 ♂ + 3 ♀)			
Indian wild dog	4 (3♂ / 1♀)	6 (4.5 ♂ + 1.5 ♀)			
Indian wolf	4 (2 ♂ / 2 ♀)	6 (3 ♂ + 3 ♀)		Day-old chicks / rodents / cutlets (minced meat)	
Bat-eared fox	1 ♂	1.0 ♀ 3 boiled eggs 0.15 dog food	Boiled chicken, carabeef, rabbit, chicks and rodents	Occasional egg; prey item	No
Serval cat	2 ♂ / 1 ♀	1.35 kg meat mix (+ 3 eggs)	Chicken, dry cat food, dry cat food and boiled egg	Cutlet / chevon / mutton + day-old chicks/rodents (once)	No

Notes

1. Daily rations are provided as per a fixed feeding schedule and are adjusted based on species-specific requirements, individual body condition and veterinary advice.
2. Meat is provided both with and without bones, depending on the species, feeding behaviour, dental health and dietary requirement.
3. Scheduled fasting is followed for large carnivores and selected medium-sized carnivores as part of routine feeding management.
4. Serval cat and Bat-eared fox diets include smaller feed items, boiled eggs and formulated dry food components as per their dietary requirements.
5. Vitamin and mineral supplements are administered as advised by the veterinary team.
6. All feed items are inspected before feeding, and rejected or unsuitable material is not offered to animals.



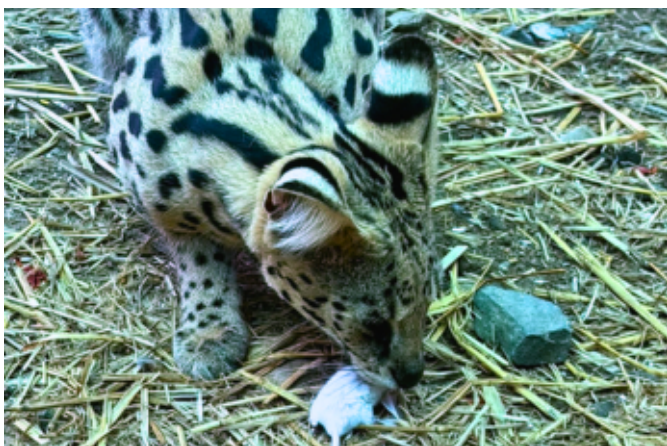
Bengal tiger consuming a buffalo rib cage to promote natural feeding behaviour and provide nutritional enrichment through skeletal muscle, connective tissue, cartilage, and bone.



Asiatic lion consuming bone-in buffalo meat to support species-appropriate nutrition, oral health, and natural feeding behaviour.



Wild dogs and wolves feeding on suspended meat to stimulate active prey-capture behaviour, respectively.



Serval consuming a whole mouse that provides a balanced species-specific nutrition while maintaining its prey drive.



Jaguars eating frozen meat as part of summer enrichment.

14.2 Daily Feed Schedules: Omnivores

Time	South American coati (per individual)	Qty	Remarks
08:00–09:00	Boiled vegetables consisting of carrot, beetroot, zucchini, capsicum, cucumber, sweet potato, pumpkin, sweet corn and green peas (rotated as required)	250 g	Vegetables are boiled and rotated for dietary diversity
12:00–01:00	Fruits consisting primarily of apple, banana, papaya, guava, grapes, pineapple, sapota, mulberry, pomegranate, orange and other locally available seasonal fruits	350 g	Fruits are provided in seasonal rotation to ensure dietary diversity
12:00–01:00	Dry cat food (complete diet)	50 g	Provides balanced nutrition and dietary supplementation
05:00–06:00	Boiled chicken, eggs, insects, cat/dog food and cat gravy (mixed omnivorous diet) (Alternate days)	100 g	Protein-rich enrichment feed supporting natural feeding behaviour
Time	Sloth bear (per individual)	Qty	Remarks
09:00–12:00	Fruits such as watermelon, apple, banana, papaya, guava, grapes, pomegranate, mango, sapota, pineapple, muskmelon and other seasonal fruits with vegetables like cucumber, carrot, beetroot, sweet potato and pumpkin. Tender coconut	3–4 kg 1-2 units	Seasonal rotation with scatter feeding to encourage natural foraging behaviour
03:00–04:00	Fresh seasonal fruit juice and live insects	Juice: 200 ml; Live insects : 100 g	Juice is offered for enrichment and training purposes. Live insects are scatter-fed to encourage natural foraging behaviour
05:00–06:00	Boiled eggs (2–3 nos.), rice/bread (0.5 kg), boiled sweet potato/pumpkin (0.5 kg), milk/curd/paneer (0.5 kg, in rotation), seasonal fruits (2 kg) and honey (100 mL)	~3.6–3.8 kg	Provides a balanced omnivorous diet with seasonal variation and nutritional diversity



South American coatis feeding together, from a puzzle feeder used to encourage active foraging and group feeding behaviour.



Fruit embedded ice popsicle treat being eaten by a Sloth bear.

14.3 Daily Feed Schedules: Herbivores

Species	Bengal gram	Antelope pellet	Green fodder	Wheat bran	GNC	Alfalfa pellet	Dry fodder/hay	Tree browse
Feeding time	Morning		Morn & eve	Afternoon				
Indian rhinoceros	1	2	100	1	1	1	5	20
Indian gaur	1	2	50	0.5	0.5	1	4	15
Wild ass	0.3	0.5	20	0.5	0.5	1	1.5	5
Spotted deer	0.1	0.5	5	-	0.2	0.2	1	2
Sambar deer	0.3	1	12	-	0.2	0.2	2	3
Chinkara	0.1	0.2	2.5	-	0.1	0.1	0.5	0.25
Blackbuck	0.1	0.2	3	-	0.2	0.2	0.2	0.5
Mixed-species Enclosure (Thamin, Himalayan goral, Barking deer, FHA)	0.1	0.2	3	-	0.2	0.2	1	2
Gemsbok	0.2	1.5	25	0.2	0.2	0.5	1	10
Plains zebra	1	2	25	0.5	0.5	0.2	1	2.5
Blue Wildebeest	0.2	1	25	0.2	0.2	-	2	2.5
Giraffe	0.5	2	40	0.5		1	2	30
Common hippopotamus	1	4	100	0.5	0.5	-	4	20

Portion mentioned per animal. Unit in KG.

Notes

- 1.Green fodder is provided twice daily (50% Morning and 50% Evening)
- 2.Mineral block and supplements are provided as per recommendations of veterinarian.
- 3.Hay, green fodder, and browse are inspected for freshness, fungal contamination and foreign material prior to feeding.



Barking deer and Himalayan goral feeding on concentrate mixture.



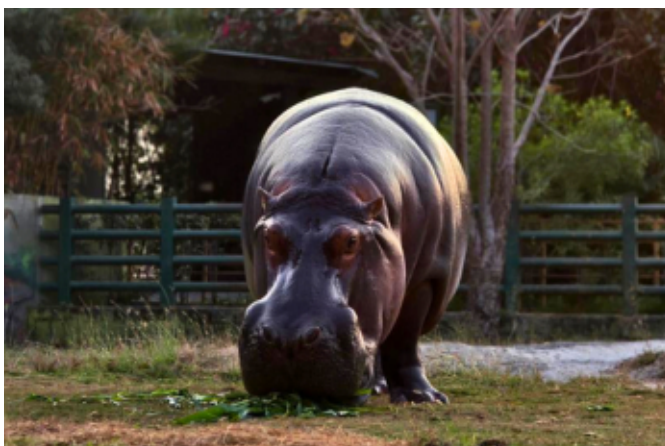
Indian gazelle foraging on hybrid napier grass.



Blackbuck feeding on peanut hay as a high-quality forage source to support fibre intake and rumen health.



Highly palatable pellets loaded into a rotational feeder to encourage food-seeking behaviour and prolong feeding activity in deer.



The hippopotamus expressing its innate evening grazing behaviour, consistent with the species' natural ecology.



Spotted deer feeding on concentrate ration fortified with essential vitamins and mineral supplements.

14.4 Daily Feed Schedules: Indian Aviary (Waterfowl, Fowls, Parakeets, Storks, Cranes and Softbill Birds)

Time	Feed (ingredients & quantity)	Remarks
06:30–07:00	Soft feed (10–11 kg) comprising soaked cereals, grains and pulses fortified with nutritional supplements including leafy greens (4 kg), seasonal vegetables (5 kg), boiled eggs with shell (0.75 kg), dry/live insects (0.6 kg), poultry feed (2 kg) and waterfowl/duck pellets (2 kg)	Cereals, grains and pulses are soaked overnight before preparation. Leafy greens are blanched and vegetables are parboiled /steamed to improve digestibility. Boiled eggs and insects provide high-quality protein, while poultry feed and waterfowl pellets ensure balanced nutrition for terrestrial and aquatic bird species
9:00–10:00	Fresh fish (40 kg) and Fresh / frozen shrimps/prawns (1 kg)	Fresh aquatic protein is provided according to species-specific dietary requirements. Fish and crustaceans support piscivorous birds and promote natural feeding behaviour
10:00–11:00	Assorted seasonal fruits (8–9 kg) including apple, papaya, guava, banana, citrus fruits, grapes, watermelon, sugarcane and other locally available seasonal fruits	Fruits are rotated seasonally to provide dietary diversity, essential vitamins, minerals and hydration
15:00–16:00	Medium parrot seed mix (2.5 kg) comprising Aviary seed mix (1 kg) and Finch seed mix (1 kg) Dry coconut (1-2 units) and mixed nuts (100 gm) Poultry feed (1.5 kg), waterfowl/duck pellets (1 kg) Combination of browse / leafy vegetables/ green fodder (2kg)	The afternoon ration encourages natural foraging behaviour and serves as environmental enrichment. Browse materials promote grazing and browsing, while poultry feed and waterfowl pellets complete the daily balanced diet



Mixed aviary birds feeding together, showing species-wise use of seed mixes in a shared feeding area.



Alexandrine parakeet feeding on a papaya slice.



Crane feeding on fresh fish, supporting natural prey-handling behaviour in water-associated birds.



Painted stork foraging in shallow water, reflecting species-specific feeding behaviour.



Pelican feeding in water, supported through provision of fresh fish in the daily diet.



Mixed feeding of peafowl and parakeets with fruits and other prepared feed items in the aviary.

14.5 Daily Feed Schedules: Exotic Aviary (Parrots, Waterfowl, Pheasants, Cranes & Other Softbills)

Time	Feed (ingredients& quantity)	Remarks	
06:30–07:00	Soft feed (20 kg total) comprising soaked /sprouted cereals, grains and pulses (3 kg), leafy greens (6 kg), seasonal vegetables (10 kg), boiled eggs (0.75 kg), dry insects /fish /shrimp (0.10 kg); along with green tea/Apple cider Vinegar water, poultry feed (4 kg) and waterfowl pellets (4 kg/day). Lori diet (30ml /lorikeet)	Grains are soaked for 24 hours prior to feeding. Leafy greens are blanched and vegetables are steamed or boiled as required. Nutritional supplements, oils and functional additives are incorporated into the morning ration to support health and immunity	
10:00–11:00	Assorted seasonal fruits (8–9 kg) including apple, papaya, guava, banana, citrus fruits, grapes, watermelon, sugarcane and other locally available seasonal fruits	Fruits are rotated seasonally to provide dietary diversity, essential vitamins, minerals and hydration	
15:00–16:00	Total seed mix (4 kg) comprising of Aviary seed mix (1 kg), Macaw seed mix (1 kg), Medium parrot seed mix (1 kg) and P15 pellets (0.5 kg); along with mixed nuts (0.5 kg) and palm nuts (0.3 kg, seasonal), Poultry feed (4 kg), waterfowl pellets (4 kg/day) and leafy vegetables (2 kg/day). Lori diet (30 ml/lorikeet)	Seed mixes and pellets support natural foraging behaviour and species-specific nutritional requirements. P15/P19-type formulated pellets are provided based on maintenance or breeding status. Poultry feed is provided for maintenance species. Leafy vegetables support gut health and dietary fibre intake	
Afternoon to Evening	Tree browses (20 kg), dry fruits (0.5 kg), commercial hand-rearing/formula feeds (as required), palm nuts (0.3 kg, seasonal) and mineral blocks (as required)	Browse and supplementary feeds provide environmental enrichment and encourage natural foraging, chewing and exploratory behaviour. Mineral blocks support micronutrient intake and skeletal health	
Time	Feed details	Toucan (per bird)	Turaco
08:00-09:00	Boiled vegetables consisting of carrot, sweet potato and green peas.	300gm	150gm
11:00-12:00	Apple, banana, papaya, guava, grapes, blueberry, mango, sapota, pineapple, muskmelon, watermelon, and seasonal fruits	250 gm	250gm
	Commercial softbill pellets (T-16)	100gm	100gm
Enrichment	Rodents (pinky mice), live/dry insects	1-2	as per schedule

14.6 Daily Feed Schedules: Ostrich & Emu Feeding Schedule (Per Individual Animal)

Time	Feed type	Ostrich (Qty per animal)	Emu (Qty per animal)	Remarks
08:00–09:00	Soft mixed diet consisting of soaked/sprouted grains and pulses (Black Bengal gram, green gram, moth beans, pigeon pea, wheat, sorghum, cowpea), combined with leafy greens, seasonal vegetables, and boiled eggs with shell for calcium supplementation	~1.0 kg total (grains & pulses 0.2 kg + leafy vegetables 0.4 kg + vegetables 0.3 kg + eggs 0.1 kg)	~0.5 kg total (grains & pulses 0.1 kg + leafy vegetables 0.2 kg + vegetables 0.15 kg + eggs 0.05 kg)	All grains/pulses are soaked or sprouted before feeding. Provides balanced morning nutrition and energy
09:00–10:00	Commercial pellet feed combined with poultry feed as energy and protein supplementation	Pellet feed 0.5 kg + poultry feed 0.5 kg	Pellet feed 0.3 kg + poultry feed 0.1 kg	Provides complete balanced nutrition; poultry feed supports energy and protein requirements
10:00–11:00	Green fodder	3.5 kg	1–1.5 kg	Supports natural grazing behaviour, gut health and digestion
12:00–13:00	Dry fodder / hay	0.4 kg	0.2 kg	Provides fibre for gut motility and fermentation-based digestion
15:00–16:00	Afternoon repeat feeding: pellet mix + poultry feed + fresh green fodder	Pellet feed 0.5 kg + poultry feed 0.5 kg + green fodder 2.5 kg	Pellet feed 0.3 kg + poultry feed 0.1 kg + green fodder 1–1.5 kg	Maintains energy levels and supports continuous foraging behaviour

Notes

1. Clean potable water is provided ad libitum throughout the day.
2. All grains and pulses are soaked or sprouted prior to feeding.
3. Feed is adjusted based on season, body condition, and veterinary recommendations.



Ostrich feeding on fresh green fodder, forming an important roughage component of their daily diet.



Blue-and-gold macaw feeding on seed mix from an elevated coconut shell bowl in the exotic aviary.



Sun conures feeding together on a mixed platter of steamed veggies and sprouts.



Galah cockatoo gnawing on an in-house developed clay block, provided to support natural beak use, mineral intake and enrichment.



Crowned crane feeding on insects from the aviary floor, reflecting natural ground-foraging behaviour.



African grey parrots feeding from a shared tray with mixed seeds and grains.



Black swans feeding from trays placed at ground level for easy access and routine monitoring.

14.7 Daily Feed Schedules: Primates

Time	Feed type	Feed details
07:00–08:00	Soaked, sprouted or steamed cereals, grains and pulses mixed with leafy greens and vegetables, supplemented with eggs, fish, lean chicken, paneer and live insects (rotational)	Ingredients are soaked/sprouted/steamed to improve digestibility. Animal protein sources are rotated for balanced nutrition and species-specific requirements
09:00–10:00	Nestum (prepared fresh with warm potable water)	Warm, easily digestible supplementary feed for hydration and gastrointestinal support. Prepared fresh before feeding
10:00–11:00	Fresh tree browse (2–3 species/day)	Major dietary component supporting natural foraging behaviour, dental health and enrichment. Browse species rotate every day
11:00–12:00	Assorted seasonal fruits	Fruits are seasonally rotated. High-sugar fruits offered in moderation
13:00–14:00	Commercial primate pellets + live insects + bread and cake (in-house)	Pellets provide balanced nutrition. Insects used for enrichment and species-appropriate protein intake (not provided to ring-tailed lemur)
16:00–17:00	Juices / hydration supplements (vegetable juice, diluted honey water, green tea, diluted ACV water)	Hydration and enrichment feed. Fresh drinking water is available ad libitum throughout the day
17:00–18:00	Porridge / Nestum	Easily digestible evening feed supporting satiety and gut health. Prepared fresh daily
Daily Enrichment	Tender coconut (group basis), browse bundles, puzzle feeders, scatter feeding, hanging feeders and seasonal enrichment items	Encourages cognitive stimulation, natural foraging behaviour and overall welfare improvement

Notes

1. Tree browse is a core diet component and is rotated every 48 hours using 2–3 safe plant species.
2. Commercial primate pellets form the main nutritional base of the diet.
3. Live insects are provided only to squirrel monkeys and capuchin monkeys as enrichment and protein supplement.



Squirrel monkeys feeding on seasonal fruits to support optimal nutrition and natural feeding behaviour.



Ring-tailed lemurs and red-handed tamarins feeding together in a mixed-species primate exhibit, demonstrating compatible cohabitation.



Tufted capuchin feeding on fresh browse provided for dietary enrichment.



Squirrel monkey enjoying a foraging challenge while retrieving dry fruit treats from an enrichment pouch made of leaves.



Tufted capuchin feeding on fresh browse, encouraging natural foraging behaviour.



Squirrel monkey exploring a feed enrichment device to retrieve insect treats.

14.8 Daily Feed Schedules: Orangutan and Chimpanzee

Time	Feed type	Chimpanzee (Qty)	Orangutan (Qty)	Remarks
07:00 – 08:00	Cooked, soft diet comprising soaked/ sprouted cereals, grains and pulses combined with seasonal vegetables and leafy greens, supplemented with animal protein sources such as eggs, chicken, paneer and insects (all cooked)	500 g	600 g	Morning energy + easily digestible soft feed
09:00 – 10:00	Fresh natural tree browse including leaves, twigs and edible branches from approved species (2–3 species rotated daily)	10 kg	10 kg	Enrichment and natural foraging support
12:00 – 13:00	Fresh seasonal vegetables and leafy greens (raw/boiled mix) providing fibre, hydration and micronutrients	500 g	600 g	High-fibre midday diet component
14:00 – 15:00	Commercial primate pellets combined with seeds and nuts for nutritional balance and enrichment feeding Bread & cake (rotational enrichment item)	200 g 300 gm	200 g 300 gm	Main balanced nutritional supplement
16:00 – 17:00	Seasonal fruits and vegetable-based juice/hydration mix (fruit rotation based on availability and sugar control)	700-800 g fruit 600 ml juice/ water	700-800 gm fruits 500 ml juice	Vitamins, hydration and enrichment feeding
17:00 – 18:00	Light evening meal consisting of porridge and flaked maize preparations for satiety and gut health	500 g	100-200 g- Once a week	Easily digestible night feed
Daily Enrichment	Environmental enrichment items including tender coconut, puzzle feeders, scatter feeding, and browsing supplements	Standard (2 coconuts + enrichment items)	Standard (2–4 coconuts + enrichment items)	Behavioural stimulation and welfare support

Portion mentioned per animal.

Notes

1. Fresh potable water is provided ad libitum throughout the day.
2. Tree browse is a mandatory daily enrichment component with species rotation.
3. Primate pellets are offered during the 02:00–03:00 PM feeding window.
4. Fruits are provided in controlled portions to manage sugar intake.
5. Diet composition is adjusted based on age, season, health status, and veterinary guidance.



Orangutan being handfed his favourite fruit as part of his recall training.



Orangutan exhibiting playful behaviour.



Chimpanzee being handfed his favourite fruit as part of his recall training.



Chimpanzee exploring a variety of fresh tree browse, reflecting its natural feeding preferences and curiosity.



Orangutan unwinding in a firehose hammock while feeding on a watermelon.



A chimpanzee carefully searching through a firehose enrichment filled with colourful browse and food rewards, showcasing cognitive engagement and selective foraging.

14.9 Daily Feed Schedules: Reptiles

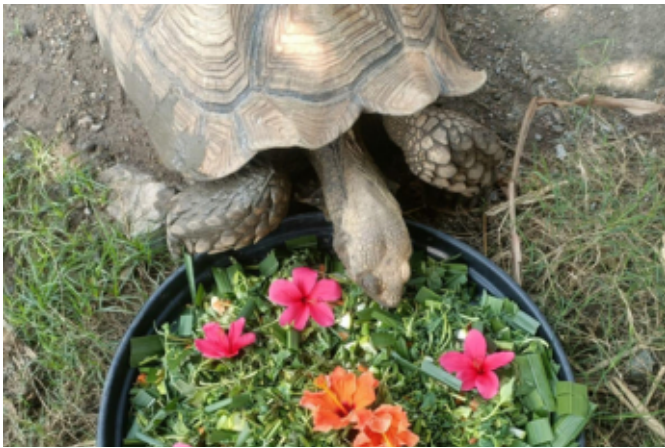
Time	Mugger crocodile – feed (ingredients & quantity)	Gharial – feed (ingredients & quantity)	Remarks
10:00–16:00	Meat (carabeef, chicken, or fish), approximately 2 kg per animal per week, offered on a rotational basis	Fresh river fish, 1–1.5 kg per animal, twice a week	Gharials are target-fed at the poolside using tongs to minimize competition and ensure individual intake.

Time	Feed Details	Red tegu and Black & white tegu	Remarks
11:00–12:00	Mixed diet consisting of vegetables, leafy vegetables, seasonal fruits, and animal-based protein such as chicken, day-old chicks, and rodents as per dietary requirement and body condition	Total feed (~250g): Vegetables & leafy greens, fruits, and animal protein (chicken, day-old chicks, rodents) as per requirement.	This is minimum recommended diet per animal; additional feed may be offered in consultation with the animal management team. Feeding quantity and frequency may vary based on weather conditions and body conditions. Calcium and multivitamin supplements provided as per veterinary protocol.

Time	Feed Details	Bengal monitor lizard	Remarks
11:00–12:00	Animal-based protein diet consisting of boneless chicken, day-old chicks, and rodents as per dietary requirement.	~200-300 g per adult animal	Feed is sometimes offered using tongs to minimise aggression and encourage natural hunting behaviour. Vitamin supplements are provided weekly as per veterinary recommendations.

Time	Feed Details	Green iguana & Rhino iguana	African Spurred tortoise	Star tortoise	Remarks
10:00–11:00	Predominantly leafy vegetables and vegetables (around 90%), with a small proportion of seasonal fruits (around 10%) and fresh browse (hibiscus, moringa, mulberry, and other approved browse species), flowers, hay, and cactus pads as per species requirement	Total feed (~500 g): Vegetables & leafy greens – 450 g, Fruits – 50 g, Browse – 50 g	Total feed (~2 kg): Leafy greens – 1.2 kg, browse – 0.4 kg, flowers – 0.2 kg, seasonal fruits – 0.1 kg, hay – 0.05 kg, cactus pads – 0.05 kg	Total feed (~320 g): Leafy greens – 100 g, browse – 60 g, flowers – 20 g, seasonal fruits – 100 g, hay – 40 g	Diet is entirely plant-based and fibre-rich. Iguanas are maintained on a 90:10 vegetable-to-fruit ratio. Browse species are rotated regularly. Calcium and multivitamin supplements are provided 2–3 times weekly.

Species	Feed	Frequency	Remarks
Rat snake, spectacled cobra, Russell's viper, corn snake, ball python	Appropriately sized rodents, mice, or day-old chicks based on species requirement and body condition	Weekly / Biweekly depending on species	Prey size is selected according to body size. Feeding is avoided during shedding, and individual food intake is recorded.
Indian rock python, green anaconda, boa constrictor	Rabbits, poultry, and large rodents based on species requirement	Weekly / Biweekly depending on species	Large prey is offered using feeding tongs. Animals are monitored until swallowing is complete, and feeding is avoided during shedding.



African spurred tortoise feeding on an assortment of grasses, leafy vegetables, flowers and timothy pellets.



Ball python feeding on a zoo-bred rat.



A mixed salad of leafy greens and finely chopped vegetables for green iguanas



Corn snake feeding on a zoo-bred mouse.



Mugger crocodile eating carabeef.



Gharial consuming a fresh fish, reflecting its natural diet.

14.10 Live Feed Culture: Rodents and Insects

The live-feed section at SPZP supports animal nutrition, enrichment and species-specific feeding practices for carnivores, omnivores, insectivores, reptiles, birds and small mammals. Maintaining live-feed cultures within the zoo gives the animal management team better control over hygiene, feed quality, breeding cycles, prey size, availability and biosecurity, while reducing dependence on external suppliers.

The section maintains both rodent and insect cultures. These are used not only as part of routine diets, but also for appetite stimulation, natural foraging behaviour, feeding enrichment, training rewards, recovery support in selected clinical cases and education-related demonstrations where appropriate. The practices followed are based on routine zoo experience, published in-house protocols and practical refinements made by the animal care team.

Rodent Culture

Rodent husbandry in the live-feed section is based on consistent feeding, strict hygiene, careful breeding management and daily welfare checks. Rats and mice are maintained in controlled conditions to ensure that the animals used for feeding are healthy, clean and of appropriate size. Rodents are housed in boxes measuring 430mm X 270mm X 150mm with stainless steel lid.

Diet and Feeding

Steamed mix of vegetables and sprouts is provided daily in the morning. The leftover feed is removed to prevent spoilage, fungal growth and pest attraction. Veterinary-recommended supplements are added to their daily diet.

Rodent pellets are made available throughout the day and night. This supports regular feeding and also helps maintain dental health, which is important in continuously growing rodent dentition.

Water and Bedding Hygiene

Clean drinking water is provided through water bottles, which are checked and refilled daily. Bedding is inspected daily. On average, bedding is changed at least once a week to maintain a dry and hygienic environment.

Cages are cleaned and disinfected on a scheduled rotation. Dead animals, if any, are removed immediately. The rodent room is maintained at approximately 24–25°C temperature and 40–50% humidity with the help of air-conditioning, coolers or heaters, depending on seasonal requirement.



Breeding/holding cage for rats.



Breeding/holding cage for mice.

Breeding and Pup Care

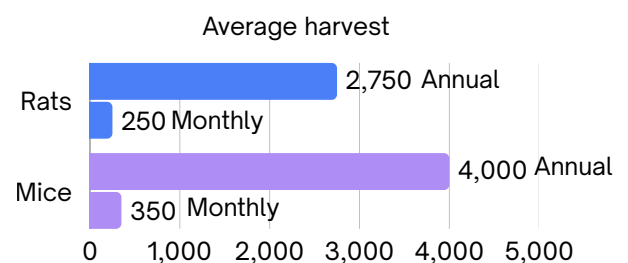
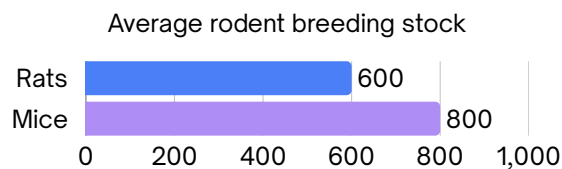
Bedding used is a deep litter system with a mixture of corncob and aspen wood chips. Daily scooping of faecal matter and urine-soaked areas is carried out. The entire bedding is changed on a weekly basis.

Rats and mice are generally maintained in breeding trios, with one male and two females. Wherever possible, one experienced mother is included in the breeding group. This system supports better breeding results and allows some social support in pup care. Pups are checked daily to ensure that they are being fed and cared for. Pregnant females and litters are managed carefully to reduce stress and avoid unnecessary disturbance. Males are separated from pregnant females and litters where required to prevent stress, injury or unintended breeding.

Health Monitoring and Record Keeping

Animals are observed daily for signs of illness, injury, abnormal behaviour, poor body condition, poor maternal care or aggression. Sick or injured individuals are isolated and managed as required. Records are maintained for stock, breeding, mortality, distribution and seasonal changes in diet or husbandry. They are regularly checked for endoparasites and ectoparasites. Supplements, deworming and ectoparasite control are carried out regularly. The animals are isolated for the medicine withdrawal period and used as feed only after completion of this period.

Staff involved in rodent management are trained in safe handling, sexing, identification of pregnancy, maternal behaviour, cage hygiene and humane management practices.



Dedicated rodent culture room with rack-based cage arrangement, maintained for organised breeding, and stock management.



Rodent breeding and holding cages arranged on labelled racks to support routine monitoring, feeding, cleaning and stock rotation.

Insect Culture

The insect culture section maintains a range of feeder insects for reptiles, amphibians, birds, small mammals and selected omnivorous species. Insects are used as part of routine diets, enrichment schedules and training rewards. They are particularly useful in encouraging natural hunting, foraging, probing, digging and prey-search behaviours. The section currently maintains red runner roaches, lobster roaches, dubia roaches, crickets, mealworms, superworms and waxworms. Across these cultures, the basic management principles include species-specific feeding, moisture control, substrate management, hygiene, timely separation of life stages, pest control and careful record keeping. Fresh fruits or vegetable slices are provided according to the requirement of each culture and population size. Protein-rich dry feeds such as powdered dog/cat kibble and fish pellets are provided. Old food is removed daily to prevent mould, souring, secondary pests and colony loss.

Roach Culture

Red runner roaches, lobster roaches and dubia roaches are maintained in breeding containers with egg crates to increase vertical surface area, hiding space and usable microhabitats. This arrangement supports natural aggregation behaviour and better use of space.

During monsoon, watery fruits are reduced or avoided where they create excess moisture. Dry feed is managed carefully and replaced when required to reduce fungal growth and waste accumulation. Cultures are inspected regularly, and colonies are divided when overcrowding is observed. This helps maintain breeding efficiency, hygiene and long-term colony stability.



Roach culture container with egg-carton hides, feed and moisture sources, supporting aggregation behaviour, shelter and active colony growth.



Wooden roach culture box with mesh-covered lids, designed to provide ventilation while allowing secure containment and routine monitoring.



Interior view of a wooden roach culture box.



Labelled roach culture containers.

Cricket Culture

Cricket culture is managed with close attention to moisture, ventilation, size separation and prevention of drowning in early stages. Breeding containers are marked with the date of introduction of egg-laying trays. Egg-laying trays are misted as required to keep them moist but not drenched. These trays are removed from the breeding set-up around day 7–10, depending on the density of eggs laid in the substrate.

Freshly hatched (pinheads) crickets are maintained separately in a cool, dry and clean environment. During the first ten days, apple pieces are offered as a safe moisture source. Dry feed and water trays are introduced later, once the young crickets are less vulnerable to stickiness and drowning. This practice follows the principle that smaller crickets require careful moisture management and should not be exposed to deep water sources.

The culture uses hiding structures such as egg cartons and labelled containers to help manage different size classes. This makes harvesting easier and ensures that animals receive appropriately sized feeder insects.



Cricket culture container with egg-carton hides, feed and moisture sources, providing surface area, shelter and access to food while reducing overcrowding and stress within the colony.



Labelled culture containers arranged on dedicated racks, allowing size-wise management, scheduled monitoring and organised harvesting of feeder crickets.



Egg-laying trays placed within the cricket breeding container to support controlled oviposition and facilitate timely transfer of eggs for separate incubation.



Wooden cricket culture box designed with smooth laminated inner surfaces and an additional white plastic barrier to prevent escape, while allowing placement of hides, feed and moisture sources for colony establishment.

Mealworm and Superworm Culture

Mealworms and superworms are managed through regular feeding, moisture control and careful handling of different life stages. Thin slices of vegetables such as carrot, beetroot, cucumber, potato and sweet potato are offered daily as a moisture source, and day-old vegetable pieces are removed before fresh items are provided. Plastic crates are size 600mm x 400mm x 125mm.

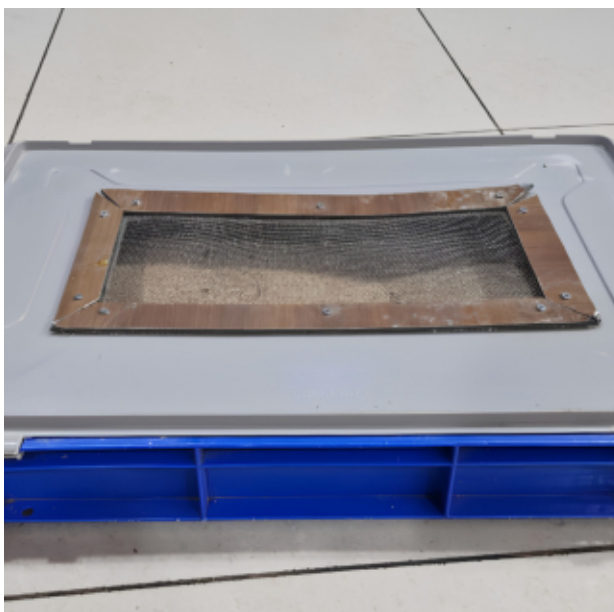
Beetles are returned to mother cultures to support continuation of the life cycle. Substrate from beetle boxes is handled carefully and not filtered unnecessarily, as it may contain eggs or very small larvae. Isolated larvae and pupae are monitored and newly formed beetles are transferred promptly to the mother culture.



Mealworm and superworm culture container with substrate, egg-carton hides and vegetable slices provided as a moisture source.



Larval culture showing healthy mealworm/superworm growth within the substrate, maintained through regular feeding and moisture control.



Ventilated culture tray lid with fine mesh covering, designed to allow airflow while preventing escape and contamination.



Labelled mealworm and superworm culture trays arranged on racks for organised monitoring, life-stage management and stock rotation.

Waxworm Culture

Waxworms, the larval stage of the greater wax moth *Galleria mellonella*, are maintained as part of the zoo's live-insect portfolio. They are highly palatable and energy-dense, and are used carefully as appetite stimulants, recovery support for underconditioned animals, high-value training rewards and occasional enrichment items.

The waxworm culture is maintained using a wheat-bran and honey-based substrate adjusted to a crumbly, slightly sticky texture. The substrate is kept open enough to allow larval movement and aeration. The published protocol developed from zoo practice found that wheat bran mixed with honey was more stable than oat-honey mixtures, which were more prone to mould and clumping. Breeding jars and tanks are maintained with suitable ventilation and reduced disturbance. Egg cartons and similar structures are used to provide surface area for larvae, pupae and adult moths. Substrate is topped up when adult moths have completed their cycle and small larvae are observed. Larger larvae are shifted to bigger tanks once they cross approximately 5 mm.

During monsoon, the substrate is kept drier and cultures are watched closely for moisture accumulation, mould and secondary pests.



Late-instar larva of the greater wax moth. The creamy-white, soft-bodied waxworm with a brown head capsule is the life stage typically used as a feeder insect and for in-house culture.



Fresh culture tank with newly prepared wheat-bran-honey substrate and young larvae for optimum growth.



Completed jar cover assembly. A breathable cloth layer is placed over the jar mouth and secured with the perforated lid and a foil cover with pinholes. This combination maintains darkness and prevents entry of other insects while still allowing adequate ventilation.

Record Keeping and Pest Control

All culture containers, trays, pinhead boxes and transfers are labelled with dates. Daily logs are maintained for distribution, culture movement, stock status, mortalities and observations. Immediate action is taken if secondary pests such as buffalo beetles, rice weevils, ants, micro-flies or mites are detected.

The culture room is monitored regularly for hygiene, ventilation, temperature, moisture and overcrowding. Population division is carried out when required to maintain productivity and reduce losses.

Sr. no.	Species	Number of harvest containers	Mother cultures	Feed for
1	Red runner roaches	40	6	Sloth bear, cranes, pheasants, squirrel monkey, red-handed tamarin, capuchin, cotton-top tamarin, coati, rhino iguana, etc.
2	Lobster roaches	30	3	
3	Dubia roaches	2	2	
4	Mealworms	20	5	
5	Superworms	28	10	
6	Waxworms	4 tanks	12 jars	
7	Crickets	25	5	

Mixed live insects harvested daily: 1.5 kg

The live-feed section remains closely linked with animal nutrition, enrichment, veterinary care and keeper observations. Feeders are selected according to species, size, clinical condition, diet plan and behavioural objective. This allows the zoo to use live feed not simply as food, but as a practical tool for supporting natural behaviour, welfare and responsive animal care.

15. Veterinary Diagnostics and Preventive Health

15.1 Disease Investigation Laboratory

The Disease Investigation Laboratory at Sardar Patel Zoological Park plays an important role in preventive healthcare, clinical diagnosis, disease surveillance, quarantine support, post-mortem investigation and evidence-based veterinary management. During the reporting year 2025–26, the laboratory supported the veterinary team through in-house diagnostic processing as well as coordinated sample submission to external laboratories for specialised testing.

The laboratory's work included routine faecal screening, haematology, serum biochemistry, blood smear examination, rapid tests, cytology, urinalysis, microbiology, antibiotic sensitivity testing, histopathology, molecular diagnostics, feed analysis, vaccine titre assessment, hormone assays and DNA-based sexing. These diagnostic inputs helped guide treatment decisions, preventive health schedules, quarantine protocols, nutritional management, reproductive planning and case documentation.

External Laboratories Used

Specialised testing was outsourced to appropriate laboratories depending on the type of sample, diagnostic requirement and technical expertise required. The laboratories used during the reporting year included:

1. Dhirubhai Ambani Wildlife Research Laboratory, Jamnagar
2. ICAR–Indian Veterinary Research Institute, Bareilly, Uttar Pradesh
3. Vanbandhu College of Veterinary Science and Animal Husbandry, Navsari
4. Centre for Cellular and Molecular Biology, Hyderabad
5. Gujarat Veterinary Research and Diagnostic Centre, Ahmedabad
6. Glorious Exotica Laboratory, Pune

In-house Diagnostic Processing

During 2025–26, a total of 1,853 diagnostic tests and sample examinations were processed in-house by the Disease Investigation Laboratory.

Sr. no.	Test/ Sample type	Quantity
1	Faecal sample examination	826
2	Haematology	176
3	Serum biochemistry	152
4	Rapid tests	218
5	Microbial culture	186
6	Antibiotic sensitivity test	36
7	Antifungal sensitivity test	7
8	Cytology	36

Sr. no.	Test/ Sample type	Quantity
9	Urinalysis	17
10	Blood smear examination	168
11	Bacterial biochemical testing	3
12	Histopathology	28
	Total	1,853

Faecal sample examination formed the largest component of in-house testing and supported routine parasite surveillance, deworming decisions and health monitoring across animal sections. Haematology, serum biochemistry, blood smear examination and rapid tests contributed to clinical case management and treatment monitoring. Microbial culture and sensitivity testing helped guide more targeted antimicrobial therapy.

Outsourced Diagnostic Testing

A total of 368 specialised tests were outsourced to external laboratories during the reporting year.

Sr. no.	Test/ Sample type	Quantity
1	DNA-based sexing	105
2	Polymerase Chain Reaction	142
3	Microbial culture	20
4	Antibiotic sensitivity test	8
5	Hormone assay	7
6	Vaccine titre test	31
7	Serum biochemistry	31
8	Feed analysis	18
9	Heterozygosity / karyotyping	4
10	Histopathology	2
	Total	368

Outsourced testing strengthened the zoo's access to molecular diagnostics, genetic testing, reproductive assessment, vaccine response evaluation and advanced pathology. These submissions also supported decision-making in cases where specialised facilities or confirmatory testing were required.

Diagnostic Summary for 2025–26

Category	Number of tests/ samples
In-house diagnostic processing	1,853
Outsourced diagnostic testing	368
Total diagnostic and analytical work	2,221

Notable Histopathology Findings

Histopathology continued to be an important tool for disease investigation, post-mortem diagnosis and clinical documentation. The following notable findings were recorded during the reporting year:

Sr. no.	Species	Diagnostic Finding
1	Indian leopard (<i>Panthera pardus fusca</i>)	Rhabdomyosarcoma
2	Red tegu (<i>Salvator rufescens</i>)	Myonecrosis
3	Four-horned antelope (<i>Tetracerus quadricornis</i>)	Hepatocellular necrosis
4	Silver pheasant (<i>Lophura nycthemera</i>)	Splenic haemangiosarcoma

The Indian leopard case showed histomorphological features consistent with rhabdomyosarcoma, including proliferating neoplastic spindle cells, anisocytosis, anisokaryosis, multinucleated giant cells and frequent mitotic figures. The red tegu case showed a well-formed degenerative lesion in skeletal muscle, with preserved tissue architecture but cellular features indicative of necrosis. In the four-horned antelope, liver sections showed multifocal hepatocellular degeneration and necrosis, while the silver pheasant case showed effacement of splenic architecture by infiltrative vascular tissue consistent with haemangiosarcoma.

Parasitology and Faecal Screening

Routine faecal screening and parasitological examination supported parasite monitoring across mammalian, avian and reptilian taxa. The laboratory documented a range of endoparasitic findings during the year, including nematode ova, protozoan stages, cestode ova and blood parasite observations.

Representative findings included:

Sr. no.	Findings	Host/ Sample source
1	Pentastomid adults and ova	Mugger crocodile (<i>Crocodylus palustris</i>)
2	<i>Trichuris</i> spp. / whipworm-type ova	Blackbuck (<i>Antelope cervicapra</i>)
3	<i>Capillaria</i> spp.	Channel-billed toucan (<i>Ramphastos vitellinus</i>)
4	<i>Choanotaenia</i> spp.	Bengal monitor (<i>Varanus bengalensis</i>)
5	<i>Eucoleus</i> spp.	Russell's viper (<i>Daboia russelii</i>)
6	<i>Enterobius</i> / oxyurid-type ova	Sloth bear (<i>Melursus ursinus</i>)
7	Oxyurid-type ova	Corn snake (<i>Pantherophis guttatus</i>)
8	<i>Heterakis gallinarum</i>	Indian peafowl (<i>Pavo cristatus</i>)
9	<i>Hepatozoon</i> spp.	Spectacled cobra (<i>Naja naja</i>)
10	<i>Ancylostoma</i> spp.	Asiatic lion (<i>Panthera leo persica</i>)
11	<i>Strongyloides</i> spp.	Indian rock python (<i>Python molurus</i>)
12	<i>Toxocara</i> spp.	Asiatic lion (<i>Panthera leo persica</i>)
13	<i>Pharyngodon</i> spp.	Green iguana (<i>Iguana iguana</i>)

Pentastomid adults and ova recovered from a mugger crocodile sample were of particular diagnostic and biosecurity interest. The ova showed thick-shelled, oval to ellipsoidal morphology, while the adult showed a hook-mouth apparatus typical of pentastomids. Such findings are important from both reptile health and zoonotic-risk perspectives, and reinforce the need for routine faecal screening, PPE use and appropriate hygiene practices during reptile management.

Selected histopathology and parasitology findings from the reporting year are provided as representative diagnostic plates in **Annexure 2: Selected Diagnostic Findings from the Disease Investigation Laboratory**. These plates illustrate the range of diagnostic work undertaken by the laboratory and support the sample summary presented in this chapter.

Microbiology and Antibiotic Sensitivity Testing

Microbiological examination was carried out using appropriate culture media, staining and biochemical methods. Samples were processed using media such as Brain Heart Infusion agar, Eosin Methylene Blue agar, MacConkey agar, Salmonella–Shigella agar and Mannitol Salt Agar, depending on the diagnostic requirement.

One representative case involved microbiological examination of a vaginal swab from an adult female Bengal tiger (*Panthera tigris tigris*). Microscopic examination showed Gram-negative bacilli, followed by biochemical testing and antibiotic sensitivity testing using the Kirby–Bauer method. The findings helped narrow suspected bacterial groups and supported informed antimicrobial selection.

Antibiotic sensitivity testing was used to guide therapeutic decisions and reduce empirical or unnecessary antimicrobial use. This is particularly important in zoo medicine, where treatment decisions must consider species-specific drug safety, animal handling limitations, antimicrobial stewardship and the need for timely clinical response.

Role of the Laboratory in Zoo Health Management

The Disease Investigation Laboratory supported multiple areas of zoo health management during the year, including:

Sr. no.	Area supported	Diagnostic contribution
1	Preventive health	Faecal screening, vaccine titre testing and routine surveillance
2	Clinical case management	Haematology, biochemistry, rapid tests, cytology and microbial testing
3	Quarantine and biosecurity	Screening of new, rescued or clinically suspect animals
4	Nutrition and feed management	Feed analysis and health-linked diet assessment
5	Reproductive management	Hormone assays and DNA-based sexing
6	Post-mortem investigation	Histopathology, microbiology and disease investigation
7	Research and documentation	Diagnostic records, notable case documentation and publication support

Detailed representative diagnostic plates, including selected histopathology findings, parasitology observations and pentastomid recovery from mugger crocodile in **Annexure 2**.

15.2 Vaccination Schedule of Animals

Vaccination is carried out as per species-specific requirements and veterinary recommendations. Animals are vaccinated annually or as per vaccine titre results and risk assessment. The following vaccination schedule was followed during the reporting year.

Sr. no.	Taxa	Vaccination against	Vaccine Brand / Product Used
1	Felines	Feline panleukopenia, feline calicivirus, feline rhinotracheitis, canine parvovirus, canine distemper and rabies	Biofel PCHR; Nobivac Puppy DP
2	Canines and coati	Canine distemper virus, canine adenovirus, canine parvovirus, parainfluenza, leptospirosis, rabies and canine coronavirus	Vencomax 11; Vanguard Plus 5L4CV; Nobivac ARV; DAPP-L4, CV
3	Primates including apes	Rabies and tetanus toxoid; other vaccination as per veterinary advice	Nobivac ARV; Covaxin; Bett Tetanus Vaccine
4	Ursids	Leptospirosis and rabies	Bioclan DHPPiL4R
5	Indian birds	Newcastle disease and infectious bursal disease	LIVE LAS Hester; Venworld IBD Vaccine LIVE IP
6	Ratites	Newcastle disease	LIVE LAS Hester
7	Herbivores	Foot and mouth disease, haemorrhagic septicaemia and black quarter	Raksha Triovac; Raksha Ovac
8	Mega-herbivores	Tetanus toxoid	Bett Tetanus Vaccine

Notes

1. Raksha Triovac was used for Indian gaur.
2. Raksha Ovac was used for sambar deer.
3. Vaccination schedules may be modified based on disease risk, quarantine requirements, movement history, reproductive status and veterinary recommendations.



Vaccination with BiofelPCHR in an African lion.



Vaccination with Nobivac Puppy DP in an Indian leopard.

16. Deworming Schedule and Ectoparasite Control

Deworming is carried out quarterly or as per faecal sample screening results. The choice of anthelmintic is based on animal group, body weight, parasite load, faecal examination findings and veterinary assessment. Drugs may be used alone or in combination as required.

Sr. no.	Taxa	Medicine Recommended	Common Trade Names / Product Used	Month
1	Carnivores	Praziquantel, pyrantel pamoate, fenbendazole, doramectin, selamectin, milbemycin, afoxolaner and other suitable drugs	Kiwof, Kiwof Plus, Kiwof for Cat, Kick Tape, Milpro, Canworm, NexGard, Bravecto, Dectomax, Radicate, Selaforce	June 2025; October 2025; January 2025
2	Herbivores	Albendazole, fenbendazole, doramectin, praziquantel, triclabendazole, levamisole hydrochloride and oxclozanide	Fendikind, Fendikind Plus, Hitek, Panacur, Albomar, Zykon-L, Fasidec	July 2025; November 2025; April 2026
3	Birds	Praziquantel, oxfendazole, fenbendazole, ivermectin, amprolium and other suitable drugs	Wormout Gel, Hitek, Amprolium, Canworm	May 2025; September 2025; December 2025
4	Primates	Albendazole, fenbendazole, pyrantel pamoate and metronidazole	Nemocid, Albomar, Metro, Canworm	April 2025; September 2025; January 2026
5	Omnivores	Praziquantel, pyrantel pamoate, fenbendazole and ivermectin	Kiwof, Canworm, Hitek	June 2025; October 2025; January 2025
6	Reptiles	Fenbendazole and praziquantel	Canworm, Tenidur	May 2025; September 2025; February 2026

Ectoparasite control

1	All taxa	Fluralaner, afoxolaner, fipronil, S-methoprene, selamectin, amitraz 12.5%, deltamethrin 1.25%, ivermectin and doramectin	Bravecto, NexGard, Selaforce, Spot-on, Butox, Amitraz, Hitek, Dectomax
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Frequency of deworming: Quarterly or as per faecal sample screening results.

Frequency of ectoparasite control: Pre-monsoon, followed by need-based treatment during the rest of the year. Choice of ectoparasite is as per veterinarian recommendation.

17. Cleaning and Disinfection of Animal Areas

Routine cleaning and disinfection are carried out in feeding cubicles, housing areas, kraals, management areas and open paddock areas. The objective is to reduce pathogen load, prevent disease transmission, maintain hygiene and support safe animal management.

The following routine measures are followed:

Sr. no.	Cleaning / Disinfection Activity	Frequency / Remarks
1	Spot cleaning of leftover feed, faecal matter and visible organic material	Daily
2	Cleaning of feeding cubicles, housing areas and kraals using pressurised water	
3	Scrubbing of floors using detergent	
4	Cleaning of feeding troughs, watering troughs and utensils using detergent	
5	Air drying or sun drying of feeding and watering utensils	
6	Disinfection of all animal management areas	Once a week
7	Complete cleaning of ponds using detergent	Once a week
8	Whitewashing of ponds with lime	Once a month or as advised
9	Burning of management areas using flame gun	Fortnightly
10	Turning of soil or earth within enclosures	Annually, portion-wise
11	Removal of dead animals from enclosures	Immediately
12	Packing and incineration of contaminated bedding material	Immediately
13	Soaking of non-disposable items in disinfectant	As required
14	Fumigation or fogging of closed areas	Once in three months. Only in the absence of animals and people
15	Use of Personal Protective Equipment	Mandatory during cleaning and disinfection procedures

Cleaning and Disinfection Protocols for Animal Enclosures

Area covered	Method	Compound / Process	Frequency	Remarks
Animal enclosures, entry points, feeding cubicles, kraals and isolation areas	Physical cleaning	Spot cleaning, pressurised water and scrubbing with detergent	Daily	Organic matter is removed before disinfection
Management areas, metal surfaces and walls	Burning	Flame gun	Fortnightly	Used on suitable surfaces only
Enclosures, management areas, foot baths and tyre baths	Chemical disinfection	Potassium permanganate, sodium hypochlorite, Virkon S, lime and F10	Daily	Used as per species and area requirement
Ponds	Lime application / whitewashing	lime powder	Monthly	Followed after cleaning as required

Biosecurity Measures at Entry and Exit Points

Biosecurity measures are maintained at important entry and exit points to reduce the risk of pathogen transfer between animal areas, staff areas, visitor areas and service zones.

Area covered	Method	Compounds used	Frequency	Remarks
Administration gate, visitor gate, hospital entry, incineration site, animal kitchen and walk-through enclosures	Foot bath and tyre bath	Potassium permanganate, sodium hypochlorite, lime, Virkon S and F10	Daily	Fresh stock solutions and dilutions are prepared daily. Compounds are used alone or in combination depending on species, location and requirement.

Standard Operating Procedures for Cleaning and Disinfection of Keeper's Alley and Animal Management Areas

Objective:

To ensure safe and effective disinfection of keeper alleys and animal management areas, and to prevent the spread of pathogens between enclosures and service zones through appropriate use of foot baths and surface disinfection.

Frequency:

Disinfection is carried out once a week.

Sr. no.	Disinfectant	Application Method	Dilution
1	Virkon S	Spray	7 scoops, approximately 70 g, in 15 litres of water
2	Sodium hypochlorite	Spray	10 ml sodium hypochlorite in 1 litre of water
3	Potassium permanganate	Spray	1 g in 10 litres of water
4	F10 liquid	Spray	1:1000 dilution

Cleaning equipment used: Electric or pneumatic spray pumps, mops, buckets, protective gloves and masks.

Procedure:

1. All required cleaning tools and diluted disinfectant solutions are prepared before starting the process.
2. Animals are not kept in the management area during disinfection and for two hours after disinfection.
3. Windows are opened and exhaust fans are used to ensure proper ventilation.
4. Cemented areas are swept to remove loose debris.
5. Dirt and organic matter are scrubbed off using a brush and water.
6. The area is rinsed with clean water to remove loosened debris before disinfection.
7. Disinfectant is applied evenly using a mop or sprayer.
8. A contact time of approximately 10 minutes is allowed.
9. The area is wiped or mopped with clean water after the contact period to remove residual disinfectant.
10. The area is allowed to air dry.
11. A log is maintained with date, time, chemical used and observations.

Foot bath protocol:

From June to October, potassium permanganate is used in foot baths. From November to May, a lime and sand combination is used. Foot baths containing potassium permanganate solution are prepared at 1 g in 10 litres of water. Lime foot baths are prepared using a 50:50 lime and sand combination. Foot baths are placed at entry and exit points of keeper alleys. Staff are required to step in and step out slowly to allow adequate contact time.



Management area of the chimpanzee enclosure undergoing fumigation as part of comprehensive disease prevention measures.



Routine fumigation of the operation theatre to maintain aseptic conditions and uphold surgical hygiene standards.



Flame-gun treatment of the enclosure to aid environmental decontamination.



Carcass transport vehicle undergoing disinfection after cleaning to maintain biosecurity standards.



Routine cleaning of the tiger enclosure viewing glass to maintain optimal visibility and exhibit presentation.



Routine disinfection of the enclosure feed station using a chemical disinfectant.

18. Health Check-up of Employees for Zoonotic Diseases

Occupational health and staff safety are important components of zoo management, particularly for personnel working in close contact with animals, animal feed, biological samples, enclosure substrates, waste material and veterinary facilities. During the reporting year, SPZP continued to implement staff health and safety measures to reduce occupational health risks and strengthen preventive healthcare for zoo personnel. The health measures included preventive vaccination, routine health screening, tuberculosis screening, deworming, provision of personal protective equipment and staff awareness activities. These initiatives were implemented to support the health of animal keepers, veterinary staff, animal care personnel and other staff members involved in zoo operations.

Preventive Vaccination

Preventive vaccination was provided to staff as per requirement and risk exposure. Vaccinations included tetanus toxoid, anti-rabies vaccination and diphtheria vaccination, wherever applicable. These vaccinations are particularly important for staff involved in animal handling, enclosure maintenance, veterinary support, restraint, rescue support and other field-level animal management duties.

Routine Health Screening

Routine health screening was carried out for staff members during the reporting year. Tuberculosis screening was conducted in December 2025 as part of the occupational health monitoring process. Such screening is important in a zoological setting due to the risk of disease transmission between humans and susceptible animal species, particularly in areas involving close human-animal interface.

Deworming of Staff

Deworming tablets were provided to staff as a preventive health measure. This supports general staff health and is also relevant in a zoo environment where personnel may be exposed to soil, organic material, animal waste and enclosure substrates during routine work.

Women's Health Screening and Breast Cancer Awareness Programme

A thermal screening and breast cancer awareness programme was conducted for 33 female staff members of SPZP on 12 August 2025 with the support of Sterling Hospital, Vadodara. The programme focused on preventive healthcare, early detection and awareness regarding breast cancer. This initiative broadened the staff health programme beyond routine occupational screening and helped create awareness on preventive healthcare among women employees of the zoo.

Sr. no.	Designation	Numbers	Date/month of health checkup	Findings of health checkup
1	Animal management and support staff	239	Dec 2025	Fit on clinical examination, with routine hematological and biochemical investigations within normal reference limits.

19. Infrastructure & Operational Upgrades

To strengthen operational efficiency, institutional preparedness, visitor amenities and animal management standards in line with modern zoological practices, SPZP undertook several infrastructure development, maintenance, safety and operational enhancement initiatives during the reporting year. These works were planned with a clear focus on animal welfare, visitor comfort, staff safety, climate resilience and long-term institutional sustainability.

Enclosure Enhancement and Habitat Redevelopment

Multiple animal habitats were upgraded during the year through structural, thematic and welfare-oriented improvements. These included redevelopment and enhancement works in the Exotic Aviary, Indian Aviary, rhinoceros enclosure, and primate facilities, along with other species-specific areas. The works included habitat naturalisation, micro-landscape development, reinforced mesh systems, improved water circulation, waterfall features, enriched vegetation, naturalistic ferro-cement theming and improved visitor-viewing areas. These interventions were aimed at improving the functional quality of habitats while also creating more immersive and visually engaging visitor experiences.



Coati enclosure has been expanded to provide increased spatial availability and improved habitat complexity, aligned with species-specific behavioural requirements.



Enhancements have been made to support natural behaviours such as wading, bathing, and foraging, while also improving aesthetic appeal and ecological balance within the aviaries.



Optimization of pond design, water circulation, and drainage to ensure hygienic conditions and prevent stagnation.



Upgraded feeding stations for macaws and other parrots in exotic aviary.

Decentralised Kitchens

Decentralised kitchen facilities have been established in the Exotic, Herbivore, and Pet Zones to support efficient and hygienic feed preparation at the enclosure level. These kitchens are equipped with cold storage and refrigeration units for preservation of perishables, along with water filtration systems to ensure safe food and water handling.

Operational infrastructure includes food processors, juicers, feed choppers, microwave units, bread makers, curd makers, and calibrated weighing scales to enable precise, species-specific diet formulation. Supporting systems such as dehumidifiers, exhaust ventilation, and washing machines ensure hygiene and appropriate working conditions.

For safety and sustainability, the facilities are integrated with fire alarm systems and rainwater harvesting mechanisms, ensuring both emergency preparedness and resource efficiency within zoo operations.



Decentralised kitchen for primates and birds.



Chaffing provisions outside decentralised kitchen specific to herbivores.



Preparation of large portions of vegetables and storage of special pellet feeds in herbivore kitchen.



Vertical bone cutter and meat mincer in carnivore kitchen.

Veterinary and Animal-Care Infrastructure Upgrades

Veterinary and animal-care infrastructure at SPZP was further strengthened during the reporting year to support improved clinical care, diagnostics, preventive health management, species-specific husbandry and evidence-based decision-making. These upgrades have enhanced the zoo's capacity to manage routine health monitoring as well as complex clinical, surgical and diagnostic cases across a wide range of taxa.

To strengthen surgical preparedness, specialised veterinary instruments and equipment were procured for both large and small animals. This included soft-tissue surgical instrument sets, ophthalmic surgical instruments and advanced orthopaedic equipment. A complete orthopaedic fixation system, including bone-plating instruments and external skeletal fixators of different configurations and sizes, was also added. These upgrades have improved the zoo's capacity to manage a wider range of surgical and orthopaedic conditions in captive as well as rescued wildlife.

Diagnostic imaging capacity was enhanced through procurement of an additional 35C20EA ultrasound transducer. With an operating frequency range of approximately 2–6 MHz and better tissue penetration, the transducer provides greater flexibility for ultrasonographic examination across diverse species, including large mammals and smaller animals.



Wireless orthopedic drill and oscillating saw with accessories.



35C20EA ultrasound transducer procured for improving diagnostic calibre.



SPO2 meter for perioperative monitoring in an Indian gazelle.



Ultrasound doppler used for perioperative pulse rate and output in a Green iguana from the caudal coccygeal vein.

A Vcheck 200 analyser was installed in the Disease Investigation Laboratory to strengthen rapid, quantitative assessment of clinically relevant biomarkers. The system supports point-of-care evaluation of endocrine, inflammatory, cardiac, metabolic and reproductive parameters. Its ability to generate results from small sample volumes is particularly useful in zoo medicine, where repeated or large-volume sample collection may not always be feasible. The availability of this analyser has improved clinical decision-making, early disease detection, treatment monitoring and health assessment.

Additional weighing systems were deployed across multiple sections of the zoo to improve animal health monitoring and nutritional management. High-capacity weighing scales capable of measuring animals up to 300 kg were installed in large carnivore holding areas. These scales support accurate body-weight monitoring, drug dose calculation and long-term health assessment. Smaller precision weighing scales were also procured for feed measurement, feed-wastage monitoring and body-weight recording of smaller mammals, birds and reptiles.

A UV Index Meter was procured to improve scientific management of reptile enclosures. The instrument allows measurement of ultraviolet radiation at different distances from artificial UV sources, across basking gradients and under natural sunlight during different times of the day and seasons. These measurements support evidence-based assessment of enclosure lighting and help optimise UV exposure according to species-specific requirements. This is important for calcium metabolism, vitamin D₃ synthesis, skeletal health, reproductive health and overall reptile welfare.



Vcheck 200 used for quantitative assessment of biomarkers.



UV index meter used to measure the ultraviolet radiation at a basking spot at the reptile enclosure.

Preventive Maintenance and Inspection System

To support uninterrupted zoo operations and improve institutional preparedness, SPZP follows a preventive maintenance and inspection system for critical infrastructure, utility services and enclosure safety systems. Regular checks help identify defects early, reduce breakdowns, improve response time and support the safe functioning of animal enclosures, visitor facilities, veterinary infrastructure and operational areas.

The checklist system covers key equipment such as DG sets, electrical distribution boards, pump motors, HVAC systems, enclosure pulley and rope-wire mechanisms, and electric fencing systems. These assets are linked directly with animal safety, staff safety, visitor comfort, water supply, power backup, climate control and enclosure management.

Sr. no.	Checklist/ system	Location	Equipment/ component checked	Frequency
1	DG sets	Serpentine area, ticket counter and hospital	3 DG sets of 100 KVA capacity	Fortnightly
2	Outdoor distribution boards	All enclosures, offices and hospital	Power distribution boards	Monthly
3	Indoor distribution boards	All enclosures, offices and hospital	LT mains panel boards	Monthly
4	Pump motors	All enclosures, hospital, Pet Zone, crocodile pump room, canal pump room and overhead tank	Submersible pumps, foot-mounted pumps, open-well pumps and related pump-motor systems	Monthly
5	HVAC system	Chimpanzee facility and Pet Zone areas for llama and alpaca	AHU system for chimpanzee facility and ductable system for llama and alpaca areas	Monthly
6	Enclosure pulley and rope-wire system	Zoo enclosure kraal rooms	SS rope wire of 10 mm and 6 mm thickness, guide wire pulley, slider doors, moving parts and fabrication components	Monthly
7	Electric fencing	Enclosure paddock fencing and SPZP boundary fencing	Electric fencing machines, GI wires, clamps, fabrication supports, fence lights and siren systems	Monthly

The preventive checks are particularly important in areas where mechanical or electrical failure can directly affect animal management. Enclosure pulley systems, rope wires and slider doors are checked to ensure safe shifting and holding operations. Electric fencing is monitored to strengthen perimeter safety and reduce the risk of animal escape or intrusion by free-ranging

wildlife. Pump motors and water-supply systems are checked to maintain drinking water, pools, ponds, cleaning operations and horticulture requirements.

Power backup and electrical distribution systems are inspected regularly to support essential services, including the veterinary hospital, ticketing areas, animal night houses, life-support systems and visitor facilities. HVAC systems are monitored in climate-sensitive areas to maintain appropriate environmental conditions for species requiring controlled temperature and ventilation.

The checklist system also improves accountability, as maintenance observations, required repairs and follow-up actions can be documented and reviewed periodically by the concerned teams.

Horticulture, Landscape and Fodder Development

Horticulture at SPZP is closely linked with animal welfare, visitor comfort, landscape development, fodder production, climate resilience and sustainability. During the reporting year, the horticulture team undertook plantation, nursery development, fodder cultivation, irrigation improvement, composting, green-space maintenance and plant-based enrichment across animal areas, visitor zones and support facilities.

The work is especially significant because much of the zoo landscape has been developed over land that earlier functioned as a rock dumping site. This required soil improvement, careful plant selection, regular irrigation and continued maintenance to establish functional green spaces within the zoo.

Tree Plantation and Landscape Development

During the reporting year, 655 large trees representing 32 species were planted across animal enclosure surroundings, visitor areas, decentralised kitchen zones, nursery areas and other parts of the campus. The plantation included shade trees, native species, fruiting trees, browse-supporting species, avenue trees and ornamental landscape species.

Important species planted included jamun (*Syzygium cumini*), neem (*Azadirachta indica*), chikoo/sapota (*Manilkara zapota*), bottlebrush (*Callistemon citrinus*), bauhinia (*Bauhinia variegata*), badam (*Terminalia catappa*), mahogany (*Swietenia mahagoni*), silver oak (*Grevillea robusta*), tamarind (*Tamarindus indica*), umbaro/cluster fig (*Ficus racemosa*), guava (*Psidium guajava*), coconut (*Cocos nucifera*), saptaparni (*Alstonia scholaris*), peltophorum (*Peltophorum pterocarpum*), siris (*Albizia lebbek*), banyan (*Ficus benghalensis*), mango (*Mangifera indica*), amla (*Phyllanthus emblica*), Australian babul (*Acacia auriculiformis*), peepal (*Ficus religiosa*), bamboo (*Bambusa vulgaris*), champo (*Plumeria spp.*), kadam (*Neolamarckia cadamba*), ashoka (*Saraca asoca*), garmalo (*Cassia fistula*) and piludi (*Salvadora persica*).

A large number of bamboo plants were also planted across the campus, both for landscape value and future browse support. The plantation work was planned to improve shade, microclimate, soil stability, habitat value, enclosure screening and long-term landscape character.

Nursery Operations and In-house Sapling Development

The zoo nursery continued to function as an important support unit for landscape development, enclosure planting, browse production and conservation planting. Approximately 1,435 saplings, rooted plants, grasses and creepers were developed in-house during the reporting year.

The nursery produced species such as garmalo (*Cassia fistula*), neem (*Azadirachta indica*), karanj (*Pongamia pinnata*), ficus (*Ficus benjamina*), dracaena (*Dracaena fragrans*), elephant creeper (*Argyrea nervosa*), ice-cream creeper (*Antigonon leptopus*), fountain grass (*Cenchrus setaceus*), curtain creeper (*Tarlmounia elliptica*), railway creeper (*Ipomoea cairica*), mulberry (*Morus alba*), hibiscus (*Hibiscus rosa-sinensis*), tithonia (*Tithonia diversifolia*), guava (*Psidium guajava*), piluki creeper (*Combretum albidum*), haldarvo (*Haldina cordifolia*) and red Napier grass (*Cenchrus purpureus*). These plants were developed for different purposes, including avenue planting, native plant conservation, ornamental landscaping, browse production and fodder development. Routine nursery activities included watering, potting, soil conditioning, pest monitoring, transplanting, hardening and preparation of plants for field planting.



In-house nursery with saplings maintained in grow bags for future plantation.



Nursery-raised saplings developed to support landscaping, browse production and conservation planting within the zoo campus.



Horticulture team preparing and potting saplings as part of routine nursery operations.



In-house grown amaranthus being harvested to be provided as fresh feed to the animals.

Browse and Fodder Plant Resources

A wide range of browse and fodder plants is maintained and used to support feeding, enrichment and species-appropriate foraging. Browse is offered to herbivores, primates, birds and selected reptiles depending on suitability, availability and veterinary guidance.

Commonly used browse and fodder resources include almond (*Prunus dulcis*), babul (*Acacia nilotica*), bamboo (*Bambusa vulgaris*), banana (*Musa spp.*), ber/wild jujube (*Ziziphus mauritiana*), guava (*Psidium guajava*), curry leaf (*Murraya koenigii*), moringa (*Moringa oleifera*), gulmohar (*Delonix regia*), hibiscus (*Hibiscus rosa-sinensis*), mango (*Mangifera indica*), mulberry (*Morus alba*), neem (*Azadirachta indica*), tamarind (*Tamarindus indica*), bauhinia (*Bauhinia purpurea*), cluster fig (*Ficus racemosa*), Napier grass (*Cenchrus purpureus*), peepal (*Ficus religiosa*), peltophorum (*Peltophorum pterocarpum*), jackfruit (*Artocarpus heterophyllus*), karonda (*Carissa carandas*), jamun (*Syzygium cumini*), phalsa (*Grewia asiatica*), piluki (*Combretum albidum*), Australian babul (*Acacia auriculiformis*), date palm (*Phoenix dactylifera*), subabul (*Leucaena leucocephala*), powder puff (*Calliandra calothyrsus*), doob grass (*Cynodon dactylon*), amaranthus (*Amaranthus spp.*), alfalfa (*Medicago sativa*), siris (*Albizia lebbbeck*), Jamaican cherry (*Muntingia calabura*) and banyan (*Ficus benghalensis*).

Different plant parts are used, including leaves, branches with leaves, flowers, fruits, grasses and whole plants. Browse rotation helps provide dietary variety, supports natural feeding behaviour and reduces overdependence on a limited number of plant species.



Browse material collected for animal feeding and enrichment.



Mulberry plantation maintained within the zoo campus.



In-house amaranthus production.



Bamboo plantation developed as a continuous browse and habitat-support resource.

Fodder Farm Development

A barren land parcel was developed into a fodder farm through soil filling, perimeter fencing and soil enrichment using decomposed herbivore faecal matter as organic manure. The fodder farm covers approximately 2,500 m² and supports sustainable in-house fodder production for herbivorous animals and other species as per approved feeding plans.

Crops cultivated during the reporting year included Napier grass, alfalfa, amaranth, spinach, lettuce, fennel greens and banana for leaves.

Sr. no.	Crop	Scientific name	Approx. annual production	Used for
1	Napier grass	<i>Cenchrus purpureus</i>	5,000 kg	Herbivores Herbivores
2	Alfalfa	<i>Medicago sativa</i>	700 kg	
3	Amaranth	<i>Amaranthus viridis</i>	90 kg	Herbivores, primates, and birds
4	Spinach	<i>Spinacia oleracea</i>	80 kg	
5	Lollo rosso lettuce	<i>Lactuca sativa</i>	30 kg	Primates, and birds
6	Fennel greens	<i>Foeniculum vulgare</i>	20 kg	
7	Green lettuce	<i>Lactuca sativa</i>	10 kg	
8	Banana (leaves)	<i>Musa paradisiaca</i>	Qty. not recorded	



Napier grass is routinely harvested.



Alfalfa bed harvested fortnightly.

In-house Production of Fruits, Vegetables and Microgreens

SPZP also grows selected fruits, vegetables and microgreens within the campus for use in animal diets, enrichment and supportive feeding. Fruits such as mulberry (*Morus alba*), umbaro/cluster fig (*Ficus racemosa*), jackfruit (*Artocarpus heterophyllus*), date palm (*Phoenix dactylifera*), banana (*Musa paradisiaca*) and papaya (*Carica papaya*) are grown or maintained within the zoo.

Vegetables and supportive greens include pumpkin (*Cucurbita pepo*), wheatgrass (*Triticum aestivum*), fenugreek (*Trigonella foenum-graecum*), mustard greens (*Brassica juncea*), alfalfa (*Medicago sativa*), coriander (*Coriandrum sativum*), green gram (*Vigna radiata*), spinach (*Spinacia oleracea*) and amaranth (*Amaranthus viridis*).

Some items are used as routine diet components, while others are used as enrichment, training rewards or supportive feeding for selected animals.



Banana plantation maintained within the zoo campus to support in-house production of leaves and fruits for animal diet, enrichment and supportive feeding.



Pumpkin cultivated within the fodder farm.

Native Plant Conservation

Native plant conservation remained an important part of horticulture planning. Native trees and habitat-supporting plants were maintained or promoted to improve shade, soil stability, pollinator support, bird activity, browse value and overall ecological quality of the zoo landscape.

Important native and ecologically valuable species include teak (*Tectona grandis*), arjun (*Terminalia arjuna*), palash (*Butea monosperma*), semal (*Bombax ceiba*), indrajau (*Holarrhena pubescens*), nagod (*Vitex negundo*), karanj (*Millettia pinnata*), bael (*Aegle marmelos*), peepal (*Ficus religiosa*), khair (*Senegalia catechu*), desi babul (*Vachellia nilotica*), bauhinia (*Bauhinia variegata*), aonla (*Phyllanthus emblica*), haldarvo (*Haldina cordifolia*), ber (*Ziziphus mauritiana*), parijat (*Nyctanthes arbor-tristis*), mahua (*Madhuca longifolia*), kadamba (*Neolamarckia cadamba*), pangaro (*Erythrina variegata*), tetu tree (*Oroxylum indicum*), jamun (*Syzygium cumini*) and borsalli (*Mimusops elengi*).

These species contribute to the campus beyond visual landscaping. Many provide shade, fruit, flowers, browse, nesting support, pollinator value, butterfly attraction, bird use, soil stability and habitat value.

Irrigation Infrastructure

The garden is supported by a drip irrigation network comprising approximately 14,000 metres of dripline. The system is operated through two water tanks, including one central distribution tank and one tank with a capacity of approximately 1,00,000 litres.

The drip irrigation network provides coverage across major landscape and plantation areas. It enables targeted delivery of water to plant root zones, reduces wastage, lowers manual labour requirement and improves irrigation management during harsh summer conditions. This system has been especially useful in maintaining greenery in areas with poor soil and low water-retention capacity.

Composting and Organic Manure Use

The zoo maintains three composting pits for processing suitable organic waste generated within the premises. The pits measure approximately 15 ft × 20 ft, 8 ft × 15 ft and 10 ft × 10 ft.

Composting is carried out using herbivore faecal matter, primarily Indian rhinoceros dung, along with garden waste such as pruned branches, dry leaves, grasses and leftover plant-based feed materials. Organic decomposer culture is applied periodically to accelerate decomposition and improve compost quality.

Through this system, approximately 70 tonnes of compost is produced annually. The compost is used as a soil amendment and filling material in the fodder farm and is also applied to plantations within the fodder farm and other landscape areas. This supports nutrient recycling, reduces dependence on external soil amendments and links animal waste management with horticulture and fodder production.



Organic decomposer applied to rhinoceros dung to accelerate composting and produce nutrient-rich manure for sustainable horticultural activities within SPZP.

Waste Management and Resource Recovery Practices

Waste management at Sardar Patel Zoological Park is treated as an important part of sanitation, animal health, biosecurity, visitor management and environmental responsibility. A zoo generates several different types of waste, including animal waste, leftover feed, bedding, horticulture waste, visitor litter, plastic waste, veterinary waste, carcass waste and routine operational waste. Each of these waste streams requires a different handling process to ensure hygiene, safety, regulatory compliance and environmental protection.

SPZP follows an integrated waste management approach based on source segregation, safe collection, scientific treatment, resource recovery and responsible disposal. The system includes composting, vermicomposting, application of bio-enzymes and microbial consortia to compost piles, controlled incineration of biological waste, plastic waste recycling and regulated biomedical waste disposal through authorised agencies.

Waste Collection and Segregation System

Waste collection at SPZP is broadly organised across three operational areas: animal enclosure and service areas, visitor zones, and staff and veterinary facilities. This helps ensure that different categories of waste are collected and handled according to their origin, risk level and possible reuse value.

At the animal enclosure level, waste is segregated based on its physical and biological characteristics. This includes biodegradable organic matter, unconsumed feed, faecal matter, bedding material, browse residues, leaf litter, enclosure vegetation and other organic biomass generated through daily husbandry and habitat maintenance.

Visitor zones generate general waste such as food packaging, plastic bottles, paper, disposable items and litter. Staff facilities, offices, kitchens, stores and service areas generate routine operational waste. Veterinary hospital, quarantine, treatment and laboratory areas generate biomedical waste, which is handled separately as per prescribed protocols.

Animal Enclosure and Husbandry Waste

Waste generated from animal enclosures includes faecal matter, bedding material, leftover feed, browse residues, leaf litter, substrate waste and vegetation generated through routine enclosure maintenance. Suitable biodegradable waste from herbivore areas, selected bedding material, plant residues, dried leaves and horticulture trimmings are directed towards composting or manure preparation.

Waste from carnivore feeding areas is handled separately due to higher biological risk. Meat residues, contaminated feed material and other animal-derived waste are not mixed with general organic waste. These are managed through controlled disposal protocols to reduce odour, scavenger attraction, pathogen risk and cross-contamination.

Composting and Vermicomposting

SPZP uses composting and vermicomposting practices to process suitable biodegradable waste generated within the campus. Organic material from animal areas, horticulture maintenance and garden residues is collected and processed at designated composting locations.

Bio-enzymes and microbial consortia are applied to compost piles where required to support decomposition, reduce odour, improve microbial activity and accelerate the breakdown of organic matter. The compost and vermicompost produced through these systems are reused in horticulture, landscaping, fodder cultivation and soil improvement within the zoo.

This practice supports circular resource use. Instead of treating all organic waste as a disposal burden, suitable material is converted into a productive input for plant growth, soil fertility and landscape maintenance.

Biological Waste and Incineration

Animal-derived biological waste requires stricter handling due to disease and biosecurity concerns. Meat waste from carnivore feeding, unsuitable animal tissue and carcass material are disposed of through the dedicated incineration facility available within the zoo.

Controlled incineration ensures safe destruction of biological material that may carry pathogens or create public health risk. It also helps prevent environmental contamination, odour issues, scavenger access and improper disposal of animal-origin waste.

Carcass disposal and biological waste handling are carried out under veterinary supervision and in accordance with applicable regulatory requirements and institutional protocols.

Visitor Area Waste Management

Visitor zones generate routine waste such as food packaging, plastic bottles, paper, disposable items and general litter. Waste bins are placed at strategic locations to encourage proper disposal and source-level segregation.

Waste collected from visitor areas is transferred regularly for further sorting and disposal. Particular attention is given to plastic waste, which is collected separately and handed over to authorised agencies for recycling or environmentally sound disposal as per applicable waste management norms.

Visitor-area waste management is also linked with public behaviour. Clean surroundings, visible waste bins, responsible signage and regular housekeeping help maintain the visitor experience while reinforcing the zoo's conservation message.

Staff Facilities and Operational Waste

Waste generated from staff areas, offices, kitchens, stores and service facilities is collected and handled through the regular waste management system. Recyclable and non-recyclable materials are separated wherever possible, and biodegradable waste is assessed for composting suitability.

Operational waste from maintenance activities is handled according to material type. Plant-based waste and biodegradable residues are directed towards composting where suitable, while non-biodegradable and potentially hazardous materials are disposed of through appropriate channels.

Biomedical Waste Management

SPZP operates a dedicated biomedical waste management system for waste generated from the veterinary hospital, treatment areas, quarantine facilities, laboratory spaces and animal care operations. Biomedical waste is segregated at the point of generation using standard colour-coded containers.

Sharps, contaminated dressings, biological samples, used syringes, gloves, diagnostic waste and other veterinary biomedical materials are handled according to prescribed biomedical waste protocols. Segregated biomedical waste is collected, transported, treated and disposed of through an authorised biomedical waste management agency.

These activities are carried out in compliance with the Biomedical Waste Management Rules and the guidelines of the Gujarat Pollution Control Board and other relevant statutory authorities.

Biosecurity and Safety Measures

Waste management is closely connected with disease prevention. Staff handling animal waste, biological material, compost, biomedical waste or carcass-related material follow basic safety practices, including use of gloves, masks, boots, handwashing and appropriate disinfection.

Waste movement routes, collection points and storage areas are managed to reduce cross-contamination between visitor areas, animal enclosures, kitchens, veterinary facilities and service zones. Any waste suspected to carry disease risk is handled separately under veterinary guidance.

Documentation and Monitoring

Waste management activities are monitored through routine supervision by animal management, veterinary, horticulture, housekeeping and maintenance teams. Records are maintained where required for biomedical waste, incineration, outsourced disposal, composting and waste transfer to authorised agencies.

Regular monitoring helps identify issues such as delayed collection, odour, pest activity, excess moisture, plastic accumulation, improper segregation or contamination of composting material. Corrective action is taken by the concerned team based on the type of waste and location.

20. Education, Interpretation & Outreach

During the reporting year, the Education and Outreach Division of SPZP continued to strengthen the zoo's role as a centre for conservation education, experiential learning, scientific engagement and public participation. The focus of the department moved beyond conventional awareness activities towards more immersive interpretation, behaviour-change communication, academic collaboration, skill development and visitor engagement aligned with the philosophy of modern zoological institutions.

1. Conservation Awareness and Public Engagement

A total of 37 conservation observance programmes were conducted during the year to commemorate important national and international environmental occasions. These included World Environment Day, World Rainforest Day, International Leopard Day, World Migratory Bird Day, Endangered Species Day, International Tiger Day, International Orangutan Day, International Lion Day, World Parrot Day and World Chimpanzee Day, among others.

These programmes combined guided interpretation, enrichment demonstrations, educational displays, quizzes, public interaction sessions, conservation pledges and thematic awareness activities. The intention was not only to celebrate important conservation days, but to use them as meaningful opportunities to explain biodiversity, species conservation, animal behaviour, ecological relationships and the responsibilities of people towards wildlife.

Special emphasis was placed on interactive interpretation methods that encouraged visitors to participate actively. Guided biodiversity walks, species-identification activities, touch-and-learn sessions, conservation quizzes and exhibit-based storytelling helped transform routine zoo visits into more engaging learning experiences.

One of the key highlights was the “Kaun Banega Conservationist” quiz competition organised during International Tiger Day. The programme engaged higher-secondary students through a multi-stage competitive learning format and encouraged them to think more deeply about wildlife, habitats, threats and conservation action.



A docent educating visitors about macaws and their conservation.



Quiz competition for school students.

2. Educational Reach and Institutional Engagement

SPZP catered to a large educational audience during the reporting year, engaging 621 schools and colleges from six Indian states, including Gujarat, Maharashtra, Rajasthan, Madhya Pradesh, West Bengal and Karnataka. Through guided educational visits, interpretation programmes, workshops and experiential learning modules, the Education Division directly reached approximately 75,620 students during the year.

Daily guided walks, weekend touch-and-learn programmes, keeper talks and exhibit interpretation sessions remained among the most sought-after visitor engagement initiatives. A total of 52 Keeper's Talks and 27 birdwatching sessions were conducted, allowing visitors to interact with educators, keepers and interpretation staff while learning about animal behaviour, conservation challenges, enrichment practices and ecosystem relationships.

These activities helped position the zoo as an open learning space where students and visitors could observe animals, understand their needs, and connect individual species stories to broader conservation issues.



Visitor engagement through docent-led aviary walks.



Special educational talk for school students.



Technical session on spider taxonomy.



Experiential learning through "Touch and Learn" program.

3. Internship, Training and Capacity Building

The zoo significantly expanded its experiential learning and internship ecosystem during the year. A total of 22 veterinary internship programmes were conducted, collectively training approximately 286 veterinary students through structured one-week practical modules. These modules covered wildlife healthcare, zoo veterinary management, post-mortem procedures, safe animal handling, diagnostics, nutrition and clinical practices. In addition to the veterinary internships, the department coordinated a one-month Summer Internship Programme for students from the Department of Zoology, The Maharaja Sayajirao University of Baroda; one Zoo Management Internship Programme for students of Life Science Education Trust; two NEP-aligned internship programmes involving 10 students; individual internship opportunities for zoology students and researchers; and an international internship and orientation programme for delegates from the Democratic Republic of Congo. The internship modules included practical exposure to zoo management, interpretation, camera trapping, birdwatching, wildlife identification, terrarium development, enrichment preparation, public interaction, conservation education and animal husbandry practices. This approach helped students understand the zoo as a multidisciplinary institution rather than as a collection of isolated animal exhibits.

The zoo also organised staff capacity-building initiatives, including animal-management workshops, interpretation training, fire-safety orientation and public-interaction training for keepers and drivers. International experts from the Czech Republic conducted specialised sessions on incubation management, exotic avian care, reptile husbandry and monsoon management strategies for zoological collections.



Veterinary interns observing a surgical procedure on an African crown crane.



Ultrasonographic examination of a green iguana.



Interns gaining hands-on clinical exposure under veterinary supervision.



Classroom orientation session on zoo management, complemented by interactive case study discussions.



Field-based training in rope techniques and wildlife field skills.

4. Professional Training, Academic Engagement and Institutional Knowledge Sharing

In addition to visitor education, school outreach and internal staff training, SPZP continued to develop as a centre for applied learning and professional knowledge exchange. During the reporting year, the zoo hosted and supported academic groups, zoo personnel, veterinary students, university interns, international delegates and conservation learners through structured training programmes, exposure visits, internships, lectures and field-based learning modules.

Sr. no.	Month/ Date	Institution	Pax.	Duration	Subject
1	Apr 2025	Forestry Department, Navsari Agricultural University	8	1 day	Zoo management, animal care, conservation practices and zoo operations
2	May 2025	Zoology Department, The Maharaja Sayajirao University of Baroda	7	30 days	Summer internship covering birdwatching, snake identification, public interaction, terrarium building, camera trapping, pugmark casting and zoo operations
3	19 Jun 2025	Second-year undergraduate students, Navsari Veterinary College	11	1 day	Lecture on wildlife genetics and conservation breeding
4	24 Jul – 30 Aug 2025	The Institut Congolais pour la Conservation de la Nature (ICCN), Democratic Republic of Congo	15	38 days	Zoo and wildlife management, animal care, veterinary procedures, education, enclosure management, nutrition, enrichment, zoo biology, behaviour, and operational coordination
5	Aug 2025	Gujarat University and M.G. Shah Science College	12	8 days	Education, visitor engagement, incubation, camera trapping, enrichment, wildlife photography and zoo management
6	Oct 2025	SPZP Docent Programme	12	8 days	Guided tours, educational walks, Touch & Learn facilitation and visitor engagement
7	Oct 2025	Zoology Department, Birsu Munda Tribal University	25	1 day	Academic outreach and conservation education collaboration
8	Nov 2025	Life Science Education Trust	7	12 days	Zoo Management Internship covering diet-chart preparation, feed distribution, technical rescue, artificial incubation, live-feed culture and public interaction

Sr. no.	Month/ Date	Institution	Pax.	Duration	Subject
9	Nov 2025	P.T. Science College, Surat	14	12 days	Zoology internship: Animal observation, feed preparation, enrichment, husbandry, birdwatching, camera trapping and wildlife documentation
10	Dec 2025	President Science College	5	10 days	NEP zoology internship: Education, birdwatching, feather clipping, camera trapping, wildlife photography, enclosure design and enrichment
11	Dec 2025	Zoology Department, The Maharaja Sayajirao University, Vadodara	5	10 days	NEP zoology internship: Education, birdwatching, feather clipping, camera trapping, wildlife photography, enclosure design and enrichment
12	Jan 2026	Veterinary Polytechnic College (Kamdhenu University), Disa	32	1 day	Educational tour with lecture on zoo animal management from a veterinary perspective
13	Jan 2026	P.T. Science College, Surat	40	1 day	Zoo interpretation and educational tour
14	Jan 2026	Sardar Krushinagar College, Dantiwada	40	1 day	Zoo interpretation and educational tour
15	Feb 2026	Zoology Department, Birsu Munda Tribal University	60	1 day	Water bird census, bird identification, wetland ecology, field monitoring and field survey methods

These programmes collectively showcase SPZP's growing role as a learning-oriented zoological institution. The training and exposure activities were not limited to classroom lectures, but included field observation, animal husbandry exposure, interpretation practice, conservation communication, enrichment preparation, biodiversity documentation, clinical and veterinary perspectives, and applied zoo operations.

The international engagement with the Democratic Republic of Congo delegation was a significant institutional milestone, as it positioned SPZP as a platform for cross-country professional exchange in zoo management.

Academic internships and institutional visits from universities and colleges helped strengthen the connection between formal education and applied zoo practice. Students were exposed to practical aspects of animal care, interpretation, wildlife identification, enclosure design, birdwatching, camera trapping, feed preparation and enrichment. These initiatives helped reinforce the zoo's identity as a living classroom where students can observe, learn and engage directly with conservation-oriented animal management.



Practical demonstration showcasing the use of ultrasonic Doppler for cardiovascular assessment in an Indian rock python.



Target training for co-operative care demonstration.



Hands-on training in handling and husbandry of parrot species.



Interactive session on zoo management.



Student-led visitor engagement under NEP aligned internship.



IICCN officials gaining practical experience in wound management of a rescued leopard.

5. Docent Programme and Interpretation Development

To strengthen interpretive engagement and visitor facilitation, SPZP conducted two intensive Docent Training Programmes in collaboration with Gujarat University. A total of 23 participants underwent approximately 81 hours of structured training covering wildlife interpretation, communication skills, biodiversity education, exhibit storytelling, visitor engagement, zoo ethics and guided-tour methodologies. The docent initiative contributed to improving guided educational experiences within the zoo while also creating a pool of trained youth volunteers capable of supporting conservation education programmes. It also helped build a stronger bridge between university students, the zoo and the visiting public.



Docents giving guided tours to visitors.



Encouraging animal behaviour observations to visitors.



Docent-led storytelling session.



Faecal sample collection.



Interpretation using species information panels and visual communication tools.



Practical exposure to reptile training and husbandry.

6. Academic Collaboration, Research and Scientific Engagement

Collaborative partnerships and Memoranda of Understanding were formalised with Kamdhenu University and the Department of Zoology, Gujarat University. These collaborations strengthened opportunities for research, internships, academic exposure, veterinary learning and institutional cooperation in wildlife education and conservation.

The education programme also contributed to research and publication outputs, details of which are included under Research Work and Publications.



MoU signing with Dept. of Zoology, Gujarat University.



MoU signing with Kamdhenu University, Gandhinagar, Gujarat.

7. Interpretation Infrastructure and Educational Resources

To improve visitor communication and educational accessibility, the department facilitated the placement of more than 60 animal, informational, directional and regulatory signages across different sections of the zoological park. Additional interpretation displays and thematic awareness banners were developed during conservation observance programmes and exhibit inaugurations.

Interactive educational materials focusing on species identification, illegal wildlife trade, rainforest conservation, migratory birds, biodiversity and endangered species were also integrated into visitor programming throughout the year. These resources helped make conservation messages more accessible to visitors of different age groups and educational backgrounds.



8. Sustainability, Behavioural Change and Community Participation

The department continued to integrate conservation action into visitor engagement through plantation drives, outreach programmes, conservation pledges and sustainable behaviour campaigns. A total of four plantation drives, three outreach programmes and multiple awareness-based interactive activities were conducted with active visitor participation.

Behavioural impact assessment conducted during educational programmes indicated encouraging outcomes. Among participants surveyed, 71% reported avoiding single-use plastics after their visit, 53% reported increased use of reusable water bottles, and 72% pledged support against illegal wildlife trade following Wildlife Week and related awareness sessions.

These figures suggest that well-designed zoo education can move beyond information sharing and contribute to practical changes in public attitude and behaviour.



Seed ball preparation for afforestation initiatives.



Participatory tree plantation for conservation awareness.



Commemorating World Migratory Bird Day at SPZP.

9. Visitor Experience, Digital Outreach and Public Response

Educational engagement initiatives contributed significantly to visitor satisfaction and interpretive impact across the zoo. Visitor feedback analysis indicated that average visitor dwell time increased from 13.1 minutes during general visits to 24.2 minutes during guided educational interactions. Visitor satisfaction scores increased from 4.2 out of 5 during standard visits to 4.8 out of 5 during interpretation-led educational events. Repeat-visit intention also increased from 64% to 83% following participation in guided walks and keeper talks.

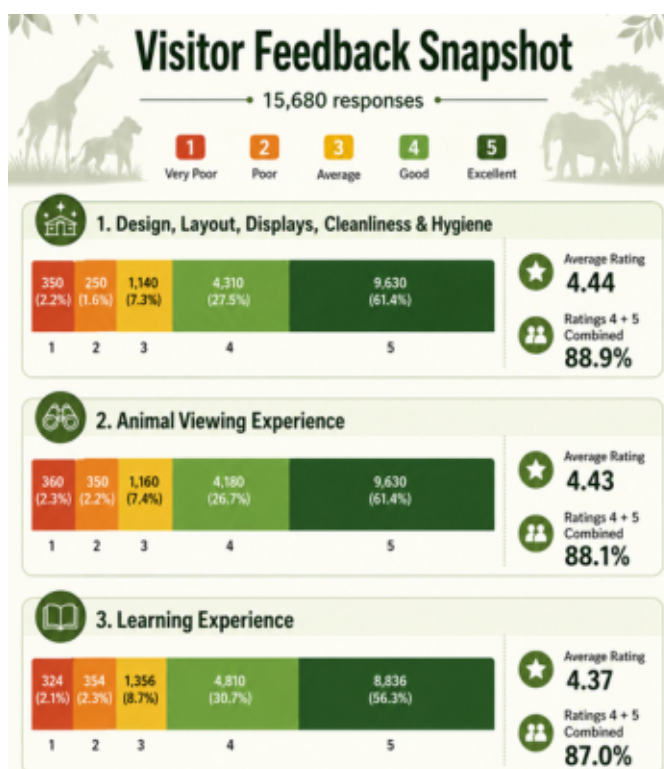
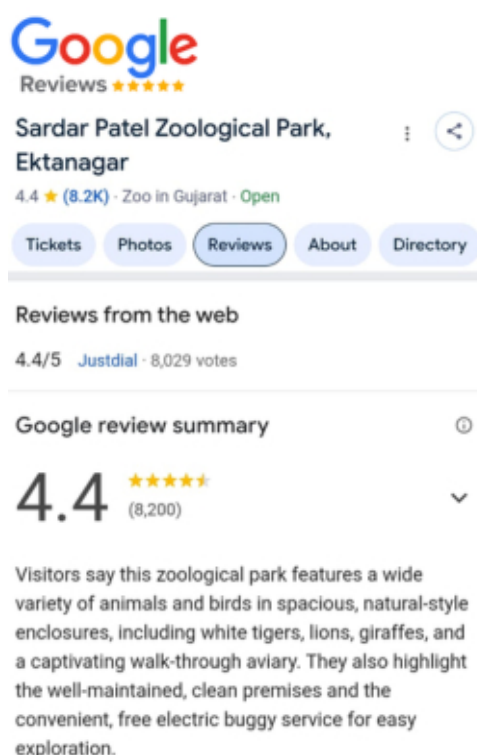
The department strengthened SPZP's digital outreach through 41 Instagram reels and 55 educational social-media posts and a new website, expanding online engagement and conservation communication beyond the physical boundaries of the zoo. Public response remained positive, with the zoo maintaining a Google rating of 4.4 and a TripAdvisor rating of 4.2 during the reporting period.

Visitor Survey on Conservation-linked Souvenir Preferences

As part of SPZP's effort to understand visitor response to conservation education and future visitor-engagement opportunities, an ongoing structured visitor survey covering **1,560** respondents was undertaken to assess interest in conservation-themed and eco-friendly souvenirs. The survey looked at visitor preferences, likely spending patterns, purchase motivations and attitudes towards sustainable products.

Preliminary insights indicated a strong preference for durable, useful and environmentally responsible products, especially within the ₹100–250 price range. Visitors also showed interest in customised and conservation-themed merchandise, suggesting that a well-planned souvenir facility could serve not only as a visitor amenity, but also as an extension of the zoo's conservation education messaging.

The findings support the idea that ethical consumer behaviour can become one of the indirect indicators of conservation education impact, while also helping SPZP plan future conservation-aligned retail options in a responsible and visitor-sensitive manner.



Impact statement

During 2025–26, the Education and Outreach Division of SPZP significantly expanded its conservation education footprint through **37 conservation observance programmes, 52 Keeper Talks, 27 birdwatching sessions, 22 veterinary internship programmes and two intensive docent training programmes.** The division engaged with **621 schools and colleges** across six Indian states, directly reaching **75,620 students** and providing hands-on wildlife learning opportunities to **286 veterinary students.**



Students learning the principles of perioperative monitoring in reptiles during a clinical training session.



Visitor education by a trained docent.



Training session on animal behaviour and enclosure management.



A child participation in conservation pledge activity.



Capacity building programme for delegates from the Democratic Republic of Congo.

21. Important Events and Happenings

The reporting year at SPZP was marked by important institutional milestones, conservation observances, citizen-science initiatives, technical exchanges, public-engagement programmes and collaborative activities. These events strengthened SPZP's role as a conservation-oriented zoological institution and an experiential learning centre.

Chimpanzee Exhibit Inauguration

One of the major milestones of the year was the inauguration of the Chimpanzee Exhibit on World Rainforest Day, 22 June 2025. The exhibit marked the first public display of chimpanzees at SPZP and was inaugurated in a unique manner by children of zoo staff members, symbolising intergenerational participation in conservation awareness.

The inauguration was supported by rainforest-themed interpretation activities, educational interactions, awareness displays and plantation activities. The programme highlighted the ecological importance of rainforest ecosystems and the need for long-term conservation of great apes and their habitats.

Wildlife Week and Zoo Week Celebrations

SPZP observed Wildlife Week and Zoo Week through a range of educational, interpretive and visitor-engagement activities. Programmes included guided interpretation sessions, Keeper Talks, enrichment demonstrations, awareness exhibits, quizzes, student interactions, conservation pledges and exhibit-based storytelling.

The celebrations saw participation from students, visitors, interns, educators and zoo staff, turning the zoo into an active platform for conservation communication and experiential learning.

Canal Water Bird Count and World Wetlands Day Programme

A major citizen-science and biodiversity-monitoring initiative was the Canal Water Bird Count and Birdwatching Programme organised on 2 February 2026 to mark World Wetlands Day. The programme was conducted by the Education and Outreach Department of SPZP in collaboration with the Department of Zoology, School of Science, Birsa Munda Tribal University.

The exercise represented the first structured baseline avifaunal survey of the Ekta Nagar canal ecosystem. A total of 95 bird species and 797 individual birds were documented across six fixed observation points. The programme involved 60 participants, including SPZP staff, experienced birders, university faculty members and students.

Data were collected using standardised monitoring protocols and submitted through citizen-science platforms such as eBird and Merlin. The programme helped strengthen wetland awareness while also creating a baseline for long-term avifaunal monitoring within the Statue of Unity landscape.

“Kaun Banega Conservationist” – International Tiger Day Quiz Initiative

As part of International Tiger Day celebrations, the Education and Outreach Division organised a wildlife quiz competition titled “Kaun Banega Conservationist” for higher-secondary science students from Eklavya Model Residential School, Nandod, Gora Colony.

The preliminary round was conducted during Nature Conservation Day celebrations and saw participation from 51 students. Shortlisted participants then competed in the final round hosted at the zoo. The quiz focused on tiger conservation, biodiversity, ecosystems and environmental stewardship, creating an engaging platform for youth participation in conservation learning.

International Delegation from the Republic of Congo

SPZP hosted a delegation from the Republic of Congo during the reporting year, facilitating international exchange on wildlife conservation, zoo management, conservation education and biodiversity awareness. The delegation participated in guided interpretation sessions, exhibit visits and discussions on shared conservation challenges and wildlife-management practices.

The visit provided valuable institutional exposure and encouraged international dialogue on conservation-oriented zoological management.

Czech Experts' Visit and Technical Knowledge Exchange

The zoo hosted avian and reptile specialists from the Czech Republic for specialised technical knowledge exchange and staff capacity building. Sessions focused on incubation management, exotic bird care, reptile husbandry and monsoon management strategies for zoological collections.

The experts also participated in birdwatching sessions and herpetofaunal field excursions in the region, supporting exchange of observations on species monitoring, habitat management and practical husbandry approaches.

“Exotic Care 101” Workshop

SPZP organised a one-day workshop titled “Exotic Care 101” to strengthen practical learning and technical exposure in exotic animal management. The workshop focused on husbandry and welfare practices for exotic birds and involved 13 participants from VNC.

The programme included hands-on learning in behavioural observation, enrichment, husbandry protocols and exotic avian management. Participants also observed demonstrations of safe handling and restraint techniques involving the rhinoceros iguana, with emphasis on welfare-oriented management practices.

Plantation Drives and Environmental Stewardship

Environmental stewardship remained an important theme during the year. Plantation drives were organised during World Environment Day and World Rainforest Day, with participation from zoo staff, students, interns, visitors and children.

These activities promoted native plantation, habitat restoration, greener zoo landscapes and public participation in conservation-linked sustainability initiatives.

VVIP and Institutional Visits

The zoo hosted several distinguished visitors and institutional delegations during the year, including government officials, senior officers from the Statue of Unity Area Development and Tourism Governance Authority, university representatives and academic groups.

These visits provided opportunities to showcase SPZP’s conservation initiatives, educational programmes, exhibit development, animal-care systems and modern zoo-management practices.

Conservation Awareness Campaigns

SPZP conducted several large-scale awareness campaigns and public-engagement initiatives to commemorate important conservation observance days. These included World Migratory Bird Day, International Leopard Day, Endangered Species Day, International Biodiversity Day, World Dhole Day, World Parrot Day, World Chimpanzee Day and International Tiger Day.

The programmes included guided interpretation, enrichment demonstrations, species-awareness activities, conservation storytelling, educational displays, visitor interactions and exhibit-based learning modules. Together, these initiatives helped maintain year-round public engagement with biodiversity conservation and responsible environmental behaviour.

22. Seasonal Special Arrangements for the Upkeep of Animals

Seasonal preparedness is an important part of animal management at SPZP. Gujarat's climatic conditions require planned interventions during summer, monsoon and winter to ensure that animals remain comfortable, healthy and behaviourally active throughout the year. These arrangements are reviewed and implemented in coordination with the animal management, veterinary, maintenance, security and horticulture teams.

Summer Management

Shade and Cooling

During summer, special emphasis is placed on reducing heat stress and providing animals with adequate thermal choice. Shaded structures such as canopies, artificial shelters, thatch covers and shade nets are provided in required areas, along with enrichment of natural vegetation to reduce direct heat exposure and create cooler resting zones. Active cooling systems such as overhead sprinklers, misting lines, foggers and HVAC are used in selected enclosures depending on species requirement and enclosure design. Water bodies, shallow pools, ponds and wallowing areas are maintained to allow animals to cool themselves naturally. These arrangements are especially important for herbivores, primates, carnivores, reptiles and birds that may be sensitive to prolonged exposure to high ambient temperatures.

Diet and Hydration

Seasonal changes are made in diets to support hydration and reduce heat-related stress. Moisture-rich fruits and vegetables are included where suitable, and water-rich feed items are offered as part of the daily ration or enrichment schedule. Electrolyte supplementation is provided when required under veterinary advice. Clean drinking water is monitored and replenished regularly. In summer, keepers pay special attention to the temperature and availability of water in troughs, bowls, ponds and other drinking points. Ice-based food enrichments, chilled fruits and frozen treats are used for selected species to encourage feeding, hydration and foraging activity during hot periods.

Health Monitoring

Summer health monitoring focuses on early signs of heat stress such as excessive panting, lethargy, reduced feeding, dehydration, abnormal posture, increased aggression, restlessness or unusual hiding behaviour. Keepers conduct regular observations and report any concern to supervisors and veterinary staff. A multi-level monitoring system involving keepers, section supervisors, curatorial staff and veterinarians helps ensure that clinical attention is provided quickly when required. Sensitive individuals, neonates, geriatric animals and animals under treatment are monitored more closely during peak summer.

Enrichment

Enrichment activities are modified during summer so that animals remain active without being exposed to unnecessary heat. Feeding enrichment is often planned during cooler hours of the day. Water-based enrichment, scent trails in shaded areas, ice blocks with food items, browse placement, scatter feeding and sheltered foraging opportunities are used to encourage natural behaviours. Exhibit elements are periodically changed or repositioned to create environmental variety and prevent habituation. Enrichment during summer is planned carefully so that it supports both behavioural engagement and thermal comfort.



Herbivores using shaded shelter during summer to reduce heat exposure and support thermal comfort.



Sprinkler-based cooling support for giraffe during summer management.



Sloth bear using a water pool as part of summer cooling and heat-stress management.



Keeper providing misting support for iguana enclosure cooling and humidity management.



Frozen fruit enrichment offered to primates to support hydration, feeding engagement and thermal comfort during summer.



Ice-block enrichment provided to a leopard as part of summer cooling and behavioural enrichment.

Monsoon Management

Shelter and Drainage

During the monsoon, the main focus is to keep animals dry, comfortable and safe while ensuring that enclosures remain hygienic and functional. Waterproof shelters, covered resting areas and raised platforms are provided in required enclosures to reduce prolonged contact with wet ground.

Substrate management is carried out through the use of dry leaf litter, appropriate bedding materials, bioactive flooring systems and periodic replacement of wet or soiled material. This helps maintain better hygiene, improves locomotor comfort and reduces the risk of skin, hoof or foot-related problems. Drainage systems are checked and maintained before and during the monsoon to prevent waterlogging. Surface runoff, enclosure slopes, drains, ponds and service areas are regularly inspected so that stagnant water does not accumulate. Structural checks are also carried out to identify seepage, leakage, damage to roofing or weakening of enclosure materials.

Health Monitoring

Monsoon-specific preventive healthcare includes increased attention to biosecurity, disinfection and vector control. Regular cleaning and disinfection protocols are followed, and mosquito and other vector-control measures are implemented in vulnerable areas.

Vaccination, deworming and ectoparasite-control schedules are carried out as part of routine veterinary management. Animals are monitored for seasonal health issues such as skin infections, foot problems, respiratory signs, gastrointestinal disturbances, parasitic burden and reduced activity due to damp conditions.

Enrichment

During heavy rainfall or restricted outdoor access, enrichment activities are shifted or adapted to covered and indoor areas. Food-based enrichment, puzzle feeders, suspended browse, scent enrichment, protected log piles, tactile substrates and sheltered foraging opportunities are used to maintain behavioural engagement. Outdoor enrichment is placed only in safe, dry and non-waterlogged areas. This ensures that animals continue to receive stimulation and choice without compromising hygiene or safety.

Emergency Preparedness

Monsoon preparedness also includes planning for extreme weather events such as heavy rainfall, storms, flooding or damage to infrastructure. Contingency holding areas and secure shift spaces are identified for temporary relocation of animals if required. Emergency access routes, service roads, drainage lines, electrical systems and communication channels are kept under review during the season. Staff are briefed on emergency response procedures so that animal safety, staff safety and operational continuity can be maintained during adverse weather.



Rain-sheltered feeding station for parrots.



Controlled burning of neem leaves to help reduce insect vectors around animal exhibits.



Orangutans and chimpanzees engaged in indoor enrichment activities on rainy days.



Rain covers used over arid-climate reptile enclosures to maintain dry, species-appropriate conditions during the monsoon.



Winter Management

Shelter and Heating

Although winter in the region is generally short, several species require protection from cold winds and night-time temperature drops. Shelters, night houses and resting areas are prepared with suitable bedding and wind protection. In open or semi-open enclosures, insulation and draft reduction are provided where required.

Supplementary heating systems such as infrared heat lamps, heated pads or other safe heating arrangements are used for selected species under veterinary and curatorial guidance. Bedding materials such as straw, hay, wood wool or other suitable substrates are provided to improve insulation and resting comfort, particularly for young, geriatric or temperature-sensitive animals.

Diet and Nutrition

Dietary adjustments are made during winter to meet seasonal energy requirements. Depending on the species, slightly energy-dense diets, warm feed preparations, increased browse, additional hay, nuts, grains or other suitable dietary components may be provided. Warm and nutritionally balanced feed is offered where appropriate, particularly for primates, birds and selected herbivores. Vitamin and mineral supplementation is provided as per veterinary advice to support immunity and overall health during the colder months. Drinking water availability is also monitored to ensure that animals continue to drink adequately even when temperatures drop.

Health Monitoring

Winter monitoring focuses on signs of cold stress, respiratory illness, reduced movement, stiffness, loss of appetite, abnormal resting behaviour or difficulty maintaining body condition. Veterinary staff carry out routine checks, while keepers continue daily observation of behaviour, feeding and activity patterns.

Temperature-sensitive species, reptiles, birds, neonates and geriatric animals receive additional attention during this period. Any signs of nasal discharge, wheezing, lethargy or poor thermoregulation are reported immediately for veterinary assessment.

Enrichment

During winter, enrichment is planned to encourage activity, exploration and natural behaviour, especially when animals spend more time in sheltered or indoor areas. Puzzle feeders, olfactory enrichment, tactile objects, browse, scatter feeding and training-based activities are used to maintain behavioural stimulation.

For reptiles and other ectothermic species, enclosure management includes provision of proper thermal gradients so that animals can choose suitable basking and resting zones. For birds and mammals, enrichment is placed in warmer and sheltered areas to ensure continued engagement without unnecessary exposure to cold.



Hide provided to serval offering a secure, sheltered resting space and support thermal comfort during winter.



Nest box provided to the birds for protection and comfort during colder weather.



UVB mercury vapour heat bulbs help maintain suitable basking temperatures and ultraviolet exposure for reptiles during winter.



Pruning of trees to clear vast areas for basking under sunlight.



Energy-rich nuts such as walnuts are offered to macaws and other large parrots during winter to support body condition, provide healthy fats and add seasonal variety to the diet.



Warm hay bedding provided to vulnerable animals to improve thermal comfort during colder conditions.

23. Research Work and Publications

Research at SPZP is increasingly being linked with practical management decisions. Studies and publications generated from the zoo have contributed to refinement of enrichment protocols, enclosure design, visitor interpretation, education planning, welfare monitoring, animal training, nutrition practices, sustainability initiatives and species-specific husbandry. This approach supports the larger institutional objective of developing SPZP not only as a visitor destination, but as a learning and knowledge-generating zoological institution.

Published Research and Institutional Articles

1. Shah, S., Sharma, S., Chauhan, D., Mukherjee, A., & Mukherjee, S. (2025). Conservation education initiatives at Sardar Patel Zoological Park: Practices and learning. *International Zoo Educators Association Journal*, 61, 94–101. *This article documented conservation education initiatives at SPZP between October 2023 and December 2024, including guided tours, audio-visual sessions, interactive learning, docent programmes, workshops and internships. The paper highlighted how well-planned zoo education can improve conservation literacy and help visitors build meaningful connections with wildlife.*
2. Sharma, S., Shah, D., Trivedi, K., & Mukherjee, S. (2025). Sardar Patel Zoological Park: Advancing research, welfare, and sustainability in the modern zoo. *Ex-situ*, 5, 29–31. Central Zoo Authority, Government of India. *This article synthesised key research outcomes generated at SPZP between 2023 and 2025, including carbon footprint assessment, soil health studies, animal welfare evaluations, cognitive enrichment trials, exhibit design research and behavioural investigations. The article showed how research-driven decision-making can support modern zoo management, animal welfare and institutional sustainability.*
3. Patel, M., Gohil, D., & Mukherjee, S. (2025). Living floors, thriving fauna: Bio-active substrates at Sardar Patel Zoological Park. *Ex-situ*, 5, 32–34. Central Zoo Authority, Government of India. *This article described SPZP's transition from conventional hard flooring to bio-active substrate systems in selected enclosures. It documented the use of soil, mulch, coco-peat, leaf litter and decomposer communities to support natural behaviours such as nesting, burrowing, dust-bathing, foraging and wallowing, while also improving environmental complexity and enclosure sustainability.*
4. Sharma, S., Shah, D., & Mukherjee, S. (2025). Educating for the wild: SPZP's conservation learning model. *Ex-situ*, 6(2–3), 6–9. Central Zoo Authority, Government of India. *This article presented SPZP's conservation education model, integrating visitor engagement, academic training, professional capacity building and behaviour-change communication. It documented the reach of educational initiatives and highlighted how modern zoos can function as active learning centres that promote conservation literacy and public participation.*
5. Patel, M. (2026). Raising royalty: Hand-rearing a grey crowned crane chick at Sardar Patel Zoological Park. *Sanjeevani*, Issue 05, 26–28. Life Science Education Trust. *This article documents the artificial incubation, hand-rearing, hygiene protocols, sunlight exposure, growth monitoring and successful aviary introduction of a grey crowned crane (*Balearica regulorum*) chick at SPZP.*

6. Sharma, S., Shah, D., & Mukherjee, S. (2025). Reimagining the zoo experience: A study on visitor feedback and immersive engagement at Sardar Patel Zoological Park. *Ex-situ*, 6(2–3), 11–12. Central Zoo Authority, Government of India. *This study analysed 1,096 visitor feedback responses collected at SPZP between January and May 2025. The findings indicated high satisfaction across entrance experience, cleanliness, animal viewing, educational opportunities and visitor amenities. The study emphasised the importance of integrating animal welfare, interpretation and visitor-centred design to create meaningful zoo experiences.*
7. Mukherjee, S. (2026). Novel observations of aquatic behaviour in Indian star tortoises (*Geochelone elegans*): Implications for ecology, conservation, and captive care. *Journal of Wildlife and Conservation*, 2(1), 20–26. DOI: 10.54536/jwc.v2i1.6482. *This paper documented voluntary swimming behaviour in Indian star tortoises based on long-term observations from natural and captive settings in Gujarat. The findings challenged the conventional understanding of the species as strictly terrestrial and suggested that shallow aquatic features may have relevance in enrichment, enclosure design and welfare planning for the species.*
8. Buchke, S., Mondal, S., & Mukherjee, S. (2025). Enhancing animal welfare through positive reinforcement-based training at Sardar Patel Zoological Park, Kevadia. *Indian Zoo Year Book*, 10, 56–63. *This article examined the implementation and impact of positive reinforcement-based training in zoo settings. It highlighted the role of such training in improving animal welfare, facilitating routine husbandry tasks, reducing stress and enhancing visitor experience, with case studies involving giraffes, mega-herbivores, primates and psittacines.*
9. Patel, M., Mukherjee, S., & Mukherjee, A. (2025). Establishing an in-house waxworm (*Galleria mellonella*) culture in an Indian zoological facility: Practical husbandry, nutritional role, and wider applications. *Acta Entomology and Zoology*, 6(2), 292–297. DOI: 10.33545/27080013.2025.v6.i2d.266. *This paper described the establishment and refinement of an in-house waxworm culture for use in zoological nutrition and enrichment. It presented practical husbandry details related to container design, substrate preparation, temperature, hygiene, harvesting and the nutritional role of waxworms as high-value feeder insects.*
10. Mukherjee, S. (2025). From enclosures to habitats: The evolution of reptile housing in modern zoos. *Indian Zoo Year Book*, Vol. X, 74–81. *This article discussed the progression of reptile housing from basic enclosures to bio-active and naturalistic habitats. It emphasised the importance of recognising reptiles as behaviourally complex animals requiring environmental choice, enrichment, appropriate substrates and species-specific enclosure planning. The SPZP reptile facility was presented as a case study in welfare-oriented reptile habitat design.*
11. Trivedi, K., Patel, M., & Mukherjee, S. (2025). A study on the captive breeding of the painted stork (*Mycteria leucocephala*) at the Sardar Patel Zoological Park, Ekta Nagar, Gujarat, India. *Cheetal*, 62(1), 79–88. *This study documented the captive breeding behaviour of painted storks at SPZP, including nest construction, egg laying, incubation, chick growth and parental care. The observations contributed useful information on the breeding biology of the species in managed conditions and may support future rehabilitation and conservation management of painted storks.*
12. Mukherjee, S. (2025). Reptile nutrition in captivity: Integrating evidence-based strategies, behavioural considerations, and dietary advancements. *Sanjeevani*, Issue 04, 41–45. Life Science Education Trust. *This article discusses evidence-based reptile nutrition, dietary niches, whole-prey feeding, gut-loading, supplementation, food presentation, UVB, temperature, humidity, gut microbiome and nutritional disorders in captive reptiles.*

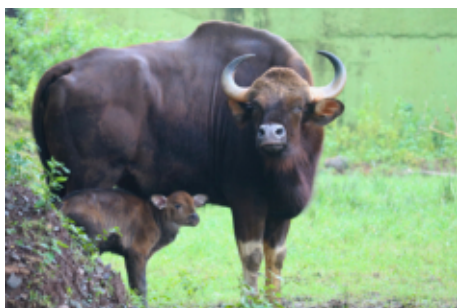
24. Conservation Breeding Programme

Since its establishment in 2019, Sardar Patel Zoological Park has been actively working towards strengthening ex-situ conservation through scientifically managed breeding and species-management programmes.

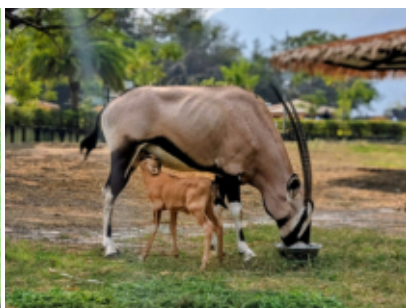
In line with national conservation objectives and the directions of the Central Zoo Authority, SPZP has approached the Central Zoo Authority vide letter dated 25 January 2024 for inclusion as a Participating Zoo in conservation breeding programmes for the following priority species:

Sr. no.	Species	Scientific name
1	Greater one-horned rhinoceros	<i>Rhinoceros unicornis</i>
2	Four-horned antelope	<i>Tetracerus quadricornis</i>
3	Indian wild dog/ Dhole	<i>Cuon alpinus</i>
4	Gaur	<i>Bos gaurus</i>

During the reporting period, the zoo recorded 62 births across 19 species, including 33 birds, 19 mammals and 10 reptiles. Successful natality was recorded in species such as gaur (*Bos gaurus*), sambar deer (*Rusa unicolor*), chinkara (*Gazella bennettii*), four-horned antelope (*Tetracerus quadricornis*), blackbuck (*Antelope cervicapra*), black-tufted capuchin (*Sapajus apella*), South American coati (*Nasua nasua*), South African oryx / gemsbok (*Oryx gazella*), painted stork (*Mycteria leucocephala*), black swan (*Cygnus atratus*), common ostrich (*Struthio camelus*), galah cockatoo (*Eolophus roseicapilla*), rainbow lorikeet (*Trichoglossus moluccanus*) and green iguana (*Iguana iguana*). These births reflect the role of species-specific husbandry, nutrition, veterinary care, enrichment and habitat management in supporting reproduction under managed care.



Indian gaur



South African oryx



Tufted capuchin



Four-horned antelope



Rainbow lorikeet



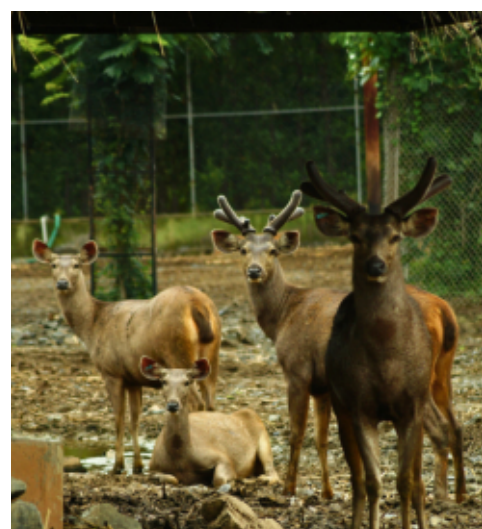
Ostrich

As part of its broader ex-situ conservation and population-management efforts, SPZP has also supported conservation-oriented animal transfers in coordination with competent authorities. During the reporting year, the zoo transferred the following animals to support population management and conservation requirements:

Sr. no.	Species	Scientific name	Number of animals	Transferred to
1	Sambar deer	<i>Rusa unicolor</i>	62	Vadodara Wildlife Division
2	Blackbuck	<i>Antelope cervicapra</i>	64	Banni Wildlife Division
3	Spotted deer	<i>Axis axis</i>	30	Vadodara Wildlife Division



Spotted deer resting as a herd - shows the social nature of the species and the need for careful group management.



Sambar deer in a holding area prior to planned transfer and relocation.



Blackbuck group at SPZP; surplus animals were transferred to support wider population-management requirements.

25. Animal Acquisition/ Transfer/ Exchange During the Year

A	Animal acquisition			
Sr. no.	Species	Number T (M:F:U)	From which zoo	Date of arrival in the zoo
1	Fallow Deer (<i>Dama dama</i>)	6 (1:5:0)	Radhe Krishna Temple Elephant Welfare Trust (RKTEWT)	15-04-2025
2	Plains Zebra (<i>Equus quagga</i>)	3 (0:3:0)		
3	Ring-tailed Lemur (<i>Lemur catta</i>)	2 (1:1:0)		
4	Green anaconda (<i>Eunectes murinus</i>)	3 (0:0:3)		
5	White-throated toucan (<i>Ramphastos tucanus</i>)	1 (0:0:1)		
6	Channel-billed toucan (<i>Ramphastos vitellinus</i>)	1 (0:0:1)		
7	Chimpanzee (<i>Pan troglodytes</i>)	3 (1:2:0)	Capital Zoo, UAE	21-04-2025
8	Four-toed hedgehog (<i>Atelerix albiventris</i>)	6 (2:4:0)	Shri Sayajibaug Zoo, Vadodara	22-04-2025
9	Nilgai (<i>Boselaphus tragocamelus</i>)	2 (0:2:0)	Rescued	18-12-2025
10	Indian grey wolf (<i>Canis lupus pallipes</i>)	2 (1:1:0)	Sajjangarh Biological Park, Udaipur	07-01-2026
11	Indian wild ass (<i>Equus hemionus khur</i>)	1 (0:1:0)	Sakkarbaug Zoological Park, Vadodara	19-02-2026



Chimpanzee.



Indian wild ass.



Indian grey wolf.



Nilgai.



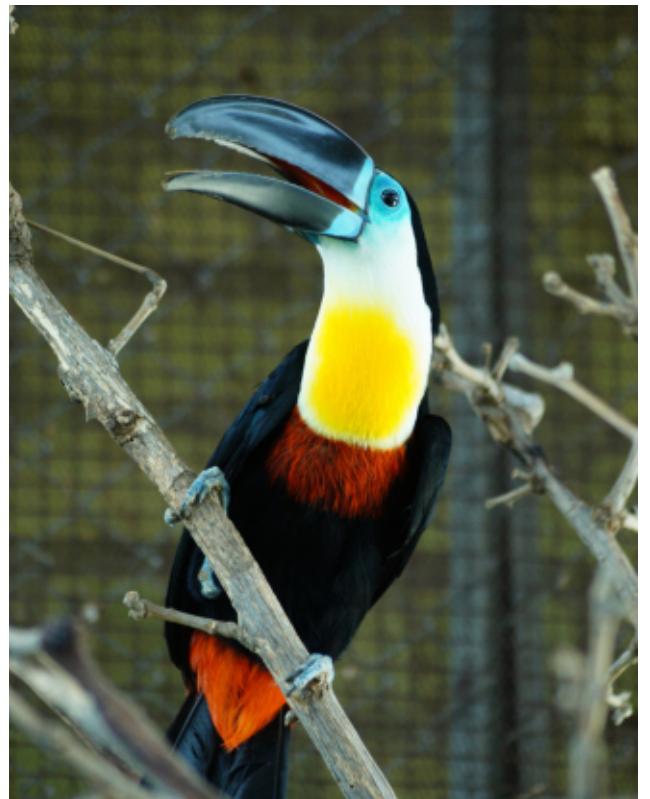
White-throated toucan.



Ring-tailed lemur.



Plains zebra.

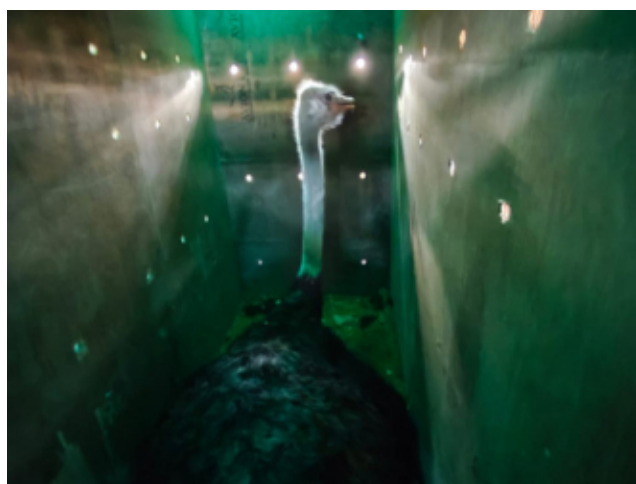


Channel-billed toucan.

B	Animals going from the zoo			
Sr. no.	Species	Number T (M:F:U)	To which zoo/ Wildlife Division	Date of disposal from the zoo
1	Blackbuck (<i>Antilope cervicapra</i>)	64 (36:16:12)	Banni Wildlife Division	20-04-2025
2	Sambar deer (<i>Rusa unicolor</i>)	62 (19:28:15)	Vadodara Wildlife Division	26-04-2025
3	Spotted Deer (<i>Axis axis</i>)	30 (9:19:2)	Vadodara Wildlife Division	27-04-2025
4	Striped Hyena (<i>Hyaena hyaena</i>)	1 (0:1:0)	Pradyumn Zoological Park, Rajkot	04-06-2025
5	Common Ostrich (<i>Struthio camelus</i>)	1 (1:0:0)	Sajjangarh Biological Park, Udaipur	05-01-2026
6	Green Iguana (<i>Iguana iguana</i>)	4 (2:2:0)	Sajjangarh Biological Park, Udaipur	05-01-2026
7	Indian Wild Ass (<i>Equus hemionus khur</i>)	1 (1:0:0)	Sakkarbaug Zoological Park, Junagadh	17-02-2026



Blackbuck.



Ostrich.



Green iguana.



Sambar deer.

26. Rescue, Treatment, and Rehabilitation of Wild Animals

During the reporting year, SPZP provided rescue, veterinary and rehabilitation support for wild animals, birds and reptiles in coordination with the concerned Forest Divisions and Ranges. The zoo does not retain rescued wildlife as part of its regular collection unless specifically directed by the competent authority. Support is provided as required through field-level assessment, stabilisation, treatment, surgery, diagnostic evaluation, post-treatment care and guidance on release or transfer.

Sr. no.	Date	Species	Location	Action
1	17 Apr 2025	Yellow-footed green pigeon (<i>Treron phoenicopterus</i>) 0:0:1	SPZP	Dehydrated, treated and released after two days
2	7 May 2025	Northern plains grey langur (<i>Semnopithecus entellus</i>) 0:0:1	Vasantpura, Gora Range, Narmada	Veterinary support and assistance provided to Forest Department for rescue and treatment
3	19 May 2025	Yellow-footed green pigeon (<i>Treron phoenicopterus</i>) 0:0:1	SPZP	Dehydrated, treated and released after two days
4	21 May 2025	Indian roller (<i>Coracias benghalensis</i>) 0:0:1	SPZP	Right ulnar simple fracture surgically corrected by open reduction internal fixation by IMP and released two months post operatively
5	29 May 2025	Indian leopard (<i>Panthera pardus fusca</i>) 0:1:0	Rajpipla Range, Narmada	Veterinary support and assistance provided to Forest Department for rescue and treatment
6	8 Jun 2025	Indian leopard (<i>Panthera pardus fusca</i>) 1:0:0	Sagbara Range, Narmada	Veterinary support and assistance provided to Forest Department for rescue and treatment
7	11 Jun 2025	Brahminy starling (<i>Sturnia pagodarum</i>) 0:0:1	SPZP	Rescued, examined, treated as required and released back into the natural habitat in coordination with the Forest Department.

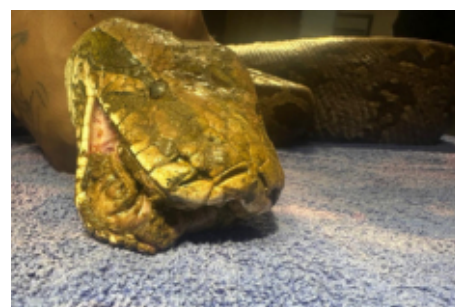
8	22 Jun 2025	Russell's viper (<i>Daboia russelii</i>) 0:0:1	SPZP	Minor injuries treated and released the same day
9	23 Jun 2025	Five-striped palm squirrel (<i>Funambulus pennantii</i>) 0:0:1	SPZP	Minor injuries treated and released after two days
10	30 Jun 2025	Indian chameleon (<i>Chamaeleo zeylanicus</i>) 0:0:1	SPZP	Rescued, examined, treated as required and released back into the natural habitat in coordination with the Forest Department.
11	01 Jul 2025	Four-horned antelope (<i>Tetracerus quadricornis</i>) 0:0:1	Naswadi Range, Chhotaudepur, Vadodara	Veterinary support and assistance provided to Forest Department for rescue and treatment
12	24 Jul 2025	Greater coucal (<i>Centropus sinensis</i>) 0:0:1	SPZP	Traumatic injuries treated and released after 7 days of post-treatment care
13	25 Jul 2025	Indian rock python (<i>Python molurus</i>) 0:0:1	Kevadiya Range, Narmada	Mandibular fracture treated conservatively and released post complete recovery after three months
14	30 Jul 2025	Oriental honey buzzard (<i>Pernis ptilorhynchus</i>) 0:0:1	Kevadiya Range, Narmada	Myiasis in the right flank area treated and released after 12 days
15	01 Aug 2025	Indian Leopard (<i>Panthera pardus</i>) 1:0:0	Rajpipla Range, Narmada	Veterinary support and assistance provided to Forest Department for rescue and treatment
16	05 Aug 2025	Indian rock python (<i>Python molurus</i>) 0:0:1	Kevadiya Range, Narmada	Gaping wound at proximal third portion of the body surgically corrected and released two months post operatively
17	09 Aug 2025	Yellow-footed green pigeon (<i>Treron phoenicopterus</i>) 0:0:1	SPZP	Crop laceration repaired surgically and released one month post operatively

18	26 Aug 2025	Yellow-footed green pigeon (<i>Treron phoenicopterus</i>) 0:0:1	SPZP	Crop laceration repaired surgically and released one and half month post operatively
19	16 Sep 2025	Indian Leopard (<i>Panthera pardus</i>) 0:1:0	Rajpipla Range, Narmada	Veterinary support and assistance provided to Forest Department for rescue and treatment
20	02 Oct 2025	Cattle egret (<i>Bubulcus coromandus</i>) 0:0:1	SPZP	Fluid therapy and supportive care given to the bird and released five days post treatment
21	12 Oct 2025	Asian Koel (<i>Eudynamys scolopaceus</i>) 0:1:0	SPZP	Treated for weakness and released four days later
22	20 Oct 2025	Blue bull (<i>Boselaphus tragocamelus</i>) 0:2:0	Anand Range, Social Forestry, Anand	Extensive laceration and dog bite wounds treated, both calves hand raised and housed at SPZP
23	05 Nov 2025	Indian rock python (<i>Python molurus</i>) 0:0:1	Kevadiya Range, Narmada	Maxillary injury treated and released after two months
24	06 Nov 2025	Indian silverbill (<i>Euodice malabarica</i>) 0:0:1	SPZP	Traumatic shock treated and the bird was released after three days
25	29 Nov 2025	Common sand boa (<i>Gongylophis conicus</i>) 0:0:1	Kevadiya Range, Narmada	Myiasis on left thoracic region treated and released one month post treatment
26	15 Dec 2025	Indian Leopard (<i>Panthera pardus</i>) 0:1:0	Naswadi Range, Chhotaudepur, Vadodara	Veterinary support and assistance provided to Forest Department for treatment
27	16 Dec 2025	Indian wild dog (<i>Cuon alpinus</i>) 0:1:0	SPZP	Veterinary support and assistance provided to Forest Department for treatment
28	29 Dec 2025	Russell's viper (<i>Daboia russelii</i>) 0:0:1	SPZP	Routine check-up post rescue by the Forest Dept. and was released the same day

29	14 Jan 2026	Northern plains grey langur (<i>Semnopithecus entellus</i>) 0:1:0	Kevadiya Range, Narmada	Dog bite injury treated, vaccinated and assistance provided to the Forest Dept.
30	17 Jan 2026	Indian Leopard (<i>Panthera pardus</i>) 0:1:0	Zer Village, Kevadiya Range, Narmada	Veterinary support and assistance provided to Forest Department for rescue and treatment
31	21 Jan 2026	Indian rock python (<i>Python molurus</i>) 0:0:1	Rajpipla Range, Narmada	Evisceration of mesentery and intestines surgically corrected and released two months post operatively
32	27 Jan 2026	Indian Leopard (<i>Panthera pardus</i>) 0:1:0	Jantar Village, Kevadiya Range, Narmada	Veterinary support and assistance provided to Forest Department for rescue and treatment
33	16 Mar 2026	Indian Elephant (<i>Elephas maximus indicus</i>) 0:1:0	Swaminarayan Temple/ Nilkanthdham, Poicha	Veterinary support and assistance provided to temple authorities for treatment and guidance of care of the elephant



Providing veterinary support for rescue and treatment of leopards to the local forest department.



Mandibular fracture in an Indian rock python.



Eviscerated intestines in an Indian rock python.



Nilgai calf with critical dog bite injuries rescued by the forest department and handed over to SPZP for further care and management.



Leopard cub rescued by local forest department being treated at veterinary hospital, SPZP.

27. Annual Inventory of Animals

FORM-II
[See rule 11 (1)]

PART - A
Sardar Patel Zoological Park, Kevadiya, Gujarat

Proforma for Annual Inventory Report
Inventory Report for the Year : 2025-2026

Endangered Species*

- Modified Closing Balance

S.No.	Animal Name	Scientific Name	Opening Stock (01-Apr-2025)				Births			Acquisitions			Disposals			Deaths			Closing Stock (31-Mar-2026)			
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
Aves																						
1.	Northern Pintail	Anas acuta	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
2.	Common Teal	Anas crecca	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3.	Greylag Goose	Anser anser	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
4.	Bar-headed Goose	Anser indicus	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5.	♂ Sarus Crane	Antigone antigone	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
6.	Indian Pond Heron	Ardeola grayii	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7.	Cattle Egret	Bubulcus ibis	8	8	10	26	0	0	3	0	0	0	0	0	0	0	0	0	8	8	13	29
8.	Lesser Whistling Duck	Dendrocygna javanica	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
9.	Asian Koel	Eudynamys scolopaceus	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10.	Red Junglefowl	Gallus gallus	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
11.	Common Crane	Grus grus	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
12.	Demoiselle Crane	Grus virgo	0	0	3	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2
13.	Gadwall	Mareca strepera	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
14.	Painted Stork	Mycteria leucocephala	7	9	42	58	0	0	4	0	0	0	0	0	0	0	0	0	7	9	46	62
15.	♂ Black-crowned Night Heron	Nycticorax nycticorax	0	0	16	16	0	0	3	0	0	0	0	0	0	0	0	0	1	1	17	19
16.	Rosy Starling	Pastor roseus	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
17.	♂ Indian Peafowl	Pavo cristatus	2	9	9	20	0	0	2	0	0	0	0	0	0	0	0	0	5	14	3	22
18.	Great White Pelican	Pelecanus onocrotalus	1	2	3	6	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	6
19.	Eurasian Spoonbill	Platalea leucorodia	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
20.	Red-naped Ibis	Pseudibis papillosa	0	0	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15
21.	Plum-headed Parakeet	Psittacula cyanocephala	0	0	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22
22.	Alexandrine Parakeet	Psittacula eupatria	10	11	3	24	0	0	0	0	0	0	0	0	0	0	0	0	10	11	3	24
23.	Rose-ringed Parakeet	Psittacula krameri	53	39	12	104	0	0	0	0	0	0	0	0	0	0	0	0	53	39	12	104
24.	Knob-billed Duck	Sarkidiornis melanotos	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	18	18
25.	Black-headed Ibis	Threskiornis melanocephalus	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
Total Aves	25		84	84	161	329	0	0	12	0	0	18	0	0	0	1	0	0	89	90	179	358

S.No.	Animal Name	Scientific Name	Opening Stock (01-Apr-2025)				Births			Acquisitions			Disposals			Deaths			Closing Stock (31-Mar-2026)			
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
Mammalia																						
1.	Blackbuck	<i>Antelope cervicapra</i>	21	17	48	86	0	0	0	0	0	0	36	16	12	0	0	0	10	10	2	22
2.	Blackbuck (leucistic/white)	<i>Antelope cervicapra</i>	7	13	27	47	0	0	2	0	0	0	0	0	0	0	0	0	15	16	18	49
3.	Chital/ Spotted Deer	<i>Axis axis</i>	10	22	29	61	0	0	0	0	0	0	9	19	2	0	0	0	8	14	9	31
4.	Indian Bison, Gaur	<i>Bos gaurus</i>	4	1	0	5	0	1	0	0	0	0	0	0	0	1	0	0	3	2	0	5
5.	Nilgai	<i>Boselaphus tragocamelus</i>	0	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0	3
6.	Indian Wolf	<i>Canis lupus pallipes</i>	1	1	0	2	0	0	0	1	1	0	0	0	0	0	0	0	2	2	0	4
7.	Asiatic Wild Dog, Dhole, Indian Wild Dog, Red Dog	<i>Cuon alpinus</i>	4	1	0	5	0	0	0	0	0	0	0	0	0	1	0	0	3	1	0	4
8.	Indian Wild Ass	<i>Equus hemionus khur</i>	2	0	0	2	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	2
9.	Chinkara	<i>Gazella bennettii</i>	4	5	9	18	0	0	1	0	0	0	0	0	0	1	0	0	10	5	3	18
10.	Striped Hyena	<i>Hyaena hyaena</i>	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11.	Sloth Bear	<i>Melursus ursinus</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
12.	Himalayan Goral	<i>Naemorhedus goral</i>	1	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	4
13.	Asiatic Lion	<i>Panthera leo persica</i>	1	5	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	6
14.	Leopard	<i>Panthera pardus</i>	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
15.	Leopard (melanistic)	<i>Panthera pardus</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
16.	Bengal Tiger	<i>Panthera tigris tigris</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
17.	Indian Rhinoceros (Greater One-horned Rhino)	<i>Rhinoceros unicornis</i>	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
18.	Eld's Deer (Brow-antlered Deer)	<i>Rucervus eldii</i>	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
19.	Sambar Deer	<i>Rusa unicolor</i>	21	16	29	66	0	0	7	0	0	0	19	28	15	0	0	0	2	2	7	11
20.	Four-horned Antelope	<i>Tetracerus quadricornis</i>	3	7	10	20	0	0	1	0	0	0	0	0	0	0	3	0	3	4	11	18
Total Mammalia	20		83	102	153	338	0	1	11	1	4	0	65	64	29	3	3	0	63	77	51	191
Reptilia																						
1.	Marsh Crocodile	<i>Crocodylus palustris</i>	0	1	14	15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	15
2.	Russell's Viper	<i>Daboia russelii</i>	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
3.	Gharial	<i>Gavialis gangeticus</i>	2	3	0	5	0	0	0	0	0	0	0	0	0	0	1	0	2	2	0	4
4.	Indian Star Tortoise	<i>Geochelone elegans</i>	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
5.	Spectacled Cobra	<i>Naja naja</i>	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
6.	Common Rat Snake	<i>Ptyas mucosa</i>	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7.	Indian Rock Python	<i>Python molurus</i>	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
8.	Bengal Monitor	<i>Varanus bengalensis</i>	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Total Reptilia	8		2	4	30	36	0	0	0	0	0	0	0	0	0	0	1	0	2	3	30	35
Total			169	190	344	703	0	1	23	1	4	18	65	64	29	4	4	0	154	170	260	584

Animals under Sch. I & Sch. II of WPA, 1972

PART - B
Sardar Patel Zoological Park, Kevadiya, Gujarat

Proforma for Annual Inventory Report
Inventory Report for the Year : 2025-2026

Other than Endangered Species*

- Modified Closing Balance

S.No.	Animal Name	Scientific Name	Opening Stock (01-Apr-2025)				Births			Acquisitions			Disposals			Deaths			Closing Stock (31-Mar-2026)			
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
Aves																						
1.	Peach-faced Lovebird, Rosy-faced Lovebird	Agapornis roseicollis	0	0	250	250	0	0	0	0	0	0	0	0	0	2	0	0	0	0	248	248
2.	Wood Duck	Aix sponsa	3	1	0	4	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	3
3.	Blue-fronted Amazon, Blue-fronted Parrot, Turquoise-fronted amazon, Turquoise-fronted Parrot	Amazona aestiva	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
4.	♂ Orange-winged Amazon, Orange-winged Parrot	Amazona amazonica	0	0	3	3	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	4
5.	Yellow-crowned Amazon, Yellow-crowned Parrot, Yellow-fronted Amazon	Amazona ochrocephala	4	3	0	7	0	0	0	0	0	0	0	0	0	0	0	0	4	3	0	7
6.	Blue-and-gold Macaw, Blue-and-yellow Macaw	Ara ararauna	5	5	0	10	0	0	1	0	0	0	0	0	0	0	0	0	5	5	1	11
7.	Green-winged Macaw, Red-and-green Macaw	Ara chloropterus	3	3	0	6	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	6
8.	Scarlet Macaw	Ara macao	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
9.	Sun Conure, Sun Parakeet	Aratinga solstitialis	3	4	4	11	0	0	0	0	0	0	0	0	0	0	0	0	3	4	4	11
10.	Grey crowned crane, Grey Crowned-crane, Grey Crowned-Crane, South African Crowned Crane, Southern crowned crane	Balearica regulorum	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
11.	Lady Amherst's Pheasant	Chrysolophus amherstiae	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
12.	Golden Pheasant	Chrysolophus pictus	3	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	5
13.	♂ Black Swan	Cygnus atratus	1	2	10	13	0	0	5	0	0	0	0	0	0	0	0	0	4	4	10	18
14.	♂ Emu	Dromaius novaehollandiae	0	0	13	13	0	0	2	0	0	0	0	0	0	0	0	0	2	2	11	15
15.	Eclectus Parrot	Eclectus roratus	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
16.	Galah, Roseate Cockatoo	Eolophus roseicapilla	2	2	0	4	0	0	4	0	0	0	0	0	0	0	0	0	2	2	4	8

17.	Diamond Dove	<i>Geopelia cuneata</i>	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30	
18.	Finch sp.	<i>Lonchura sp.</i>	0	0	275	275	0	0	0	0	0	0	0	0	0	1	1	0	0	273	273	
19.	Silver Pheasant	<i>Lophura nycthemera</i>	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	2	3	0	5	
20.	Budgerigar	<i>Melopsittacus undulatus</i>	3	2	359	364	0	0	0	0	0	0	0	0	0	1	1	0	2	1	359	362
21.	Violet Turaco	<i>Musophaga violacea</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
22.	Cockatiel	<i>Nymphicus hollandicus</i>	0	0	79	79	0	0	0	0	0	0	0	0	0	0	0	0	0	79	79	
23.	Grey Parrot, Jacquot	<i>Psittacus erithacus</i>	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	
24.	Green-cheeked Conure, Green-cheeked Parakeet	<i>Pyrrhura molinae</i>	5	7	48	60	0	0	0	0	0	0	0	0	0	0	0	5	7	48	60	
25.	Red-billed Toucan, White-throated toucan	<i>Ramphastos tucanus</i>	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	0	2	
26.	Channel-billed Toucan	<i>Ramphastos vitellinus</i>	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	0	2	
27.	Comb Duck	<i>Sarkidiornis sylvicola</i>	0	0	19	19	0	0	0	0	0	0	0	0	18	1	0	0	0	0	0	
28.	* Common ostrich, Ostrich	<i>Struthio camelus</i>	1	2	4	7	0	0	6	0	0	0	1	0	0	0	0	2	2	8	12	
29.	Reeves's Pheasant	<i>Symaticus reevesii</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
30.	Rainbow Lorikeet	<i>Trichoglossus moluccanus</i>	4	4	0	8	0	0	2	0	0	0	0	0	0	0	0	4	4	2	10	
Total Aves	30		50	51	1095	1196	0	0	21	2	0	0	1	0	18	6	2	0	57	55	1080	1192
Mammalia																						
1.	Four-toed Hedgehog	<i>Atelerix albiventris</i>	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	2	4	0	6	
2.	Common Marmoset	<i>Callithrix jacchus</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
3.	Black-capped Capuchin, Tufted Capuchin	<i>Cebus apella</i>	3	2	0	5	0	0	1	0	0	0	0	0	0	0	0	3	2	1	6	
4.	Blue Wildebeest	<i>Connochaetes taurinus</i>	3	3	0	6	0	0	1	0	0	0	0	0	0	0	0	3	3	1	7	
5.	Fallow Deer	<i>Dama dama</i>	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	1	5	0	6	
6.	Plains Zebra	<i>Equus quagga</i>	1	0	0	1	0	0	0	0	3	0	0	0	0	0	0	1	3	0	4	
7.	Masai Giraffe	<i>Giraffa tippelskirchi</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
8.	Common hippopotamus, Hippopotamus, Large Hippo	<i>Hippopotamus amphibius</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
9.	Ring-tailed Lemur	<i>Lemur catta</i>	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	1	2	0	3	
10.	Serval	<i>Leptailurus serval</i>	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	
11.	* Indian Muntiac	<i>Muntiacus muntiak</i>	1	2	5	8	0	0	0	0	0	0	0	0	0	1	0	0	1	2	4	7
12.	* South American Coati, Southern Coati	<i>Nasua nasua</i>	2	6	0	8	0	0	5	0	0	0	0	0	0	0	0	5	6	2	13	
13.	South African oryx/Gemsbok	<i>Oryx gazella</i>	2	1	0	3	0	1	0	0	0	0	0	0	0	0	0	2	2	0	4	
14.	Bat-eared Fox	<i>Otocyon megalotis</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
15.	Chimpanzee, Common chimpanzee, Robust chimpanzee	<i>Pan troglodytes</i>	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	3	
16.	African Lion	<i>Panthera leo</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
17.	Jaguar	<i>Panthera onca</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
18.	Bornean Orangutan	<i>Pongo pygmaeus</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	

19.	Golden-handed Tamarin	<i>Saguinus midas</i>	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
20.	Cotton-headed Tamarin, Cotton-top Tamarin	<i>Saguinus oedipus</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
21.	Common Squirrel Monkey, South american squirrel monkey	<i>Saimiri sciureus</i>	4	4	0	8	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	8
Total Mammalia	21		27	24	5	56	0	1	7	5	15	0	0	0	0	2	0	0	34	40	8	82
Reptilia																						
1.	Ampalagua, Boa Constrictor, Giboya, Masacuate	<i>Boa constrictor</i>	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
2.	Galapagos pink land iguana, Pink iguana	<i>Conolophus marthae</i>	1	1	0	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
3.	Hispaniolan rhinoceros iguana, Hispaniolan rock iguana, Rhinoceros Iguana, Rhinoceros rock iguana	<i>Cyclura cornuta</i>	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
4.	Green Anaconda	<i>Eunectes murinus</i>	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	3
5.	African spurred tortoise	<i>Geochelone sulcata</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
6.	Green Iguana	<i>Iguana iguana</i>	7	7	0	14	0	0	10	1	1	0	2	2	0	0	0	0	6	6	10	22
7.	Corn Snake	<i>Pantherophis guttatus</i>	5	5	0	10	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	10
8.	Royal Python/ Ball Python	<i>Python regius</i>	1	3	1	5	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	5
9.	Argentine Black and White Tegu, Black-and-white tegu	<i>Salvator merianae</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
10.	Argentine Tegu, Red Tegu	<i>Salvator rufescens</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
Total Reptilia	10		19	23	1	43	0	0	10	1	1	3	3	3	0	0	0	0	17	21	14	52
Total			95	96	1096	1287	0	1	38	8	16	3	4	3	18	7	2	0	107	114	1098	1319
Grand Total			265	288	1445	1998	0	2	61	9	20	21	69	67	47	12	6	0	262	286	1362	1910

28. Mortality of Animals

Sr. no.	Species Common name	Scientific name	Sex	Age	Date	Cause of death
1	Gharial	<i>Gavialis gangeticus</i>	F	Ad.	10-04-2025	Cardio-respiratory failure
2	Demoiselle crane	<i>Grus virgo</i>	M	Ad.	30-05-2025	Cardiac failure
3	Chinkara	<i>Gazella bennettii</i>	M	Ad.	16-06-2025	Traumatic shock
4	Comb duck	<i>Sarkidiornis sylvicola</i>	M	Ad.	24-08-2025	Cardio-respiratory failure
5	Indian muntjac	<i>Muntiacus muntjak</i>	M	Ad.	17-09-2025	Cardiac failure
6	Indian wild dog	<i>Cuon alpinus</i>	M	Ad.	28-10-2025	Respiratory failure
7	Budgerigar	<i>Melopsittacus undulatus</i>	F	Ad.	11-11-2025	Traumatic shock
8	Four-horned antelope	<i>Tetracerus quadricornis</i>	F	Ad.	16-11-2025	Respiratory failure
9	Finch sp.	<i>Lonchura sp.</i>	M	Ad.	18-12-2025	Multiple organ failure
10	Finch sp.	<i>Lonchura sp.</i>	M	Ad.	01-01-2026	Chronic hepatic lipidosis
11	Peach-faced lovebird	<i>Agapornis roseicollis</i>	M	Ad.	07-01-2026	Septic shock
12	Four-horned antelope	<i>Tetracerus quadricornis</i>	F	Ad.	10-01-2026	Traumatic shock
13	Four-horned antelope	<i>Tetracerus quadricornis</i>	F	Ad.	10-01-2026	Traumatic shock
14	Budgerigar	<i>Melopsittacus undulatus</i>	M	Ad.	24-01-2026	Traumatic shock
15	Gaur	<i>Bos gaurus</i>	M	Ad.	08-02-2026	Cardiac Failure
16	Peach-faced lovebird	<i>Agapornis roseicollis</i>	M	Ad.	12-02-2026	Traumatic shock
17	Wood duck	<i>Aix sponsa</i>	M	Ad.	12-02-2026	Chronic hepatopathy
18	Bat-eared fox	<i>Otocyon megalotis</i>	M	Ad.	24-03-2026	Multiple organ failure

29. Natality of Animals

Sr. no.	Species Common name	Scientific name	M	F	U	Total
1	Cattle egret	<i>Ardea ibis</i>	0	0	3	3
2	Painted stork	<i>Mycteria leucocephala</i>	0	0	4	4
3	Black-crowned night heron	<i>Nycticorax nycticorax</i>	0	0	3	3
4	Indian peafowl	<i>Pavo cristatus</i>	0	0	2	2
5	Blackbuck (leucistic)	<i>Antelope cervicapra</i>	0	0	2	2
6	Gaur	<i>Bos gaurus</i>	0	1	0	1
7	Chinkara	<i>Gazella bennettii</i>	0	0	1	1
8	Sambar deer	<i>Rusa unicolor</i>	0	0	7	7
9	Four-horned antelope	<i>Tetracerus quadricornis</i>	0	0	1	1
10	Orange-winged amazon	<i>Amazona amazonica</i>	0	0	1	1
11	Blue and gold macaw	<i>Ara ararauna</i>	0	0	1	1
12	Black swan	<i>Cygnus atratus</i>	0	0	5	5
13	Emu	<i>Dromaius novaehollandiae</i>	0	0	2	2
14	Galah cockatoo	<i>Eolophus roseicapilla</i>	0	0	4	4
15	Common ostrich	<i>Struthio camelus</i>	0	0	6	6
16	Rainbow lorikeet	<i>Trichoglossus moluccanus</i>	0	0	2	2
17	Tufted capuchin	<i>Sapajus apella</i>	0	0	1	1
18	South American coati	<i>Nasua nasua</i>	1	2	2	5
19	South African oryx	<i>Oryx gazella</i>	0	1	0	1
20	Green iguana	<i>Iguana iguana</i>	0	0	10	10
	Total		1	4	57	62

30. Compliance with Conditions Stipulated by the Central Zoo Authority

Sr. no.	Norm No. under RZR, 2009	Recommendation	Time Period to Comply from date of CZA letter	Status with regard to compliance of the condition as submitted by the Officer-in-Charge of the Zoo as on 24.06.2026
1	10.1 (4)	Wherever the boundary fencing is lying close to the village, the fencing shall be appropriately strengthened through a double fence to avoid trespassing. Feasibility of constructing masonry wall of prescribed height of 2mtrs from the ground level may also be explored at such places.	One year	The Zoo perimeter fencing has been additionally strengthened with an overhead power fence.
2	10.1 (6)	A boundary wall shall be constructed to separate the residential colony from the main zoo campus and separate access road provided for the residents.	Six months	Completed
3	10.1 (9)(a)	All Stray dogs shall be removed from the Zoo campus by taking help of the Statue of Unity Area Development and Tourism Governance Authority (SoUADTGA), Kevadia.	Three months	Completed
4	10.1 (9)(b)	Due health safeguards shall be put in place like screening of animal keepers working in the Pet Zone for ecto & endo parasites before recommending their transfer posting to the main zoo campus. Unless required, frequent posting of animal keepers and other support personnel shall be avoided between the main Zoo campus and Pet Zone.	With immediate effect	Completed

5	10.2 (3)	The Zoo operators shall prepare and implement Service Rules to ensure that the Scientific and Technical staff posted in the Zoo have the opportunity for periodic promotions in the cadre. Presently there is no notified service rule applicable on SPZP. A strong need for framing service rules for the purpose of career progression including the benefit of flexible complementing scheme for their promotions by the concerned authority.	One year	Completed
6	10.3 (1)(a) & (4)	The proposed collection plan of animals to be exhibited in the Zoo shall be got approved from the Central Zoo Authority.	Three months	Submitted to the CZA vide letter dated 02/12/2024
7	10.3 (1)(b)	Once the collection plan has been approved by the Authority, revised layout plan indicating the proposed new exhibits shall be submitted for approval. The Zoo shall prepare the master layout plan in 1:1000 scale at 5mtr. contour interval in following the guidelines issued in this regard by the Authority from time to time.	Six months from the date of approval of collection plan	Submitted to the CZA vide letter dated 18/06/2026
8	10.3 (1)(c)	The master plan as per prescribed guidelines of the Authority shall be prepared and submitted	Six months from the date of approval of the revised master layout plan	Ongoing and to be completed after receiving CZA approval for the Master Layout Plan
9	10.3 (4)	Some of the species like sambar, blackbuck, spotted deer and in birds painted storks are more than the carrying capacity of the enclosure.	One year	Surplus population of the species provided to the Wildlife Division of Gujarat state forest department vide PCCF(WL) letter dated 26/03/2025
10	10.4 (1)	The animal exhibits of lesser cats; coati; small primates and those of the birds at entrance zone are small & unnatural. They should be replaced with nature immersing enclosures as per specifications laid down by the CZA.	One year	Completed

11	10.4 (9)	Standoff barriers shall be provided in following animal exhibits: a) Bengal Tiger; b) Common leopard; c) Jaguar; d) White lion; e) sloth bear; f) Indian Wolf & g) wild dog; h) Hippopotamus and capuchin / chimpanzee.	Six months (To be included after discussion with CZA officers)	CZA has been requested for guidance vide letter dated 07/06/2026 and is awaited.
12	10.4 (10)	Interactive interpretation facilities shall be provided for the purpose of explaining behaviour and biology of the species displayed in the exhibits.	One year	Completed
13	10.5(2)	Nutrition and food Hygiene- The Zoo is constructing decentralized commissary/kitchen to cater separately to Birds, Primates, Herbivores and Carnivores. The same shall be constructed keeping due regard for hygiene, safety and waste disposal. Location of such units shall be away from public view and high transmission wire lines.	Six months	Completed
14	10.5(3)(8)	The Zoo shall have formal linkages through a MoU with the nearest veterinary college / University on healthcare, preventive, health management, surgical interventions, clinical tests, disease diagnosis and consultation in treatment and management during the period of convalescence.	Six months	Completed
15	10.6(1)(g)	The Zoo shall make arrangements of reference laboratory support and rapid transportation of diagnostic samples to nearest veterinary institution like Anand Veterinary College / Greens Zoological Rescue & Rehabilitation Centre which are equipped with facilities like -Automated blood cell counting; Clinical chemistry; Bacterial culture and antibiotic susceptibility; Viral isolation and identification; Antibody/ antigen serology; Pathogen identification through ELISA or PCR; Toxic agent analysis and Parasite identification till the time a full-fledged laboratory is established inhouse. Support of the National Referral Centre IVRI and other reputed Central Govt. Institutions / laboratories may also be obtained for istopathological, virological examinations.	With immediate effect	Complied

16	10.6 (4)	Wildlife veterinary medical education and training- The Zoo shall depute its veterinary officers for advance training in wildlife medicine in a large foreign Zoo.	Two years	CZA has been requested for guidance with identification of a large foreign Zoo for training of Zoo vets vide letter dated 07/06/2026 and awaited.
17	10.7 (1)	A modern postmortem room, equipped with sufficient light and postmortem equipment shall be constructed near to the incinerator.	Six months	Completed
18	10.9 (4)	The Zoo shall make all efforts to find a mate for single and unpaired animals.	Six months	Completed
19	10.10 (1)	The Zoo shall prepare a research plan identifying the prioritised species and areas of concern. The plan shall be incorporated in the Master Plan.	Six months	Completed
20	10.11 (1)	The Zoo shall open the Souvenir Shops, have a Library Facility accessible to all personnel including visiting interns and students.	One year	Library facility made available. Souvenir shops remain to be opened
		A dedicated Website for the Zoo shall be launched.		Completed
		Displaying calendar days/events at the entry points for the visitor engagement at orientation centre		Completed
21	10.12 (1) (b)	The Zoo shall construct few more public Toilets at convenient places in the campus and they shall be so located that they do not mask or impact the view of the exhibits.	One year	Completed
22	10.12 (1) (j)	Cloak room facility for the visitors shall be provided.	Six months	Completed
23	10.12 (1) (k)	Local educated youths/ wildlife enthusiasts may be trained for providing guided tours and visitor engagements in the zoological park as zoo guides.	Six months	Completed
24	10.12 (2)	As the Zoo experiences daily footfall of large number of visitors, a First Aid centre to be manned by trained para medical staff may be established near to the administrative office. Signage showing amenities like Drinking water points, washrooms, rest sheds and lawns to be placed at strategic points especially the entry point.	Six months	Completed Ongoing and will be completed by August, 2026

31. List of Free Living Wild Animals within the Zoo Premises

Mammals

Sr. no.	Common Name	Scientific Name	IUCN Status
1	Indian grey mongoose	<i>Urva edwardsii</i>	LC
2	Rusty-spotted cat	<i>Prionailurus rubiginosus</i>	NT
3	Small India civet	<i>Viverricula indica</i>	LC
4	Wild boar	<i>Sus scrofa</i>	LC
5	Spotted deer	<i>Axis axis</i>	LC
6	Four-horned antelope	<i>Tetracerus quadricornis</i>	VU
7	Hanuman langur	<i>Semnopithecus entellus</i>	LC
8	Five-striped palm squirrel	<i>Funambulus pennantii</i>	LC
9	Indian porcupine	<i>Hystrix indica</i>	LC
10	Indian flying fox	<i>Pteropus medius</i>	LC
11	Greater short-nosed fruit bat	<i>Cynopterus sphinx</i>	LC
12	Indian pipistrelle	<i>Pipistrellus coromandra</i>	LC
13	Indian hare	<i>Lepus nigricollis</i>	LC

Birds

Sr. no.	Common Name	Scientific Name	IUCN Status
1	Shikra	<i>Tachypiza badia</i>	LC
2	White-eyed Buzzard	<i>Butastur teesa</i>	LC
3	Oriental honey buzzard	<i>Pernis ptilorhynchus</i>	LC
4	Booted eagle	<i>Hieraaetus pennatus</i>	LC
5	Crested serpent eagle	<i>Spilornis cheela</i>	LC
6	Besra	<i>Tachypiza virgatus</i>	LC
7	Long-legged buzzard	<i>Buteo rufinus</i>	LC
8	Brahminy kite	<i>Haliastur indus</i>	LC
9	Western marsh harrier	<i>Circus aeruginosus</i>	LC
10	Bonelli's eagle	<i>Aquila fasciata</i>	LC
11	Changeable hawk-eagle	<i>Nisaetus cirrhatus</i>	LC
12	Osprey	<i>Pandion haliaetus</i>	LC
13	Indian grey hornbill	<i>Ocyrceros birostris</i>	LC
14	Savanna nightjar	<i>Caprimulgus affinis</i>	LC
15	Indian nightjar	<i>Caprimulgus asiaticus</i>	LC
16	Jungle nightjar	<i>Caprimulgus indicus</i>	LC
17	Indian stone curlew	<i>Burhinus indicus</i>	LC
18	Barred buttonquail	<i>Turnix suscitator</i>	LC
19	Red-wattled lapwing	<i>Vanellus indicus</i>	LC
20	Asian open-bill stork	<i>Anastomus oscitans</i>	LC
21	Wolly-necked stork	<i>Ciconia episcopus</i>	NT
22	Rock pigeon	<i>Columba Livia</i>	LC
23	Spotted dove	<i>Spilopelia chinensis</i>	LC
24	Laughing dove	<i>Spilopelia senegalensis</i>	LC
25	Yellow-footed green pigeon	<i>Treron phoenicoptera</i>	LC

26	Red-collared dove	<i>Streptopelia tranquebarica</i>	LC
27	Oriental turtle dove	<i>Streptopelia orientalis</i>	LC
28	Eurasian collared dove	<i>Streptopelia decaocto</i>	LC
29	Common kingfisher	<i>Alcedo atthis</i>	LC
30	White-throated kingfisher	<i>Halcyon smyrnensis</i>	LC
31	Indian Roller	<i>Coracias benghalensis</i>	LC
32	Grey-bellied cuckoo	<i>Cacomantis passerinus</i>	LC
33	Greater coucal	<i>Centropus sinensis</i>	LC
34	Jacobin cuckoo	<i>Clamator jacobinus</i>	LC
35	Asian koel	<i>Eudynamys scolopaceus</i>	LC
36	Common hawk-cuckoo	<i>Hierococcyx various</i>	LC
37	Fork-tailed drongo cuckoo	<i>Surniculus dicruroides</i>	LC
38	Peregrine falcon	<i>Falco peregrinus</i>	LC
39	Shaheen falcon	<i>Falco peregrinus peregrinator</i>	LC
40	Gray francolin	<i>Ortygornis pondicerianus</i>	LC
41	Indian peafowl	<i>Pavo cristatus</i>	LC
42	White-breasted waterhen	<i>Amaurornis phoenicurus</i>	LC
43	Common iora	<i>Aegithina tiphia</i>	LC
44	Rufous-tailed lark	<i>Ammomanes phoenicura</i>	LC
45	Ashy woodswallow	<i>Artamus fuscus</i>	LC
46	Small minivet	<i>Pericrocotus cinnamomeus</i>	LC
47	Hume's warbler	<i>Phylloscopus humei</i>	LC
48	Jerdon's leafbird	<i>Chloropsis jerdoni</i>	LC
49	Common tailorbird	<i>Orthotomus sutorius</i>	LC
50	Grey-breasted prinia	<i>Prinia hodgsonii</i>	LC
51	Plain prinia	<i>Prinia inornata</i>	LC
52	Ashy prinia	<i>Prinia socialis</i>	LC

53	Jungle prinia	<i>Prinia sylvatica</i>	LC
54	Large-billed crow	<i>Corvus macrorhynchos</i>	LC
55	House crow	<i>Corvus splendens</i>	LC
56	Jungle crow	<i>Corvus macrorhynchos</i>	LC
57	Rufous treepie	<i>Dendrocitta vagabunda</i>	LC
58	Thick-billed flowerpecker	<i>Dicaeum agile</i>	LC
59	Pale-billed flowerpecker	<i>Dicaeum erythrorhynchos</i>	LC
60	White-bellied drongo	<i>Dicrurus caerulescens</i>	LC
61	Black drongo	<i>Dicrurus macrocercus</i>	LC
62	Striolated bunting	<i>Emberiza striolata</i>	LC
63	Crested bunting	<i>Melophus lathami</i>	LC
64	Indian silverbill	<i>Euodice malabarica</i>	LC
65	Scaly-breasted munia	<i>Lonchura punctulata</i>	LC
66	Red-rumped swallow	<i>Cecropis daurica</i>	LC
67	Long-tailed shrike	<i>Lanius schach</i>	LC
68	Jungle babbler	<i>Argya striata</i>	LC
69	Asian green bee-eater	<i>Merops orientalis</i>	LC
70	Indian paradise-flycatcher	<i>Terpsiphond paradisi</i>	LC
71	Grey wagtail	<i>Motacilla cinerea</i>	LC
72	White-browed wagtail	<i>Motacilla maderaspatensis</i>	LC
73	Brown rock chat	<i>Cercomela fusca</i>	LC
74	Indian robin	<i>Copsychus fulicacatus</i>	LC
75	Oriental magpie-robin	<i>Copsychus saularis</i>	LC
76	Taiga flycatcher	<i>Ficedula albicilla</i>	LC
77	Tickell's blue flycatcher	<i>Cyornis tickelliae</i>	LC
78	Asian brown flycatcher	<i>Muscicapa dauurica</i>	LC
79	Red-breasted flycatcher	<i>Ficedula parva</i>	LC

80	Black redstart	<i>Phoenicurus ochruros</i>	LC
81	Purple sunbird	<i>Cinnyris asiaticus</i>	LC
82	Purple-rumped sunbird	<i>Leptocoma zeylonica</i>	LC
83	Indian golden oriole	<i>Oriolus kundoo</i>	LC
84	Yellow-eyed babbler	<i>Chrysomma sinense</i>	LC
85	Cinereous tit	<i>Parus conereus</i>	NE
86	Yellow-throated sparrow	<i>Gymnoris xanthocollis</i>	LC
87	House sparrow	<i>Passer domesticus</i>	LC
88	Green warbler	<i>Phylloscopus nitidus</i>	LC
89	Greenish warbler	<i>Phylloscopus trochiloides</i>	LC
90	Indian pitta	<i>Pitta brachyura</i>	LC
91	Red-vented bulbul	<i>Pycnonotus cafer</i>	LC
92	Red-whiskered bulbul	<i>Pycnonotus jocosus</i>	LC
93	White-eared bulbul	<i>Pycnonotus leucotis</i>	LC
94	White-browed bulbul	<i>Pycnonotus luteolus</i>	LC
95	White-browed fantail	<i>Rhipidura albicollis</i>	LC
96	Spot-breasted fantail	<i>Rhipidura albogularis</i>	LC
97	Grey-headed canary-flycatcher	<i>Culicicapa ceylonensis</i>	LC
98	Common myna	<i>Acridotheres tristis</i>	LC
99	Chestnut-tailed starling	<i>Sturnia malabarica</i>	LC
100	Brahminy starling	<i>Sturnia pagodarum</i>	LC
101	Lesser whitethroat	<i>Curruca curruca</i>	LC
102	Tawny-bellied babbler	<i>Dumetia hyperythra</i>	LC
103	Common woodshrike	<i>Tephrodornis pondicerianus</i>	LC
104	Indian white-eye	<i>Zosterops palpebrosus</i>	LC
105	Baya weaver	<i>Ploceus philippinus</i>	LC
106	Blyths reed warbler	<i>Acrocephalus dumetorum</i>	LC

107	Booted warbler	<i>Iduna caligata</i>	LC
108	Great egret	<i>Ardea aiba</i>	LC
109	Medium egret	<i>Ardea intermedia</i>	LC
110	Indian pond heron	<i>Ardeola grayii</i>	LC
111	Eastern cattle egret	<i>Bubulcus ibis</i>	LC
112	Straited heron	<i>Butorides striata</i>	LC
113	Lesser flameback woodpecker	<i>Dinopium benghalense</i>	LC
114	Eurasian wryneck	<i>Jynx torquilla</i>	LC
115	Coppersmith barbet	<i>Psilopogon haemacephalus</i>	LC
116	Plum-headed parakeet	<i>Psittacula cyanocephala</i>	LC
117	Alexandrine parakeet	<i>Psittacula eupatria</i>	NT
118	Rose-ringed parakeet	<i>Psittacula krameri</i>	LC
119	Indian eagle owl	<i>Bubo bengalensis</i>	LC
120	Mottled wood owl	<i>Strix ocellata</i>	LC
121	Barn owl	<i>Tyto alba</i>	LC
122	Oriental darter	<i>Anhinga melanogaster</i>	NT
123	Little cormorant	<i>Microcarbo niger</i>	LC
124	Indian cormorant	<i>Phalacrocorax fuscicollis</i>	LC
125	Common hoopoe	<i>Upupa epops</i>	LC
126	Greater flamingo	<i>Phoenicopterus roseus</i>	LC

Reptiles

Sr. no.	Common Name	Scientific Name	IUCN Status
1	Fan-throated lizard	<i>Sitana ponticeriana</i>	LC
2	Oriental garden lizard	<i>Calotes versicolor</i>	LC
3	Bengal monitor lizard	<i>Varanus bengalensis</i>	LC
4	Indian chameleon	<i>Chamaeleo zeylanicus</i>	LC
5	Bark gecko	<i>Hemidactylus leschenaultii</i>	LC
6	Yellow-bellied house gecko	<i>Hemidactylus flaviviridis</i>	LC
7	House gecko	<i>Hemidactylus frenatus</i>	LC
8	Asian house gecko	<i>Hemidactylus platyurus</i>	LC
9	Brook's house gecko	<i>Hemidactylus brookii</i>	LC
10	Peninsular rock gecko	<i>Hemidactylus subtriedrus</i>	NT
11	Leith's sand snake	<i>Psammophis leithii</i>	LC
12	Common bronzeback tree snake	<i>Dendrelaphis tristis</i>	LC
13	Common trinket snake	<i>Coelognathus helena</i>	LC
14	Arrow-headed trinket snake	<i>Coelognathus helena nigriangularis</i>	LC
15	Slender racer	<i>Platycephalus gracilis</i>	LC
16	Indian rat snake	<i>Ptyas mucosa</i>	LC
17	Indian wolf snake	<i>Lycodon aulicus</i>	LC
18	Common cat snake	<i>Boiga trigonata</i>	LC
19	Common kukri snake	<i>Oligodon arnensis</i>	LC
20	Common krait	<i>Bungarus caeruleus</i>	LC
21	Indian cobra	<i>Naja naja</i>	LC
22	Slender coral snake	<i>Calliophis melanurus</i>	LC
23	Red sand boa	<i>Eryx johnii</i>	NT
24	Common sand boa	<i>Gongylophis conicus</i>	LC
25	Striped keelback	<i>Amphiesma stolatum</i>	LC

26	Checkered keelback	<i>Fowlea piscator</i>	LC
27	Green keelback	<i>Rhabdophis plumbicolor</i>	LC
28	Indian rock python	<i>Python molurus</i>	NT
29	Dumeril's black-headed snake	<i>Sibynophis subpunctatus</i>	LC
30	Beaked worm snake	<i>Gryptotyphlops acutus</i>	LC
31	Common worm snake	<i>Indotyphlops braminus</i>	LC
32	Saw-scaled viper	<i>Echis carinatus</i>	LC
33	Russell's viper	<i>Daboia russelii</i>	LC
34	Mugger crocodile	<i>Crocodylus palustris</i>	VU
35	Indian flapshell turtle	<i>Lissemys punctata</i>	VU
36	Asian common toad	<i>Duttaphrynus melanostictus</i>	LC
37	Indian bullfrog	<i>Hoplobatrachus tigerinus</i>	LC
38	Indian tree frog	<i>Polypedates maculatus</i>	LC

Spiders

Sr. no.	Scientific Name	IUCN Status
1	<i>Telamonia dimitata</i> (Sim+C2:C35)	NE
2	<i>Hyllus semicuprius</i> (Simon 1885)	NE
3	<i>Phintela vitata</i> (C. L. Koch 1846)	NE
4	<i>Hasarius adansonii</i> (Audouin 1826)	NE
5	<i>Myrmaplata platyleoides</i> (O. Pickard-Cambridge, 1869)	NE
6	<i>Plexippus paykulli</i> (Audouin 1826)	NE
7	<i>Menemerus bivittatus</i> (Dufour 1831)	NE
8	<i>Marengo sachintendulkar</i> Malamet et. al, 2019	NE
9	<i>Stenaelurillus arambagensis</i> (B. Biswas & K. Biswas, 1992)	NE
10	<i>Langona</i> sp.	NE
11	<i>Phlegma</i> sp.	NE
12	<i>Chrysilla volupe</i> (Karsch, 1879)	NE
13	<i>Portia albimana</i> Simon, 1900	NE
14	<i>Neoscona theisi</i> (Walckenaer 1841)	NE
15	<i>Araneus mitificus</i> (Simon 1886)	NE
16	<i>Argiope anasuja</i> (Thorell 1887)	NE
17	<i>Cyclosa</i> sp.	NE
18	<i>Cyrtophora cicatrosa</i> (Stoliczka 1869)	NE
19	<i>Eriovixia</i> sp.	NE
20	<i>Poltys</i> sp.	NE
21	<i>Nephila pilipes</i> Fabricius, 1793	NE
22	<i>Castianeira zetes</i> Simon, 1897	NE
23	<i>Nigma</i> sp.	NE
24	<i>Stegodyphus sarasinorum</i> Karsch, 1892	NE
25	<i>Cheiracanthium</i> sp.	NE

26	<i>Hersilia savignyi</i> Lucas, 1836	NE
27	<i>Lycosa</i> sp.	NE
28	<i>Pardosa</i> sp.	NE
29	<i>Hippasa</i> sp.	NE
30	<i>Oecobius</i> sp.	NE
31	<i>Uroctea</i> sp.	NE
32	<i>Oxyopes birmanicus</i> Thorell, 1887	NE
33	<i>Oxyopes javanus</i> Thorell, 1887	NE
34	<i>Peucetia viridana</i> (Stoliczka, 1869)	NE
35	<i>Artema atlanta</i> Walckenaer, 1837	NE
36	<i>Crossopriza lyoni</i> Blackwall, 1867	NE
37	<i>Heteropoda venatoria</i> Linnaeus, 1767	NE
38	<i>Tetragnaha</i> sp.	NE
39	<i>Nihonhimea mundula</i> (L. Koch, 1872)	NE
40	<i>Theridion</i> sp.	NE
41	<i>Amyciaea forticeps</i> O. Pickard-Cambridge, 1873	NE
42	<i>Thomisus pugilis</i> Stoliczka, 1869	NE
43	<i>Uloborus plumipes</i> Lucas, 1846	NE

32. Acknowledgements

Photo Credits

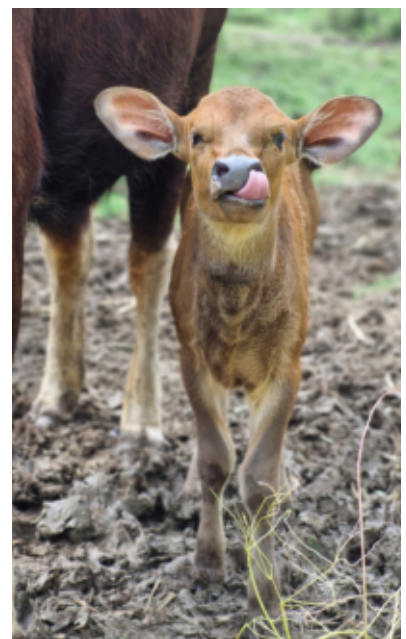
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- **Statue of Unity Area Development & Tourism Governance Authority (SoUADTGA)** – for overarching administrative support, budgetary facilitation and progressive visitor-management policies.
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- **Participating schools, colleges and field organisations** – for engaging with our outreach programmes and strengthening the zoo's role as a living classroom.
- **Visitors and the wider community** – for their continued patronage, feedback and advocacy, without which our mission would lack momentum.

To each of you, we extend our sincere thanks.



33. Annexures

33.1 Annexure 1: Selected Veterinary Case Records and Clinical Plates

Case 1: Prosthetic Limb Rehabilitation in a Blackbuck

Species: Blackbuck

Scientific name: *Antilope cervicapra*

Clinical category: Orthopaedic rehabilitation and welfare support

An adult blackbuck presenting with distal hind limb amputation and severe locomotor impairment underwent prosthetic limb rehabilitation. The objective was to restore functional weight-bearing, improve mobility, and enhance long-term welfare through the development of a species-specific prosthetic device. Following comprehensive clinical assessment, detailed morphometric measurements of the residual limb were obtained under general anaesthesia using medetomidine and propofol, with oxygen supplementation and reversal using atipamezole. A custom casting procedure was performed using alginate impression material and plaster-of-Paris reinforcement to create an accurate positive model of the residual limb.

A series of custom prosthetic components was designed through an iterative process involving conventional fabrication techniques and advanced three-dimensional modelling and printing technologies. Multiple trial prostheses were fabricated and evaluated to optimise alignment, socket fit, load distribution and gait mechanics.

The final prosthetic design incorporated a Dynamic Response Endoskeletal System with lightweight structural components engineered to provide stability, durability and efficient energy transfer during locomotion. This included gradual weight-bearing exercises, controlled ambulation and continuous monitoring for pressure-related complications, skin integrity, prosthetic tolerance and gait abnormalities. Serial evaluations showed progressive adaptation to the device, improved stance stability, enhanced locomotor function and increased voluntary movement within the enclosure.



Blackbuck female with right hind leg amputation



Negative cast of the stump for making a positive mould.



Carbon fibre prosthetic leg weighing 252gms



Blackbuck with complete restoration of ambulation by using the prosthetic leg.

Case 2: Elective Hysterectomy in an Indian Leopard

Species: Indian leopard

Scientific name: *Panthera pardus fusca*

Clinical category: Reproductive and population management

An adult female Indian leopard underwent elective hysterectomy as part of the reproductive and genetic management programme aimed at preventing further breeding and minimising the risk of inbreeding within the captive population. The surgical procedure was planned after ensuring that the haematobiochemical values of the female were within the normal physiological range. The animal was fasted for 24 hours before the procedure.

Following pre-anaesthetic physiological evaluation, chemical immobilisation was achieved using a combination of medetomidine and ketamine. After endotracheal intubation with a cuffed 8 mm endotracheal tube, anaesthesia was maintained using isoflurane delivered in oxygen. Perioperative intravenous fluids were administered throughout the procedure to maintain cardiovascular stability, hydration and tissue perfusion.

Following aseptic preparation and draping, a left flank dorso-caudal laparotomy approach was performed. The abdominal cavity was entered through sequential dissection of the muscular layers and peritoneum. Both uterine horns were identified, carefully exteriorised and isolated. Vascular control was achieved through individual ligation of the uterine vasculature and uterine horns using absorbable suture material before transection. The uterine body was subsequently ligated and transected after confirmation of satisfactory haemostasis.

The abdominal cavity was inspected for haemorrhage or contamination before closure. Skin was sutured intradermally using absorbable polyglycolic acid 3-0 material to ensure secure tissue apposition and wound healing. At the end of the procedure, anaesthesia was reversed using atipamezole, resulting in smooth recovery.

Post-operative management included intensive monitoring, supportive care, antimicrobial therapy with amoxycillin and a long-acting dose of cefovecin sodium, and multimodal analgesic and anti-inflammatory management using meloxicam, buprenorphine and chymotrypsin. Recovery was uneventful, with the animal resuming normal feeding, locomotion and behavioural activity. The surgical wound healed completely within 10 days.



Perioperative monitoring of vital physiological parameters.



Fifth day post operatively.

Case 3: Management of Traumatic Injury in a Female Plains Zebra

Species: Plains zebra

Scientific name: *Equus quagga*

Clinical category: Trauma care and surgery

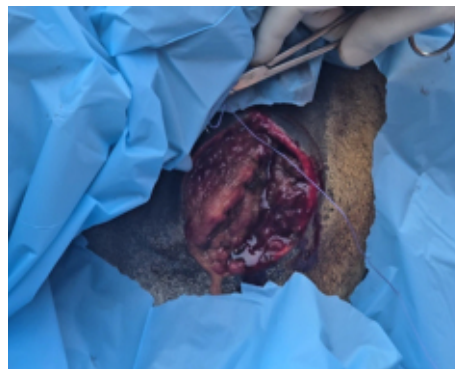
An adult female plains zebra sustained severe traumatic soft-tissue injuries. Clinical examination revealed a large laceration on the medial aspect of the right thigh, extending through the skin and involving the sartorius and gracilis muscle layers, with significant disruption of soft-tissue integrity. The zebra was chemically immobilised using a combination of butorphanol, medetomidine and ketamine. Oxygen supplementation was provided and vital parameters were monitored continuously using an SpO₂ monitor. Extensive surgical debridement was carried out to remove devitalised tissue and reduce contamination. Layered reconstruction of the affected musculature and skin was then performed under aseptic conditions to restore tissue apposition and facilitate healing.

Due to the substantial biomechanical forces generated by the hindlimb musculature and the inherent wound tension in equids, partial dehiscence and loss of skin sutures occurred within 48 hours of surgery. However, the initial surgical closure helped stabilise the wound margins, reduce dead space and promote healthy granulation tissue formation.

Post-operative management included intensive wound care, alternate-day lavage, daily antiseptic dressing changes, systemic antimicrobial therapy and anti-inflammatory support. Progressive wound contraction and epithelialisation were observed during recovery, resulting in more than 90% wound resolution. Following satisfactory healing and restoration of normal locomotor function, the zebra was observed for an additional week and successfully reintroduced into the herd after a complete post-operative period of one month.



Lacerated wound due to in-fight injury at the medial aspect of the right hind leg.



Deep laceration involving the Sartorius and Gracilis muscle layers.



Complete wound healing in two weeks.

Case 4: Management of Dystocia in a Fallow Deer

Species: Fallow deer

Scientific name: *Dama dama*

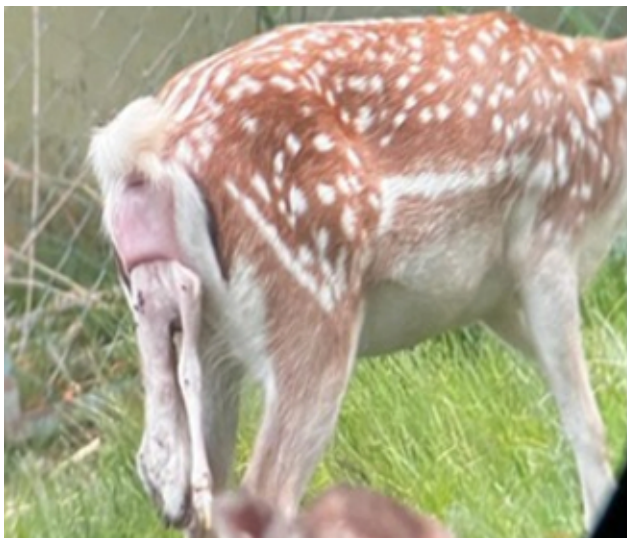
Clinical category: Obstetrics

An adult female fallow deer presented with dystocia characterised by partial protrusion of a non-viable foetus through the birth canal and failure of normal parturition. Clinical examination revealed foetal malposture, with retention of the right forelimb within the maternal birth canal, resulting in obstruction of foetal expulsion. The exposed foetal tissues showed signs consistent with foetal death before intervention.

For safe handling and obstetrical management, the doe was chemically immobilised using a combination of medetomidine and ketamine administered remotely through a pneumatic dart delivery system. Manual correction of the foetal malposture was undertaken through careful repulsion and repositioning of the retained forelimb, allowing appropriate alignment of the foetus within the birth canal. Controlled obstetrical traction was then applied, resulting in successful vaginal extraction of the dead foetus without the need for surgical intervention.

Following foetal removal, the reproductive tract was examined for trauma, haemorrhage and retained foetal membranes. Post-procedural management included fluid support, systemic antimicrobial therapy and non-steroidal anti-inflammatory medication. Anaesthesia was reversed using atipamezole, resulting in smooth recovery from immobilisation.

The doe remained under close clinical observation during the recovery period and showed progressive improvement without reproductive tract complications or systemic illness.



Dead foetus stuck partially in the vaginal canal.



Manual manipulation and traction of the foetus under sedation was performed to relieve the dystocia.

Case 5: Surgical Management of Traumatic Crop Rupture in a Yellow-footed Green Pigeon

Species: Yellow-footed green pigeon

Scientific name: *Treron phoenicoptera*

Clinical category: Avian surgery and rehabilitation

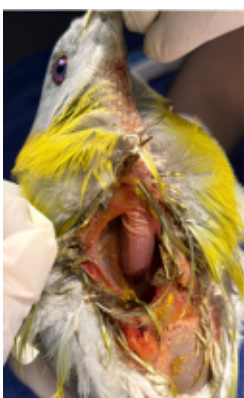
A yellow-footed green pigeon was presented following rescue with complete traumatic rupture of the crop and a deep cervical laceration. Clinical examination revealed extensive disruption of the crop wall, with contamination of surrounding soft tissues by ingesta. Immediate surgical intervention was required.

The bird was anaesthetised using isoflurane inhalation anaesthesia through a mask, followed by non-cuffed endotracheal intubation. Feathers around the affected region were plucked, and the tissues were thoroughly debrided and lavaged under aseptic conditions.

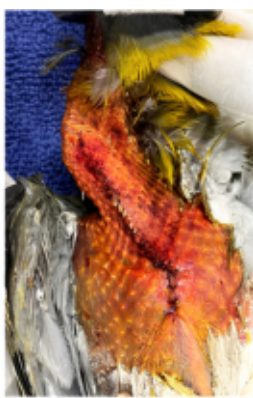
After restoration of normal anatomical alignment, the crop was reconstructed using 4-0 polyglactin 910 in a two-layer inverting closure pattern, consisting of a Cushing suture followed by a reinforcing Lembert pattern to achieve a secure, leak-proof seal. The cervical soft tissues and skin were subsequently apposed routinely.

Post-operative management included subcutaneous fluid therapy, antimicrobial therapy with clindamycin, and analgesic and anti-inflammatory treatment using meloxicam. Nutritional support was provided through assisted feeding with a critical-care formula during the initial recovery phase, followed by gradual transition to fruit-based slurry feeding and voluntary self-feeding by Day 10 post-surgery.

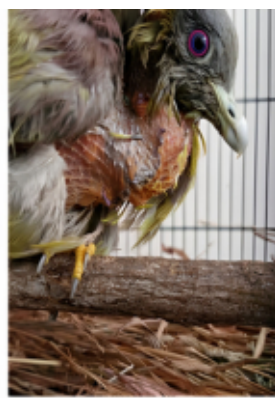
Serial wound assessments showed progressive healing without evidence of dehiscence, infection or crop dysfunction. Complete wound healing with feather regrowth was achieved during a 20-day rehabilitation period. Following restoration of normal feeding behaviour and clinical fitness, the bird was successfully released back into its natural habitat.



Crop laceration.



Surgically corrected under general anaesthesia.



Healing of surgical site seven days post operatively.



Complete recovery of the bird one month post operatively.

Case 6: Surgical Management of Traumatic Evisceration in an Indian Rock Python

Species: Indian rock python

Scientific name: *Python molurus*

Clinical category: Reptile surgery and rehabilitation

An adult male Indian rock python was rescued by the local Forest Department and brought to SPZP following a vehicular accident that resulted in traumatic coelomic rupture with evisceration of intestinal loops and associated mesentery. On presentation, the exposed viscera were contaminated but viable.

The snake was anaesthetised using isoflurane inhalation anaesthesia with a mask and restraining tube. Pulse rate was monitored using Doppler ultrasound, while respiration was monitored through observation of body movement during inhalation and exhalation.

Following stabilisation, the eviscerated tissues were thoroughly lavaged with lukewarm sterile saline and assessed for devitalisation or perforation. The exposed intestines and mesentery were carefully debrided, repositioned into the coelomic cavity and restored to normal anatomical orientation. The coelomic musculature and skin were apposed using absorbable suture material.

Post-operative management included intensive supportive care, antimicrobial therapy with enrofloxacin, analgesic and anti-inflammatory support with meloxicam, wound monitoring and maintenance under species-appropriate environmental conditions to facilitate healing.

The python showed progressive recovery, resumed normal feeding behaviour and achieved complete functional rehabilitation. Following a recovery period of approximately one month, the animal was successfully released back into its natural habitat.



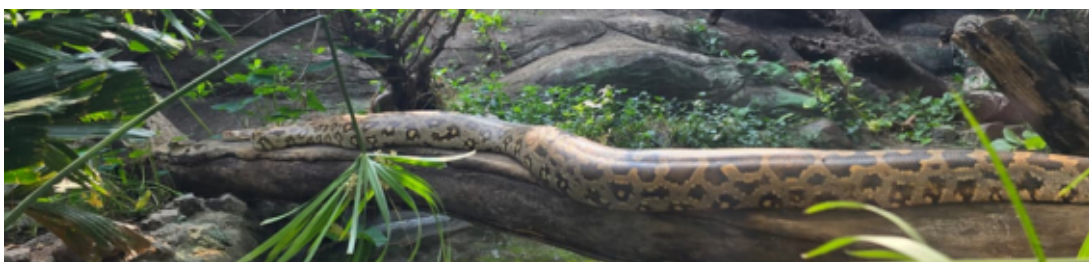
Eviscerated mesentery and intestines.



Surgical correction under general anesthesia



Radiographic examination of the snake.



Complete recovery one month post operatively.

Case 7: Contrast Radiographic Evaluation of Gastrointestinal Transit in a Corn Snake

Species: Corn snake

Scientific name: *Pantherophis guttatus*

Clinical category: Diagnostic imaging and reptile medicine

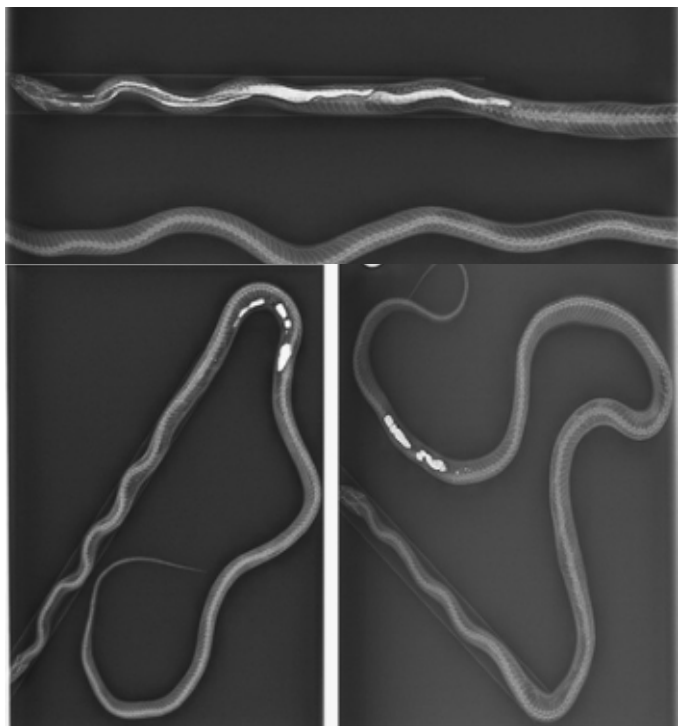
A captive corn snake presented with persistent straining and failure to pass faecal material for approximately 24 hours, raising suspicion of gastrointestinal obstruction or impaired intestinal transit. To evaluate gastrointestinal patency and identify possible obstructive lesions, a contrast radiographic study was performed. A barium sulphate suspension was prepared by mixing barium powder with water to achieve an appropriate radiopaque contrast medium. It was administered into the gastrointestinal tract using a feeding tube.

Serial radiographs were obtained at predetermined intervals to monitor contrast progression through the gastrointestinal tract and assess luminal continuity, transit time and the presence of structural abnormalities, foreign bodies, strictures or complete obstruction. Radiographic evaluation demonstrated uninterrupted passage of contrast material through the gastrointestinal tract, effectively ruling out mechanical obstruction. However, accumulation of faecal material within the distal gastrointestinal tract and cloacal region was identified, consistent with constipation and delayed faecal evacuation.

Based on these findings, conservative management was instituted. Treatment included warm-water soaking, gentle digital massage to move the retained faecal material and facilitate intestinal motility, and lubrication of the vent region to aid passage of the retained faecal mass. The snake responded favourably to treatment, successfully evacuated the retained faecal mass without the need for surgical intervention, and normal gastrointestinal function was restored.



Radiographic examination of the corn snake.



Positive contrast series of radiographic examination at regular intervals using barium meal.

Case 8: Dystocia in a Tufted Capuchin

Species: Tufted capuchin

Scientific name: *Sapajus apella*

Clinical category: Obstetrics and emergency surgery

A pregnant tufted capuchin housed at SPZP presented with obstructive dystocia, characterised by protrusion of the foetal tail through the vulva without progression of parturition. Clinical assessment and transabdominal ultrasonography confirmed absence of foetal cardiac activity, indicating foetal death. Subsequent radiographic evaluation revealed abnormal foetal presentation and positioning within the birth canal, making vaginal delivery impossible and necessitating surgical intervention.

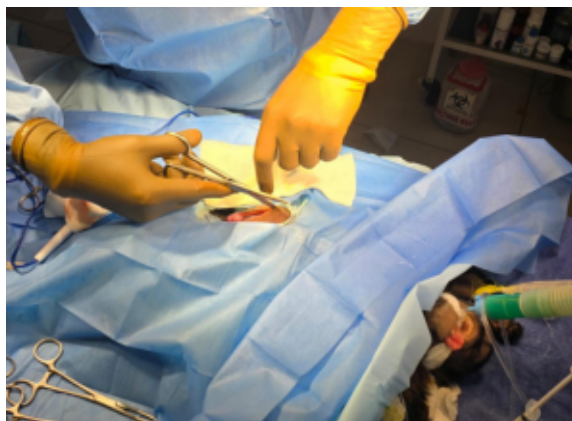
An emergency caesarean section was performed under general anaesthesia. Anaesthetic induction was achieved using isoflurane administered through a face mask, followed by intravenous propofol for maintenance of anaesthesia during the procedure. Supportive fluid therapy was provided perioperatively to maintain cardiovascular stability and tissue perfusion.

Following routine aseptic preparation and draping, a ventral midline laparotomy was performed. The gravid uterus was exteriorised and the non-viable foetus was removed successfully. The uterus and abdominal wall were closed in a routine multi-layer pattern using appropriate suture materials, and the skin incision was apposed to support wound healing.

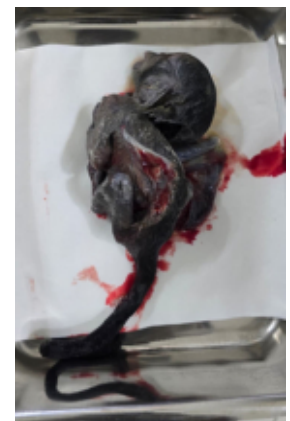
Post-operative management included intensive monitoring, continued fluid therapy, antimicrobial coverage with amoxycillin, and multimodal analgesia using meloxicam and butorphanol. The animal recovered uneventfully from anaesthesia, resumed normal feeding and social behaviour, and showed satisfactory wound healing without post-operative complications.



Ultrasonographic fetal cardiac assessment.



Ventral midline laparotomy under general anesthesia.

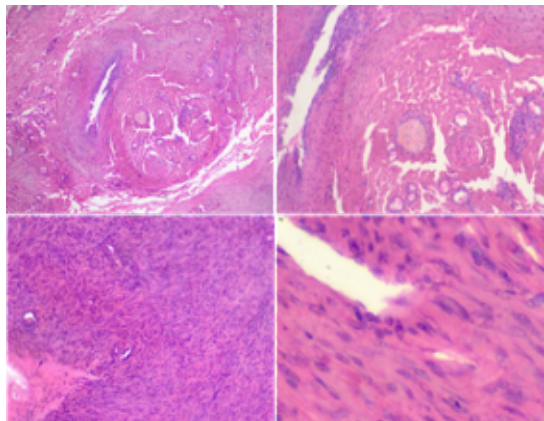


Exteriorisation of dead fetus by cesarean section.

33.2 Annexure 2: Notable Findings - Disease Investigation Laboratory

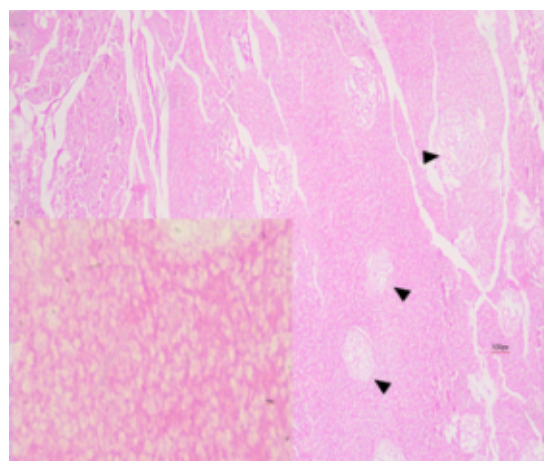
A. Histopathology

1. Rhabdomyosarcoma in an Indian leopard



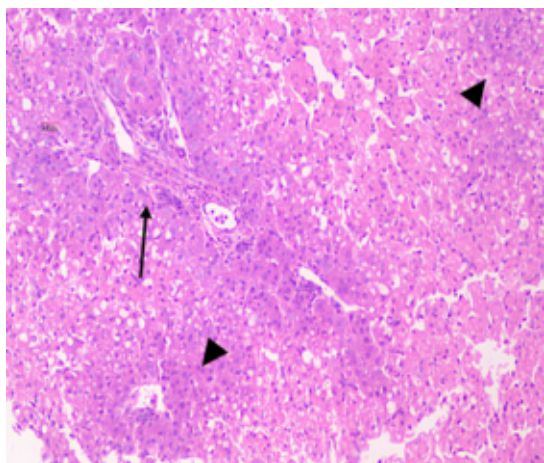
Formalin-fixed tissue sections stained with regressive H&E reveal marked stromal distortion with proliferating neoplastic spindle cells exhibiting basophilic cytoplasm. At higher magnification, cells are arranged in irregular clusters with uneven distribution, showing pronounced anisocytosis and anisokaryosis. Multinucleated giant cells and frequent mitotic figures are evident, indicating high proliferative activity. These histomorphological features are consistent with a diagnosis of rhabdomyosarcoma.

2. Architecture intact, cells damaged: A curious case of myonecrosis in Red tegu



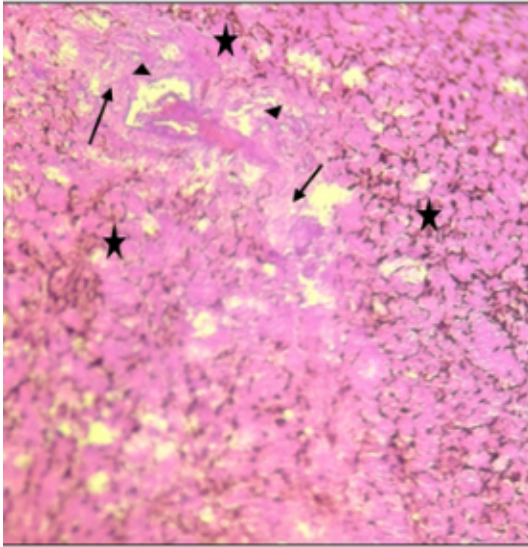
Mass from skeletal muscles: Well-formed degenerative lesion characterized by a central area of eosinophilic necrotic debris with minimal nuclear fragments, the tissue architecture is maintained but the cellular architecture is indicative of tissue necrosis. (arrowhead), 40X. Inset: arrow, 100X, H and E.

3. When hepatocytes hit the breaking point: Hepatocellular necrosis in a four horned antelope



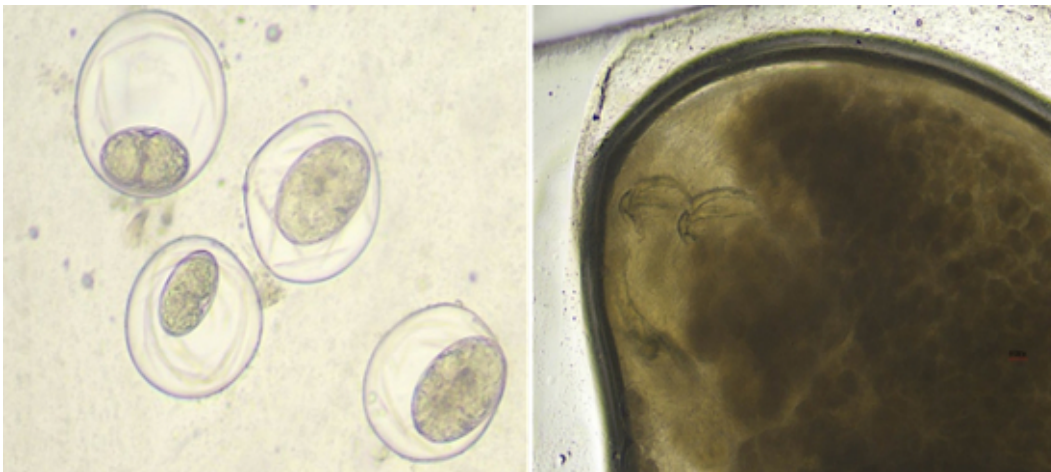
Liver section shows diffuse to multifocal hepatocellular degeneration and necrosis, with cytoplasmic hypereosinophilia, swelling, vacuolation, and nuclear pyknosis/karyorrhexis. Sinusoids are irregular and mildly congested with focal hepatic cord collapse, accompanied by mild inflammatory infiltration in necrotic areas—features consistent with hepatocellular necrosis.

4. Haemorrhage in Hiding: Splenic Hemangiosarcoma in a Silver Pheasant.



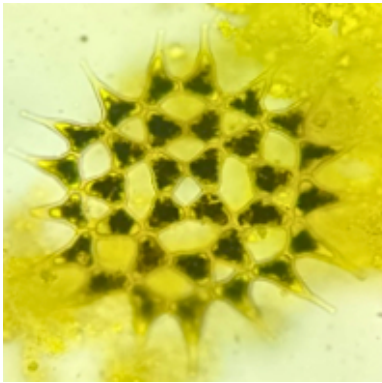
Normal splenic architecture is effaced by a poorly demarcated infiltrative tissue composed of spindle to polygonal endothelial cells arranged in irregular, blood filled vascular sheets (arrow). Cells exhibit moderate pleomorphism, hyperchromatic nuclei and frequent mitotic figures (arrowhead). Some areas of hemosiderosis are present indicative of widespread interstitial haemorrhage and necrotic debris (star), 100 X. H and E.

B. Parasitology

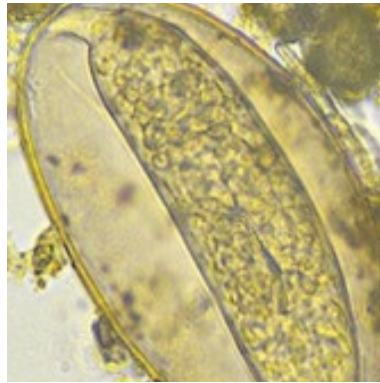


Pentastomid sp. ova and adults recovered from mugger crocodile (*Crocodylus palustris*). Eggs are oval to ellipsoidal, thick-shelled, yellowish-brown, containing a fully developed primary larva with paired hooks; shells are environmentally resistant. The anterior end of the adult shows a central oral opening surrounded by two pairs of robust, chitinous hooks forming a hook-mouth apparatus for attachment to respiratory mucosa. Zoonotic potential is noted, with humans developing visceral larva migrans-like lesions. Definitive hosts are primarily reptiles (especially snakes) and occasionally carnivores (400×).

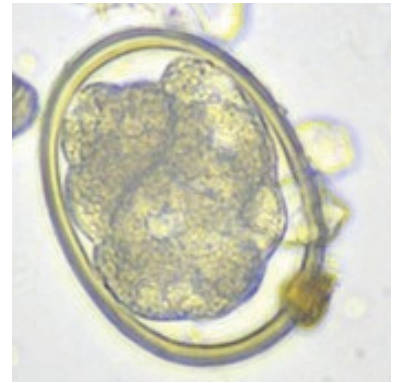
Gastrointestinal parasites in zoo animals



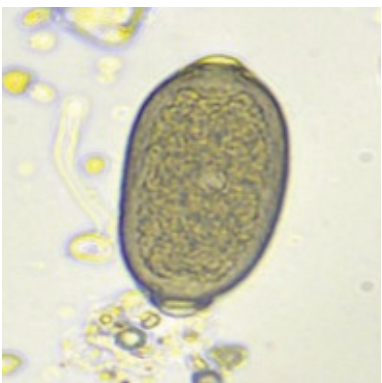
Radiolarian spp. from faecal sediment of a Jaguar, 400x.



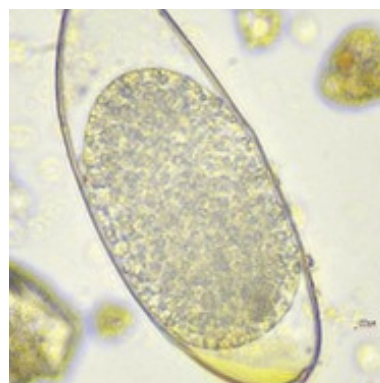
Oxyurid spp. from corn snake, 400x



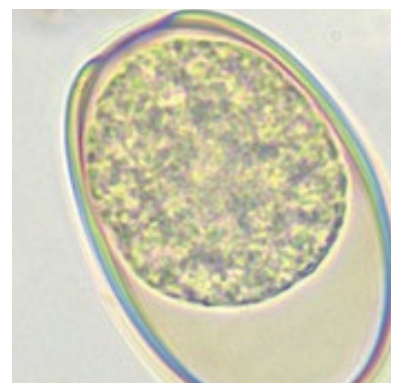
Heterakis gallinarum from Indian peafowl, 400x



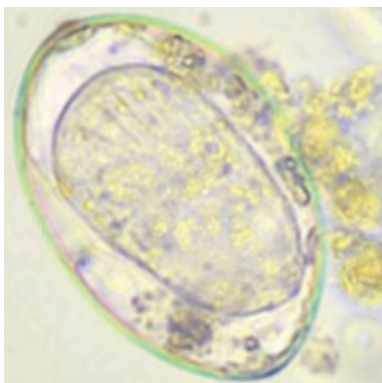
Capillaria spp. from channel-billed Toucan, 400x



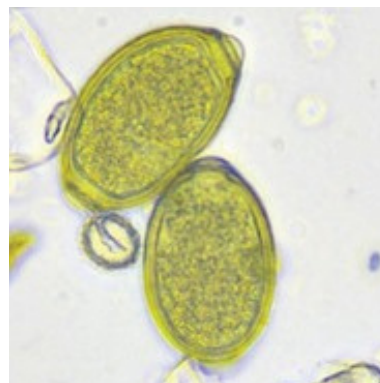
Enterobius vermicularis from sloth bear, 400x



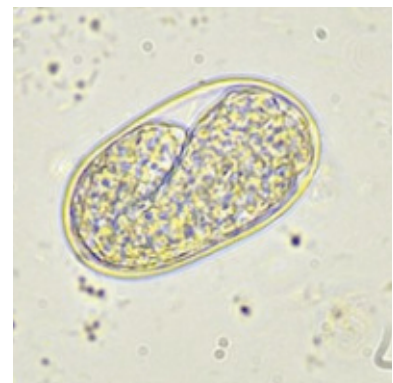
Eimeria stedia from Indian hare, 1000x



Choanotaenia sp. from Bengal monitor, 400x



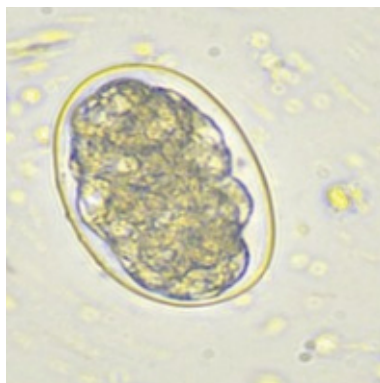
Eucoleus spp. from Russell's viper, 400x



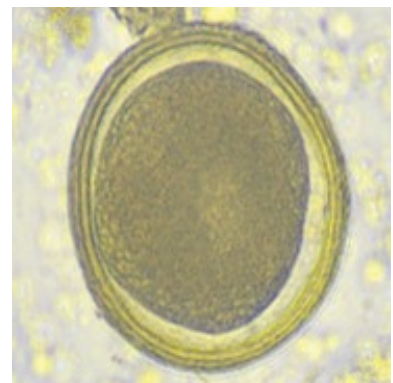
Strongyloides spp. from Indian rock python, 400x



Mycoptes musculus egg from Spectacled cobra, 400x



Ancylostoma spp. from Asiatic lion, 400x



Toxocara cati from Asiatic lion, 400x

33.3 Annexure 3: Animal Enrichment Programme

Environmental enrichment is an important part of animal management at SPZP. The programme is designed to provide animals with opportunities to express species-appropriate behaviours, use different parts of their enclosures, remain mentally and physically active, and respond to their environment in a more natural manner.

At SPZP, enrichment is not treated as an occasional activity or display item. It is integrated into daily husbandry and section-level planning so that animals receive regular variation in feeding, movement, exploration, sensory stimulation and problem-solving opportunities. The enrichment approach is adapted according to the natural history, behaviour, diet, locomotion, social structure and individual temperament of each species.

Enrichment Framework

The enrichment activities implemented at SPZP are broadly organised under the following categories:

Sr. no.	Type of enrichment	Purpose
1	Physical enrichment	To provide structures, objects and enclosure features that encourage movement, climbing, resting, manipulation, exploration and species specific use of space.
2	Feeding / nutritional enrichment	To make feeding more natural and engaging by encouraging foraging, searching, digging, browsing, tearing, chewing, problem-solving and extended feeding time.
3	Sensory enrichment	To stimulate the senses through smell, sound, texture, visual cues, plant material, natural substrates and species-relevant environmental stimuli.
4	Cognitive enrichment	To encourage learning, choice, problem-solving, manipulation and decision-making through puzzles, target-based activities, extraction tasks and controlled challenges.
5	Environmental / structural / thermal enrichment	To provide meaningful variation in the environment through substrates, shade, basking areas, water bodies, wallows, misting, cooling systems, hides, dens and thermal gradients.

Planning and Rotation of Enrichment

Enrichment activities are planned and rotated to maintain novelty without causing unnecessary disturbance. Repeated use of the same enrichment item may reduce its value over time, while excessive or poorly planned change can create stress. For this reason, enrichment is selected based on the species, individual behaviour, season, enclosure design and management objective.

In many cases, simple changes such as repositioning logs, changing browse placement, hiding feed, adding scent trails, altering feeding time, modifying perches or providing seasonal substrates can have meaningful behavioural value. More complex enrichment, such as puzzle feeders, suspended feeds, carcass feeding, target-linked feeding or multi-step extraction tasks, is used depending on species suitability and staff supervision.

Carnivore Enrichment

Carnivores such as lions, tigers, leopards, jaguars, wolves, wild dogs, bears and servals are provided enrichment that encourages searching, scent investigation, manipulation, movement and species-specific feeding behaviour.

Physical enrichment includes logs, ropes, hammocks, elevated platforms and manipulable objects. Feeding enrichment includes hidden meat, carcass feeding, frozen meat blocks and delayed feeding devices. Sensory enrichment is provided through olfactory cues, prey scents and scent trails. Cognitive enrichment includes food-search tasks and puzzle-based feeding. Shade, dens, sprinklers and fogging systems are used where required to provide environmental and thermal choice.



Jaguar using a suspended hose-pipe hammock as physical enrichment and novel furniture.



African lion engaging with hose-pipe based feeding enrichment to encourage natural pulling, gripping and feeding behaviour.



Sloth bear manipulating a wooden feeding enrichment device to promote foraging and object-use behaviour.

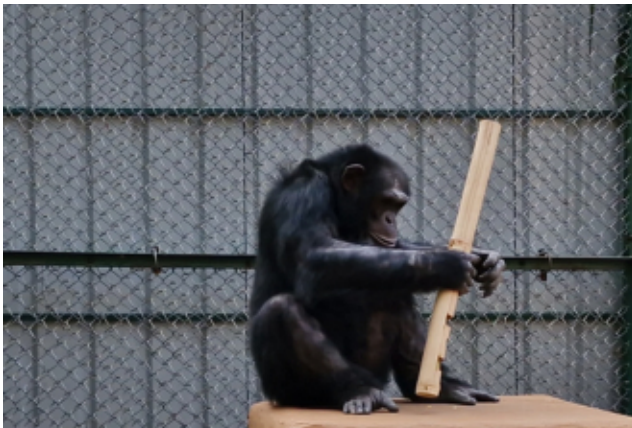


Leopard interacting with suspended rope-ball enrichment designed to encourage gripping, pulling, climbing and play behaviour.

Primate Enrichment

Primate enrichment at SPZP focuses on movement, exploration, foraging, manipulation, social interaction and cognitive engagement. This is especially important for species such as chimpanzees, orangutans, capuchins, squirrel monkeys and lemurs, which require a high degree of behavioural complexity.

Physical enrichment includes ropes, branches, sand trays and suspended structures. Feeding enrichment includes puzzle feeders, foraging boxes, scatter feeding and hidden food. Sensory enrichment may include fruit odours, plant material, tactile objects and auditory stimuli. Cognitive enrichment includes tool-use opportunities, multi-step extraction tasks and problem-solving devices. Vertical complexity, shelters and climate-managed areas help create a more usable and behaviourally rich habitat.



Chimpanzee using wooden object enrichment to encourage manipulation, exploration and problem-solving behaviour.



Orangutan interacting with suspended feeding enrichment designed to promote foraging, object manipulation and cognitive engagement.

Herbivore Enrichment

Herbivore enrichment is planned around grazing, browsing, movement, wallowing, rubbing, horn use, social spacing and natural foraging. This includes native and exotic herbivores such as deer, antelopes, giraffes, rhinoceros, gaur, zebra and wild ass. Physical enrichment includes browsing structures, rubbing posts, horn-based objects and open terrain variation. Feeding enrichment includes feed rollers, hay balls, browse bundles and scatter feeding. Sensory enrichment is provided through plant odours, natural vegetation cues and changing browse species. Search-feeding and manipulation-based feeding devices are used where suitable. Environmental enrichment includes wallows, sand baths, misting systems and shaded resting areas.



Spotted deer engaging with rolling feed dispenser enrichment device to encourage natural foraging and horn-use behaviour.



Giraffe using a raised browse-feeding device designed to promote natural feeding posture and browsing behaviour.

Bird Enrichment

Bird enrichment is planned according to feeding style, flight behaviour, perching preference, ground use, social behaviour and beak-foot coordination. The programme includes parrots, macaws, pheasants, cranes, ostriches and other species housed in aviaries and open habitats.

Physical enrichment includes perches, aviary vegetation, ground structures and natural substrates. Feeding enrichment includes suspended fruits, whole-feed presentation, scatter feeding and puzzle feeders. Sensory enrichment includes fruit scents, visual stimuli, auditory cues and natural plant material. Cognitive enrichment focuses on beak-foot coordination feeders and simple extraction-based feeding devices. Misting systems, sand baths and vegetation cover are used to support comfort and behavioural choice.



Blue and gold macaw engaging with a suspended feeder as part of beak-foot coordination and feeding enrichment.



Green-winged macaw interacting with hanging enrichment to promote foraging and object manipulation.

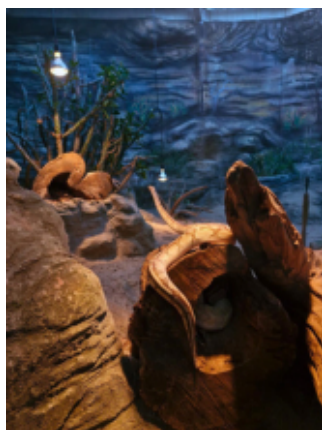
Reptile Enrichment

Reptile enrichment at SPZP is designed around thermoregulation, hiding, climbing, basking, burrowing, exploration, spatial feeding and substrate use. Species such as iguanas, pythons, cobras, monitor lizards and tegus are managed with attention to enclosure complexity and environmental choice.

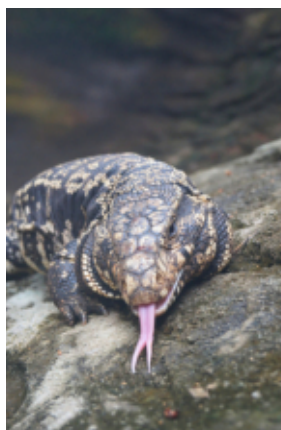
Physical enrichment includes driftwood, branches, hides, climbing structures and substrate variation. Feeding enrichment includes hidden prey or fruit, distributed feeding points and spatial feeding variation. Sensory enrichment includes chemical and environmental cues. Cognitive enrichment is introduced through exploratory feeding responses and target-linked feeding where appropriate. UVB basking zones, heat gradients, shaded retreats and humidity variation are maintained to support thermal regulation and natural activity patterns.



Thermal gradient for cobra.



Complex furnishing in ball python enclosure.



Olfactory enrichment.



Perches at different heights.

Environmental Enrichment Matrix

Taxa	Physical enrichment	Feeding enrichment	Sensory enrichment	Cognitive enrichment	Environmental enrichment
Carnivores	Logs, ropes, hammocks, elevated platforms, manipulable objects	Hidden meat, carcass feeding, frozen blocks, delayed feeding devices	Olfactory cues, prey scents, scent trails	Food-search tasks, enrichment puzzles	Shade structures, dens, sprinklers, fogging systems
Primates	Ropes, branches, sand trays, suspended structures	Puzzle feeders, foraging boxes, scatter feeding, hidden food	Fruit and plant odours, tactile and auditory stimuli	Tool use, multi-step extraction, problem-solving devices	Vertical complexity, shelters, climate-controlled zones
Herbivores	Browsing structures, horn-based objects, open terrain enrichment	Feed rollers, hay balls, browse bundles, scatter feeding	Plant odours, natural vegetation cues	Search feeding, manipulation-based feeding devices	Wallows, sand baths, misting systems, shade structures
Birds	Perches, aviary vegetation, ground structures	Suspended fruits, whole-feed presentation, scatter feeding, puzzle feeders	Fruit scents, auditory and visual stimuli	Beak-foot coordination feeders	Misting systems, sand baths, vegetation cover
Reptiles	Driftwood, branches, hides, substrate variation	Hidden prey or fruit, spatial feeding distribution	Chemical and environmental cues	Exploratory feeding responses	UVB basking zones, heat gradients, thermal regulation

Integration with Husbandry

Enrichment is closely linked with daily husbandry. Keepers observe how animals respond to enrichment and adjust items based on use, safety, individual preference and welfare value. Items that encourage positive engagement are refined, while items that create aggression, disinterest, safety concerns or excessive competition are modified or withdrawn.

Feeding enrichment is coordinated with diet charts so that it does not disturb nutritional balance. Thermal and environmental enrichment is adjusted seasonally, especially during summer and monsoon. For animals under treatment, geriatric animals, neonates or individuals with specific health concerns, enrichment is selected in consultation with veterinary and curatorial staff.

Enrichment also supports visitor education when used thoughtfully. Visible behaviours such as foraging, climbing, scent investigation, puzzle-solving, browsing, wallowing, bathing or natural feeding provide opportunities for interpretation and help visitors understand that animal welfare is not limited to food and shelter, but also includes behavioural choice, complexity and engagement.

33.4 Annexure 4: Animal Training and Cooperative Care Programme

SPZP continued to strengthen its animal training and cooperative care programme during the reporting year. The programme is based on positive reinforcement, voluntary participation, gradual desensitisation and stepwise shaping of desired behaviours. It is designed to support routine husbandry, preventive healthcare, veterinary procedures, safer shifting, individual monitoring and long-term animal welfare.

At SPZP, animal training is not treated as a show-based activity. It is used as a practical management tool that helps animals participate calmly in their own care. Training sessions are planned according to the species, individual temperament, motivation, learning speed, previous experience and comfort level of each animal. The emphasis remains on trust-building, consistency and low-stress management rather than force, chasing or unnecessary restraint.

The key objectives of the programme include improving keeper-animal communication, reducing handling stress, supporting routine health monitoring, improving veterinary preparedness, strengthening staff safety and making daily management more predictable.

Training Framework

The animal training programme at SPZP includes the following broad areas:

Sr. no.	Training area	Purpose
1	Target training	To guide voluntary movement, positioning and shifting without chasing or forceful handling.
2	Recall training	To support safe movement between display areas, feeding cells, night shelters and holding areas.
3	Weighing scale training	To allow regular body weight monitoring without capture or manual restraint.
4	Crate familiarisation	To prepare animals for safe shifting, transport, emergency movement and veterinary procedures.
5	Handfeeding and individual feeding	To support medication, supplementation, appetite monitoring and individual-level care.
6	Body presentation and touch tolerance	To prepare animals for clinical examination, close observation and future medical procedures.
7	Protected-contact medical training	To support procedures such as blood collection, ECG preparation, nebulisation and USG-related conditioning.
8	Desensitisation to equipment	To reduce fear of scales, crates, sleeves, syringes, nebulisers, trimmers and other veterinary tools.

Primate Training

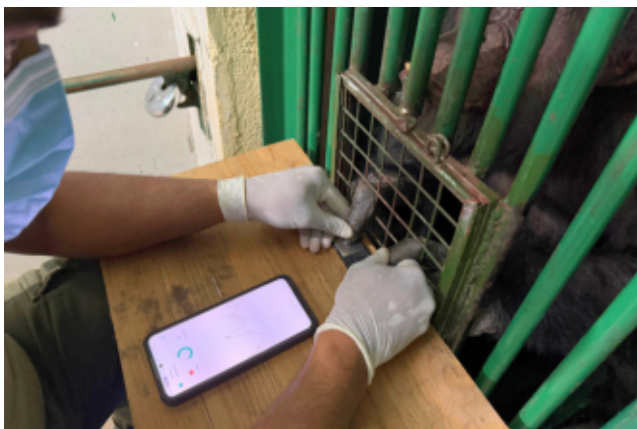
Primates were a major focus of the cooperative care programme during the year. Training was carried out with chimpanzees, orangutans, capuchins, squirrel monkeys, lemurs and South American coatis, depending on management requirement and individual response.

Chimpanzee ECG Training

A focused ECG training programme was initiated for chimpanzees to support future cardiac health monitoring. The animal was gradually trained to approach a fingerboard and voluntarily place its fingers on the designated surface. The behaviour was built in small steps using positive reinforcement, beginning with approach and contact, followed by short-duration holding of the required position. This training helps prepare chimpanzees for future cardiac monitoring with reduced stress and improved safety. It also reduces dependence on restraint or sedation for procedures that may be required repeatedly over the life of the animal.

Orangutan and Chimpanzee Hand-Sleeve Training

Hand-sleeve training was conducted with orangutans and chimpanzees to prepare them for future blood collection, injectable medication, vein assessment and other clinical procedures. The animals were first encouraged to approach the sleeve calmly. Once comfortable, they were trained to place their fingers, hand, wrist and gradually the forearm inside the sleeve. Further steps included gentle touch, tapping, pressure tolerance and introduction of syringe-like equipment without a needle. In orangutans, tapping and pinch-like stimulation were also introduced to prepare the arm for future vein identification and blood collection. This training supports voluntary medical care and improves safety for both animals and staff.



Chimpanzee voluntarily placing a finger on a wireless ECG device for non-invasive cardiac monitoring.



Orangutan trained to voluntarily present the arm through a hand sleeve for blood withdrawal.



Chimpanzee voluntarily accepting deworming medication from a syringe through hand-feeding.



Voluntary presentation by a trained orangutan for routine health checks and monitoring.

Chimpanzee Recall Training

Recall training was conducted to improve safe movement of chimpanzees between the display enclosure, kraal area, feeding cells and night holding areas. The animals were trained to respond to standard keeper cues, including routine signals and bell-based recall.

The training was first conducted in familiar areas with minimal distraction. Once the animals responded reliably, the distance and complexity were gradually increased. Recall training is important for daily shifting, feeding, cleaning, veterinary work, emergency response and evening movement into night shelters. It also improves keeper safety by ensuring that animals can be shifted and secured before staff enter any management area.

Chimpanzee Nebulisation Training

Nebulisation training was carried out as part of cooperative veterinary care for chimpanzees. The objective was to make the animal comfortable with the nebuliser, its sound, mist and procedure without forceful restraint.

The process was introduced gradually. The animal was first allowed to observe the equipment from a safe distance. The nebuliser was then brought closer in a controlled manner, and the chimpanzee was reinforced for remaining calm near the device, tolerating the sound and accepting the mist. This training allows respiratory support to be provided through protected contact when required.



Chimpanzee undergoing desensitisation training to voluntarily accept nebuliser treatment.

Primate Weighing Scale Training

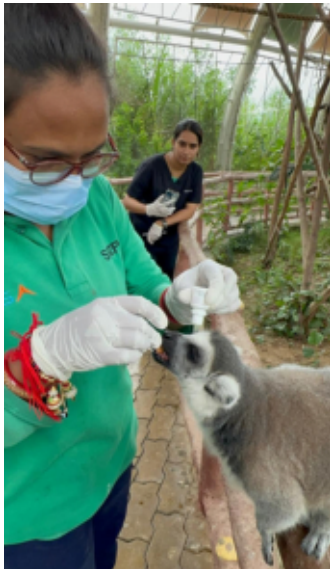
Weighing scale training was carried out for primates to support regular body weight monitoring. The weighing scale was first placed in a familiar environment to allow the animals to investigate it freely. Food rewards were then used to encourage approach, foot placement, full body placement and short-duration stillness for stable weight recording.

This training is particularly useful in group-housed primates, where individual identification and accurate weight records are important. Regular body weight data supports nutrition planning, growth monitoring, reproductive assessment, medication dose calculation and early detection of health changes.

Handfeeding for Individual Deworming and Medication

Handfeeding was used as an important cooperative care technique in several animals. By training individuals to accept selected food items directly from keepers, deworming medication, supplements or other supportive treatments could be administered to the correct animal without chasing, restraint or uncertainty in group feeding.

This approach is especially useful in group-housed species where confirming individual medication intake can otherwise be difficult. It also gives keepers an opportunity to monitor appetite, alertness, behaviour and social position during routine care.



Voluntary administration of eye drops to a trained and desensitised ring-tailed lemur.



Administering medication to an individual sloth bear.

Capuchin USG Preparation

USG-related conditioning was conducted with capuchin monkeys to prepare them for future ultrasound examination. The training focused on calm approach, close keeper presence, body presentation, abdominal touch tolerance and gradual desensitisation to trimmer vibration or sound, which may be required before abdominal ultrasound.

This training supports reproductive assessment, pregnancy diagnosis, abdominal examination and future veterinary monitoring while reducing the need for forceful restraint wherever voluntary cooperation is possible.



Capuchin monkey being conditioned for close keeper presence and abdominal touch as part of ultrasound examination preparation.



Common marmoset voluntarily stationed on a weighing scale for routine body weight monitoring.



Individual hand-feeding used to encourage voluntary acceptance of food items for health monitoring and supportive care.

Reptile Training

Reptile training at SPZP focused on target-based movement, weighing scale conditioning and crate familiarisation. These techniques are especially useful because reptiles are often sensitive to repeated capture and manual restraint.

Rhinoceros Iguana Target, Weighing and Crate Training

Rhinoceros iguanas were trained using positive reinforcement to improve voluntary movement, body weight monitoring and crate familiarisation. Target training was introduced by encouraging the iguanas to follow or touch a specific target. This helped guide movement within the enclosure without chasing, lifting or forceful handling.

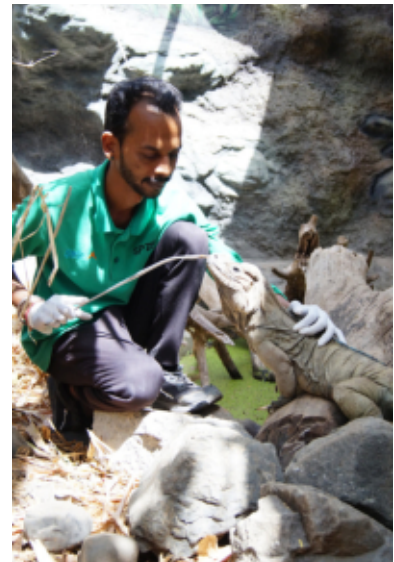
The same target-based approach was used for weighing scale conditioning. The iguanas were gradually encouraged to approach the scale, place their feet on it and remain positioned long enough for body weight to be recorded. Crate training was also introduced to prepare them for shifting, transport, veterinary examination or emergency handling.



Rhino iguana responding to target-based movement training for voluntary shifting and enclosure management.



Voluntarily stationing on a x-ray cassette for routine radiographic examination.



Desensitisation for examinations and emergency handling.



Encouraging use of enclosure structures supporting natural locomotion and behavioural confidence.

Bird Training and Conditioning

Bird training focused mainly on trust-building, handfeeding, appetite monitoring and supportive care. This is particularly useful in large aviary environments where close monitoring of individual birds can be challenging.

Handfeeding and Conditioning in Aviaries

Birds in the aviaries were trained to accept handfeeding from keepers. The process began by offering preferred food items from a safe distance. Birds showing interest were gradually encouraged to approach closer, and selected individuals eventually accepted food directly from the hand. This was carried out without chasing, cornering or forcing birds to participate.

Handfeeding helps keepers observe appetite, behaviour, alertness and response to human presence. It is useful during illness, injury, post-treatment recovery, breeding stress, chick-rearing support, feather condition problems and nutritional supplementation. Where required, medication, vitamins or supportive nutrition can be provided with less stress than repeated capture.



Ostrich getting desensitized to touch for health checks.



Hand-feeding given to birds as part of recall training.



Consistent training enabling stress-free veterinary interventions through voluntary animal cooperation.

Small Mammal Training

Training was also applied to small and medium-sized mammals where routine weight monitoring and individual assessment are important.

South American Coati Weighing Scale Training

South American coatis were trained to voluntarily come onto a weighing scale using positive reinforcement. Considering their active and curious behaviour, the training was introduced gradually. The animals were first allowed to explore the scale freely. Preferred food rewards were then used to encourage approach, foot placement and full body positioning on the scale.

With repeated sessions, the coatis were conditioned to remain steady long enough for accurate body weight recording. This supports health monitoring, nutritional assessment, medication dose calculation and early identification of abnormal weight loss or gain.



Station training conducted for voluntary weighing of animals.

Carnivore and Herbivore Conditioning

Training in carnivores and herbivores focused on practical management behaviours such as shifting, stationing, body presentation, weighing, crate familiarisation, feeding management and calm response to keeper cues.

For carnivores, conditioning supported safer shifting, feeding routines, veterinary access and predictable movement between enclosures and holding areas. For herbivores, training helped with voluntary movement, paddock shifting, body condition assessment, reproductive observation and early identification of health concerns. These behaviours are built gradually and are used only where appropriate to the species, enclosure design, keeper safety and management objective.



African lions trained to enter a squeeze cage individually for voluntary weighing using an integrated weighing plate.



Positive reinforcement training used to encourage voluntary stationing in a squeeze cage for routine health checks.

33.5 Annexure 5: Diet-related Feed Resources, Fodder, Browse and Feed Ingredients

This annexure provides details of browse plants, green fodder, dry fodder, seed mixes, grain mixes, pellets, supplementary feeds and in-house prepared diet items used at Sardar Patel Zoological Park. These items support daily animal feeding, nutritional variety, behavioural enrichment, seasonal feeding adjustments and species-specific dietary management.

1. Browse and Fodder Plant Species Used at SPZP

Fresh tree browse is collected from the periphery of the zoo premises and other suitable zoo-maintained areas on a daily basis. Browse varieties are rotated regularly to provide dietary diversity, support species-appropriate foraging behaviour and reduce dependence on a limited number of plant species.

Sr no.	Common name	Scientific name
1	Almond	<i>Prunus dulcis</i>
2	Australian babul	<i>Acacia auriculiformis</i>
3	Bamboo	<i>Bambusa vulgaris</i>
4	Banana	<i>Musa spp.</i>
5	Banyan	<i>Ficus benghalensis</i>
6	Babul	<i>Acacia nilotica</i>
7	Bauhinia	<i>Bauhinia purpurea</i>
8	Ber / Wild jujube	<i>Ziziphus mauritiana</i>
9	Cluster fig / Umbaro	<i>Ficus racemosa</i>
10	Curry leaf	<i>Murraya koenigii</i>
11	Date palm	<i>Phoenix dactylifera</i>
12	Gulmohar	<i>Delonix regia</i>
13	Guava	<i>Psidium guajava</i>
14	Hibiscus	<i>Hibiscus rosa-sinensis</i>
15	Jackfruit	<i>Artocarpus heterophyllus</i>
16	Jamaican cherry	<i>Muntingia calabura</i>
17	Jamun	<i>Syzygium cumini</i>
18	Karonda	<i>Carissa carandas</i>

19	Mango	<i>Mangifera indica</i>
20	Moringa	<i>Moringa oleifera</i>
21	Mulberry	<i>Morus alba</i>
22	Neem	<i>Azadirachta indica</i>
23	Peepal	<i>Ficus religiosa</i>
24	Peltophorum	<i>Peltophorum pterocarpum</i>
25	Phalsa	<i>Grewia asiatica</i>
26	Piluki	<i>Combretum albidum</i>
27	Powder puff	<i>Calliandra calothyrsus</i>
28	Siris	<i>Albizia lebbbeck</i>
29	Subabul	<i>Leucaena leucocephala</i>
30	Tamarind	<i>Tamarindus indica</i>
31	Amla	<i>Phyllanthus emblica</i>
32	Ardu	<i>Ailanthus excelsa</i>
33	Arjun	<i>Terminalia arjuna</i>
34	Bael	<i>Aegle marmelos</i>
35	Gunda	<i>Cordia dichotoma</i>
36	Khejri	<i>Prosopis cineraria</i>
37	Lasoda	<i>Cordia myxa</i>
38	Mahua	<i>Madhuca longifolia</i>
39	White siris	<i>Albizia procera</i>
40	Kadamba	<i>Neolamarckia cadamba</i>
41	Silk cotton tree / Semal	<i>Bombax ceiba</i>
42	Indian ash tree	<i>Lannea coromandelica</i>
43	Indian beech / Karanj	<i>Pongamia pinnata</i>
44	Flame of the forest	<i>Butea monosperma</i>
45	Weeping fig	<i>Ficus benjamina</i>

2. Green Fodder

A variety of green fodder is provided to animals daily, based on seasonal availability and feeding requirements. Hybrid Napier forms the largest volume among the green fodder varieties used.

Sr. no.	Training area	Purpose
1	Hybrid Napier	<i>Cenchrus purpureus</i> × <i>Cenchrus americanus</i>
2	Maize	<i>Zea mays</i>
3	Lucerne / Alfalfa	<i>Medicago sativa</i>
4	Bermuda grass / Doob grass	<i>Cynodon dactylon</i>
5	Marvel grass	<i>Dichanthium annulatum</i>
6	Bajra / Pearl millet	<i>Cenchrus americanus</i>
7	Sorghum	<i>Sorghum bicolor</i>
8	Red Napier	<i>Cenchrus purpureus</i>
9	Azolla	<i>Azolla pinnata</i>

3. Dry Fodder

Dry fodder is provided daily to herbivores. Different varieties of hay and straw are offered on rotation, depending on availability, animal requirement and dietary planning.

Sr. no.	Training area	Purpose
1	Peanut hay	<i>Arachis hypogaea</i>
2	Alfalfa hay	<i>Medicago sativa</i>
3	Timothy hay	<i>Phleum pratense</i>
4	Dongri hay	<i>Chrysopogon fulvus</i>
5	Paddy straw	<i>Oryza sativa</i>
6	Sorghum hay	<i>Sorghum bicolor</i>
7	Pigeon pea hay	<i>Cajanus cajan</i>

4. Seed Mixes for Birds

Seed mixes are used for aviary birds, parrots, finches, budgerigars and other granivorous or mixed-feeding birds as per diet plans. A diverse seed mix provides nutritional variety and encourages natural foraging, shelling, manipulation and selective feeding behaviours.

Importance of a Diverse Seed Mix in a Mixed Aviary

A mixed seed diet supports nutritional diversity, as no single seed provides a complete nutrient profile. Combining cereals, oilseeds, legumes and nuts helps provide carbohydrates, proteins, fats, vitamins and minerals in a more balanced manner. Different bird species also select different seed sizes and textures, allowing species-specific feeding preferences and behavioural expression.

Seed diversity supports breeding and moulting by providing energy-dense and oil-rich items such as sunflower, safflower and nuts. Smaller grains are useful for finches, doves and other smaller granivorous birds, while larger seeds and nuts support parrots and other larger birds. A varied mix also helps reduce competition in mixed aviaries by allowing multiple species to feed simultaneously.

Sr. no.	Feed item	Ingredients
1	Aviary seed mix	Dry chilli, paddy rice, oats, barley, white maize, yellow maize, buckwheat, soybean, safflower, pumpkin seeds, regular sunflower seeds, imported sunflower seeds, white sunflower seeds, peanut, almond and walnut
2	Medium parrot mix	Regular sunflower seeds, imported sunflower seeds, white sunflower seeds, groundnut, pumpkin seeds, watermelon seeds, hemp seeds, imported red millet, canary seed, buckwheat, paddy, oats, wheat, red sorghum, white sorghum, bajra and big millet
3	Finch and Budgeriger mix	Different types of millet: Sunflower, Nyger, Oats, Paddy and Flax.

5. Grain, Cereal and Pulse Mixes

Sr. no.	Feed item	Ingredients
1	Cereal mix	Wheat, brown rice, sorghum, pearl millet, maize, finger millet, foxtail millet and oats
2	Pulses mix	Bengal gram, green gram, moth bean, pigeon pea, cowpea, black gram, horse gram and chickpea
3	Grains mix	Barley, barnyard millet, kodo millet, little millet, proso millet, amaranth grain and quinoa grain

6. Commercial Pellets and Prepared Feed Ingredients

Commercial pellets and prepared feeds are used as part of species-specific diets. These are offered as per the approved diet chart and may be modified based on health condition, life stage, season, body condition and veterinary advice.

Sr. no.	Feed item	Supplier/ Brand	Ingredient Summary
1	Waterfowl pellet	Congo Natural Parrot Treat	Ground corn, wheat middlings, dehulled soybean meal, calcium carbonate, fish meal, dehydrated alfalfa meal, soybean oil, dicalcium phosphate, brewers dried yeast, salt, amino acids, vitamins and trace minerals
2	Herbivore / Antelope pellet	Congo Natural Parrot Treat	De-oiled rice bran, rice husk, wheat bran, maize, barley, molasses, soya meal, rapeseed meal, groundnut cake, linseed, alfalfa extract, minerals, vitamins, toxin binder, mould inhibitors, sodium bicarbonate, guar gum and amino acids
3	Alfalfa pellet	Congo Natural Parrot Treat	Ground alfalfa hay, wheat middlings, soybean hulls, dehulled soybean meal, oat hulls, beet pulp, cane molasses, flaxseed, minerals, vitamins, yeast products and probiotics
4	Layer starter feed	Congo Natural Parrot Treat	Corn, soybean meal, vegetable oil, yeast culture, DL-methionine, calcium carbonate, phosphates, minerals, vitamins, choline chloride and propionic acid
5	Ostrich grower / maintenance feed	Congo Natural Parrot Treat	Ground corn, dehydrated alfalfa meal, dehulled soybean meal, wheat middlings, soy hulls, cane molasses, dicalcium phosphate, calcium carbonate, fish meal, soybean oil, yeast cultures, amino acids, vitamins and trace minerals
6	Primate pellet	Congo Natural Parrot Treat	Sugar beet pulp, oatfeed, extracted sunflower seed meal, maize, wheat grains, dehulled soybean meal, fructose, lucerne, linseed, lignin, salts, dicalcium phosphate, soybean oil, blackcurrant, kale powder, oregano, pomegranate, beetroot, rosehip and hibiscus
7	Timothy pellet	Congo Natural Parrot Treat	100% dry Timothy grass
8	Rat and mice pellet	VRK Laboratories	Wheat, skimmed milk powder, casein, roasted gram, groundnut oil, minerals, vitamins, amino acids and acidifiers
9	NutriBird P15	Versele-Laga	Selected cereals (grains), peeled peanuts (10%), derivatives of vegetable origin, vegetables, minerals, oils and fats, seeds (3%), dehydrated apple (5% equivalent), sugars, mannan-oligosaccharides (MOS; prebiotic), yucca extract, natural clay minerals, vitamins and mineral premix
10	NutriBird T16	Versele-Laga	Cereals, vegetable protein extracts, seeds, oils and fats, sugars, minerals, fruits (apple 7%, cranberry 2%, and elderberry 1%; percentages equivalent before dehydration), mannan-oligosaccharides (MOS; prebiotic), yeasts, yucca extract, natural clay minerals, vitamins and minerals
11	Dry insect mix	Promeal	Mealworms, superworms, crickets, beetles, insect pupae, black soldier fly larvae, roaches, locusts, shrimps and other feeder insects

7. In-house Prepared Diet Items

Some specialised feed items are prepared in-house to support species-specific feeding, enrichment and nutritional supplementation.

Sr. no.	Feed item	Ingredients
1	Lori diet	Sweet potato, carrot, eggs, bee pollen, honey, Nestum, hibiscus flowers and water
2	Clay block	Pharmaceutical-grade bentonite clay, rock salt, cuttle bone, oyster shell grit, plaster of Paris, dried eggshell, charcoal and water
3	Cakes	Wheat flour, barley flour, eggs, baker's yeast, seed mix, soaked raisins, soaked nuts, honey, pinch of salt, and a rotational selection of fruits and vegetables including banana, apple, plum, carrot, beetroot, and grated pumpkin

8. Use and Review of Diet-related Items

Diet-related items listed in this annexure are used as per approved feeding schedules and veterinary guidance. The animal management and veterinary teams review feeding practices based on species requirement, seasonal condition, animal health, reproductive status, age, body condition, clinical observations and availability of feed items.

Browse, fodder, seed mixes, pellets and supplementary feeds are used not only for nutrition, but also for behavioural enrichment, natural foraging, training support and welfare-oriented husbandry. Any major change in feeding practice is implemented in coordination with the veterinary and animal management teams.



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