Beyond Protected Areas: Biodiversity Conservation in Surendranagar Commons

Introduction

Our work, "Beyond Protected Areas- Biodiversity Conservation in the Surendranagar Commons," was built around the vision of our organisation, Conservation *indica*, i.e. to co-create conservation solutions that are community-driven, context-sensitive, and economically and ecologically resilient. As part of building this institution, we started off our very first project in Surendranagar with a focus on approximately 40,000 hectares of tropical scrub savanna systems and the biodiversity within this ecosystem. As we begin engaging with complex ecology, people and knowledge systems, the Prakriti Research Fellowship helped in achieving a preliminary understanding of the landscape and the many layers that will eventually help the program and conservation outcomes.

Surendranagar is one of the eleven states that constitute the Saurashtra peninsula of Gujarat, India. This peninsula spans from latitude 20°50′ to 23°5′ N and longitude 69°20′ to 72°10′ E. Bounded by the Gulf of Kachchh and coastal plains to the north, the Arabian Sea to the west and south, the Gulf of Khambhat to the southeast, and the alluvial plains of Bhavnagar to the east, Saurashtra forms a distinct ecological and cultural sub-region within Gujarat. Historically comprising seven districts, Surendranagar, Rajkot, Jamnagar, Porbandar, Junagadh, Amreli, and Bhavnagar, the region was administratively expanded in 2013 to include four more: Morbi, Devbhoomi Dwarka, Gir Somnath, and Botad. This expansive area is geologically defined by Deccan basalt formations, resulting in a rugged, undulating tableland intersected by seasonal rivers and hilly uplands (Mehta, 2015).

The eastern margin of Saurashtra, where Surendranagar lies, marks a low-lying zone that once connected the Gulf of Kachchh with the Gulf of Khambhat through an ancient sea corridor. The region experiences a hot, arid to semi-arid climate, with an aridity index between 20-40%, indicating limited soil moisture availability for much of the year (Jadav, 2010). The mean annual rainfall is around 580 mm, and most of the area sits below 300 meters above sea level. Average temperatures range between 26°C-27°C, with seasonal extremes varying from 5°C to 46°C. Relative humidity generally remains between 65-70%.

Saurashtra's ecology falls under the biogeographic zone 4B (Semi-arid Gujarat-Rajputana) and is surrounded by the 8A West Coast zone (Rodgers et al., 2002). Vegetation here is predominantly open scrub and grassland, forming what is often described as a scrub savanna system. These landscapes have long supported pastoral and agro-pastoral livelihoods, with grazing lands, locally known as *Vidi*, playing a key role in community survival and livestock management (Gujarat Forest Statistics, 2012–13).

According to Dabadghao and Sankaranarayan (1973), the grasslands of this semi-arid zone, including parts of Rajasthan, Gujarat, Western Uttar Pradesh, Delhi, and Punjab, belong to the Dichanthium-Cenchrus-Lasiurus type, comprising 11 perennial and 43 annual grass species. In Saurashtra, grasslands used to extend across 1,810 square kilometres, contributing 20.08% to Gujarat's total grassland area (State Forest Report, 2011). In the latest State Forest Report, 2023-34, the grassland area has become 737 square kilometres, indicating a grassland loss of 40.7% over a period of 14 years. Grasslands in India have long suffered from policy neglect and misclassification, often labelled as 'wastelands' or 'degraded forests', which has led to large-scale afforestation and land-use changes that undermine their ecological integrity (Rahmani, 2012). Despite supporting high biodiversity, including critically endangered species like the Great Indian Bustard (*Ardeotis nigriceps*), grasslands remain excluded from mainstream conservation planning and receive minimal ecological attention or funding (Rahmani, 2012; Lahiri et. al., 2023). Government programs such as CAMPA and compensatory afforestation further exacerbate this issue by promoting tree plantations on open grasslands, disregarding their distinct ecological functions and long-standing role in sustaining pastoral livelihoods (Saberwal & Rangarajan, 2003; Shahabuddin & Bhamidipati, 2021). For pastoralist communities, seasonal access to grasslands is critical, yet insecure tenure, poor legal recognition, and competing land-use pressures have steadily eroded this access (Agrawal & Saberwal, 2004; Baviskar, 1995). Compounding the issue is a severe knowledge gap; India's grasslands are among the least studied ecosystems, lacking long-term ecological monitoring and research investment (Vanak et al., 2016). Addressing these challenges calls for a paradigm shift from tree-centric conservation models toward inclusive, landscape-based approaches that recognise grasslands as vital ecosystems and involve local communities in their management and restoration (Kothari et al., 2012).

To bring focus to these neglected and often misconstrued ecosystems, we set out with two broad objectives-

1. Develop a comprehensive and evidence-based database on the ecological importance of the Chotila landscape in Gujarat, with a specific focus on the floral composition, diversity and health of the grasslands; as well as the presence, distribution, and habitat use of mammalian species, particularly lesser-known species such as Indian gazelle, Indian grey wolves, and striped hyenas, and identify key threats affecting their survival.
2. Conduct primary research to produce accessible educational materials and foster public awareness through inclusive, community-driven methods that engage diverse citizen groups in conservation dialogue and action.

Methodology

Under Objective 1- For the vegetation baseline,

Vegetation surveys were conducted using the quadrat sampling method to assess species diversity, richness, and abundance across the grassland patches in the study area. Given the

fragmented nature of these landscapes, interspersed with farmlands, roads, and human settlements, a random sampling strategy was adopted along transect walks, with quadrats placed at 200-meter intervals to capture spatial variation in vegetation.

Different quadrat sizes were used based on vegetation type: 1×1 meter for herbs and grasses, 5×5 meters for shrubs, and 10×10 meters for tree species. The initial round of surveys was carried out in September 2024, shortly after receiving the grant. Although grasses were still present during this period, the ideal window for vegetation assessments in hot and semi-arid ecosystems like Chotila typically falls between July and August, when plant growth peaks following the onset of the monsoon.

To ensure more accurate and representative data, the grassland sites were revisited during June and July 2025, aligning with the region's optimal vegetation period. A standardised checklist was developed and used to document species presence, estimate diversity and richness, and record relative abundance across sampling sites.

These vegetation surveys were also carried out using a participatory approach, with active involvement of village *Maldharis* who accompanied the research team during transect walks. Their deep ecological knowledge greatly enriched the study, as they identified various grass species, shared local names, and provided insights into their palatability, seasonal availability, and uses. Through these interactions, information was gathered on native grasses that are valued for their fodder quality and medicinal properties, as well as on species that have become rare or locally extinct in recent years due to changes in land use, grazing pressure, and climatic variability.

Maldharis also helped identify exotic or invasive grass species and explained their perceived impact on the overall health and productivity of the grassland ecosystem. Their observations on shifts in vegetation patterns, such as the increase in certain fast-growing but less nutritious grasses, and the disappearance of traditional fodder species, provided critical context to the ecological data collected through quadrat sampling. This collaborative process helped bridge formal ecological methods with lived experience, offering a more holistic understanding of grassland change and its implications for both biodiversity and pastoral livelihoods.

For Mammalian Baseline

Two villages- Reshamiya and Devsar, in the Chotila block of Surendranagar, were selected as initial sites for fieldwork. Preliminary engagement was carried out through a series of conversations with key community stakeholders, including elder pastoralists (locally known as *Maldharis*), village leaders, women's groups, and children. These dialogues aimed to understand local perceptions of forests, grasslands, wildlife, and the challenges faced regarding these ecosystems.

To ensure a participatory and ecologically grounded methodology, pastoral elders who regularly traverse the grasslands with their livestock were closely involved in shaping the research process. For the camera trapping surveys, locations were identified by walking the

landscape alongside the Maldhari elders, who guided the selection of sites based on their frequent wildlife sightings and experiential knowledge of the terrain.

Following the procurement of the first four camera traps, two camera trap locations were identified and deployed in each village in October 2024. Camera trap data were recorded continuously from October 2024 to July 2025, capturing seasonal variations in species presence and activity. In keeping with the participatory approach, camera trap positions were reviewed and opportunistically shifted approximately every 30 days, based on ongoing discussions and feedback from the Maldharis.

For objective 2, Outreach and Education

For our outreach and education efforts, we consciously moved away from the conventional approach of distributing booklets and pamphlets. Instead, we sought to foster curiosity and dialogue around grasslands and wildlife through more engaging and participatory methods. In the common spaces of the villages, we organised wildlife film screenings in collaboration with The Grasslands Trust, which sparked conversation across age groups. Wildlife-themed cricket tournaments were hosted to draw in local youth, using sport as a medium to build connections with nature.

We also focused on building local capacity- training young people in camera trap deployment, GPS use, ecological data collection, and basic computer skills, with an emphasis on ownership and understanding of their ecosystems. As part of this process, we produced a documentary film in collaboration with Greenhub Central India- capturing the journey of Conservation *indica* in this landscape, amplifying the voices of the community and reflecting on how conservation has taken shape in their lived experience.

In Rehsamiya, we conducted nature trails for youth focused on mobile phone nature photography, culminating in a village art exhibition held in the panchayat house. These creative engagements were complemented by the dissemination of camera trap data with children, women's groups, and broader community members. These sessions became opportunities to collectively reflect on local wildlife presence and deepen conversations on grassland conservation in culturally resonant and accessible ways.

Results and Discussion

Objective 1

The vegetation survey in Reshamiya and Devsar revealed interesting results, where Reshamiya has a species richness of 84, while Devsar has a species richness of 111, indicating that Devsar supports a greater variety of species compared to Reshamiya. We recorded a diverse mix of trees, shrubs, grasses, herbs, and climbers. This suggests that the area being observed is likely a mosaic of different habitats, possibly a mix of grasslands, scrublands, open woodlands, or riverine edges. The presence of *Acacia spp. (Acacia leucophloea, Acacia nilotica, Acacia senegal, Acacia tortilis)* and *Balanites aegyptiaca*

indicates the presence of drought-resistant and nitrogen-fixing species, which are typical of semi-arid or dryland ecosystems.

Grasses such as *Cynodon dactylon, Dactyloctenium aegyptium, Eragrostis ciliaris, Heteropogon contortus,* and *Sporobolus coromandelianus* dominate the list, indicating that the landscape is likely to be grassland or savanna-type vegetation, which is often subjected to grazing pressure. These grasses are common in areas with frequent disturbance (e.g., grazing, fire, or agricultural activities).

The species list contains several legumes like Crotalaria spp., Tephrosia spp., Indigofera spp., Alysicarpus vaginalis, and Crotalaria juncea, which are important for soil fertility and nitrogen fixation. These species play a vital role in improving soil quality, especially in degraded lands.

Functional Groups for Reshamiya

Life Form	Dominant Species	Ecological Role
Trees	*Acacia nilotica, Balanites aegyptiaca*	Shade, fodder, soil stability
Shrubs	*Calotropis procera, Ziziphus nummularia*	Browsing resource, windbreak
Grasses	*Cenchrus ciliaris, Dactyloctenium aegyptium*	Primary fodder, soil cover
Herbs/Forbs	*Alysicarpus vaginalis, Achyranthes aspera*	Pollinator support, soil enrichment
Climbers	*Ipomoea quamoclit, Tinospora cordifolia*	Structural diversity, wildlife food
Invasives/Weeds	*Prosopis juliflora, Senna uniflora, Lantana camara*	Often reduces native diversity

Functional Groups for Devsar

Life Form	Dominant species	Ecological Role
Grasses	*Dactyloctenium aegyptium, Eragrostis ciliaris, Themeda quadrivalvis, Sporobolus, Urochloa, Iseilema*	Good grassland representation, indicating potential grazing habitat.

Forbs/Herbs	*Tridax procumbens, Chamaecrista mimosoides, Tephrosia, Achyranthes, Euphorbia*	Indicates early-successional or disturbed patches.
Shrubs	*Lantana camara, Capparis decidua, Rostellularia procumbens*	Mix of native and invasive species.
Trees	*Acacia nilotica, Azadirachta indica, Butea monosperma, Ziziphus nummularia*	Suggests woody vegetation patches within or around the landscape.
Climbers	*Ipomoea, Merremia, Pergularia*	Indicates vertical structural diversity.
Sedges/Succulents	*Opuntia ficus-indica, Xeromphis spinosa*	*Opuntia* is invasive and often linked to degradation.

Observations

In Reshamiya, the survey indicates a more herbaceous-dominated structure. *Senna uniflora*, an exotic invasive herb, dominates heavily (28.4% cover), which is significantly higher than any other species. This suggests it may be a pioneer, invasive, or simply highly adapted to disturbance (e.g., grazing, human activity, soil degradation, run-off). The next most dominant grass species include *Dactyloctenium aegyptium, Eragrostis ciliaris*, and *Apluda mutica* (9.8% to 5.2%). These are all common in semi-arid and grazing-influenced systems. Species like *Rostellularia procumbens, Tridax procumbens, and Sporobolus coromandelianus* show up with low covers (2.2%–2.6%), acting as weedy colonisers or components of degraded vegetation patches. The presence of *Tetrapogon tenellus* (1.4%) indicates a more specialist or moisture-sensitive grass, usually less dominant but significant in specific niches.

Being a village common, Reshamiya's grassland comes under the village panchayat and is locally called *Gauchars*. Gauchars are designated reserved village panchayat lands for supporting livestock in the villages. As per the Government Circular dated 30 December 1988, every village is required to maintain 40 acres (16 hectares) of gauchar land for every 100 cattle. The vegetation indicates that it has pastoral pressure because it is open to all the users in the village, and has palatable grasses, but is not dominant. It has a moderate richness with few dominant species and low cover associates. High dominance of *Senna uniflora* reduces community evenness, indicating disturbance and early successional stages. Further, exotic invasive species like *Lantana camara* and *Prosopis juliflora* are also present and have shown initial stages of invasion. Another interesting species, *Opuntia ficus indica* has shown a tendency to become invasive in Reshamiya. It's not as aggressively invasive as *Senna uniflora*, but it has spread beyond planted areas through pads or seed dispersal. In overgrazed or degraded grasslands of Reshamiya, it has formed dense patches, reducing native grass cover.

Vegetation survey in Reshamiya (Vidi)

For Devsar, the survey indicates a more even grassland with high sedges and grass representation. *Cyperus compressus* (a sedge) has the highest cover (9.2%) but is not overwhelmingly dominant, which suggests a more evenly distributed plant community. A cluster of grasses (*Aristida spp., Dichanthium, Oropetium, Cynodon, Elusine*) show similar coverage between 2–4%, which is indicative of less skewed dominance, and better habitat quality or recovery. Forbs like *Evolvulus alsinoides* appear in smaller amounts, adding to structural and functional diversity. More perennial species are present here, possibly indicating less disturbance or a later successional stage compared to Reshamiya. Although exotic invasives such as Senna unfilora and Prosopis juliflora are present in Devsar as well, the density is very low and negligible. This can be because Devsar shows a different geological structure with sandstone formation, and its soils are generally sandy loam to loamy sand, with patches of clay loam in lower depressions. Sandy loam allows good drainage but is prone to moisture loss. The drier typology of the habitat and the rocky outcrops and large rocks make it less conducive for invasive species like *Senna uniflora, Lantana camara* and *Prosopis juliflora*.

While the survey site in Devsar was also a village common (*Gauchar*), the results are widely different, and this points us to a direction of research to probe beyond biodiversity study, such as, grazing systems, patterns of use, herd size, her composition, availability of alternate

pastures, migration as well as sedentary patterns of patsoralism, geographical and geological variations, micro-climatic variations and past/historical pattern of use.

Vegetation survey with Pastoralist

Invasive species

The presence of *Senna uniflora, Lantana camara, Prosopis juliflora, Opuntia ficus-indica, Tridax procumbens, Euphorbia hirta, Cryptostegia grandiflora, and Leucaena leucocephala* points to past disturbance or land use pressure (like overgrazing, fuelwood collection, or previous clearing). However, native species still dominate, suggesting partial ecological recovery or mosaic land use.

Senna uniflora in Reshmiya: The presence of Senna uniflora often points to land degradation or disturbance, as it tends to colonize overgrazed pastures, abandoned agricultural lands, and edges of native vegetation. It typically thrives in nutrient-poor or compacted soils, which may suggest that Reshamiya is facing grazing or anthropogenic pressure. Being aggressive and fast-spreading, it can suppress native herbaceous species, leading to homogenization of the plant community.

A large patch of Senna uniflora in Reshamiya Gauchar

Grazing and Pastoral Indicators

Presence of highly palatable and grazing-tolerant grasses like *Dichanthium annulatum, Sehima nervosum, Heteropogon contortus, Themeda quadrivalvis, Cynodon dactylon, Urochloa spp.* suggest that these ecosystems are pastoral-use landscapes and biodiversity has co-evolved with use. And also, the presence of *Tephrosia*, *Senna uniflora*, *Aristida spp.* are indicators of disturbance, low fertility, and early successional stages. These are indicative of a shift from palatable, perennial grasses to less palatable, hardy species, and could mean a warning sign of grassland decline unless actively restored.

For objective 2, Mammalian Baseline

The mammalian baseline resulted in the identification of 14 species in Rehamiya and 6 species in Devsar. The table below summarises the species found-

Scientific name	Reshamiya	Scientific name	Devsar
Panthera pardus fusca	Indian Leopard	Panthera pardus fusca	Indian Leopard
Felis chaus	Jungle Cat	Felis chaus	Jungle Cat

Hyaena hyaena	Striped Hyena	Hyaena hyaena	Striped Hyena
Viverricula indica	Small Indian Civet	Vulpes bengalensis	Indian Fox
Vulpes bengalensis	Indian Fox	Boselaphus tragocamelus	Blue bull
Canis aureus	Golden Jackal	Sus scrofa	Wild Boar
Herpestes edwardsii	Indian grey mongoose		
Boselaphus tragocamelus	Blue bull		
Sus scrofa	Wild Boar		
Hystrix indica	Indian Crested Porcupine		
Felis lybica	Desert Cat		
Gazella bennettii	Indian Gazelle (Chinkara)		
Funambulus palmarum	Three-striped palm squirrel		
Lepus nigricollis	Black-naped Hare		

Reshamiya shows higher mammal species richness and a broader functional range of species (large carnivores, mesopredators, ungulates, omnivores, rodents, and lagomorphs). Notably, 3 Indian leopard individuals, 5 striped hyenas, presence of both large prey (blue bull, wild boar, chinkara) and small prey (hares, squirrels, porcupines, mongooses).

Devsar has fewer recorded species, but still retains key carnivores (2 leopards, 3 striped hyenas) and mid-sized prey (blue bull, wild boar). Absence of some small prey species could be due to habitat differences or under-detection.

Observational Notes:

Indian leopard: is currently listed as Vulnerable on the IUCN Red List. Indian Leopards are present in both Reshamiya (3 individuals) and Devsar (2 individuals), with higher densities reported in Mandav Reserve Forest near Devsar. Leopards in Mandav appear to have established it as a core breeding ground, possibly displacing other carnivores such as the Indian grey wolf to peripheral grasslands. In Reshamiya, leopards utilize the mosaic of disturbed and semi-open grasslands dominated by Senna uniflora and scattered palatable grasses, preying on ungulates like Indian Gazelle, blue bull, and wild boar, as well as smaller mammals. Their presence strongly influences prey behavior and distribution, shaping habitat use by mesopredators such as hyenas and jackals. Observations suggest that leopard population expansion has cascading effects across the carnivore guild, driving range shifts, altering predator-prey dynamics, and potentially contributing to the local decline of smaller mesopredators like jackals.
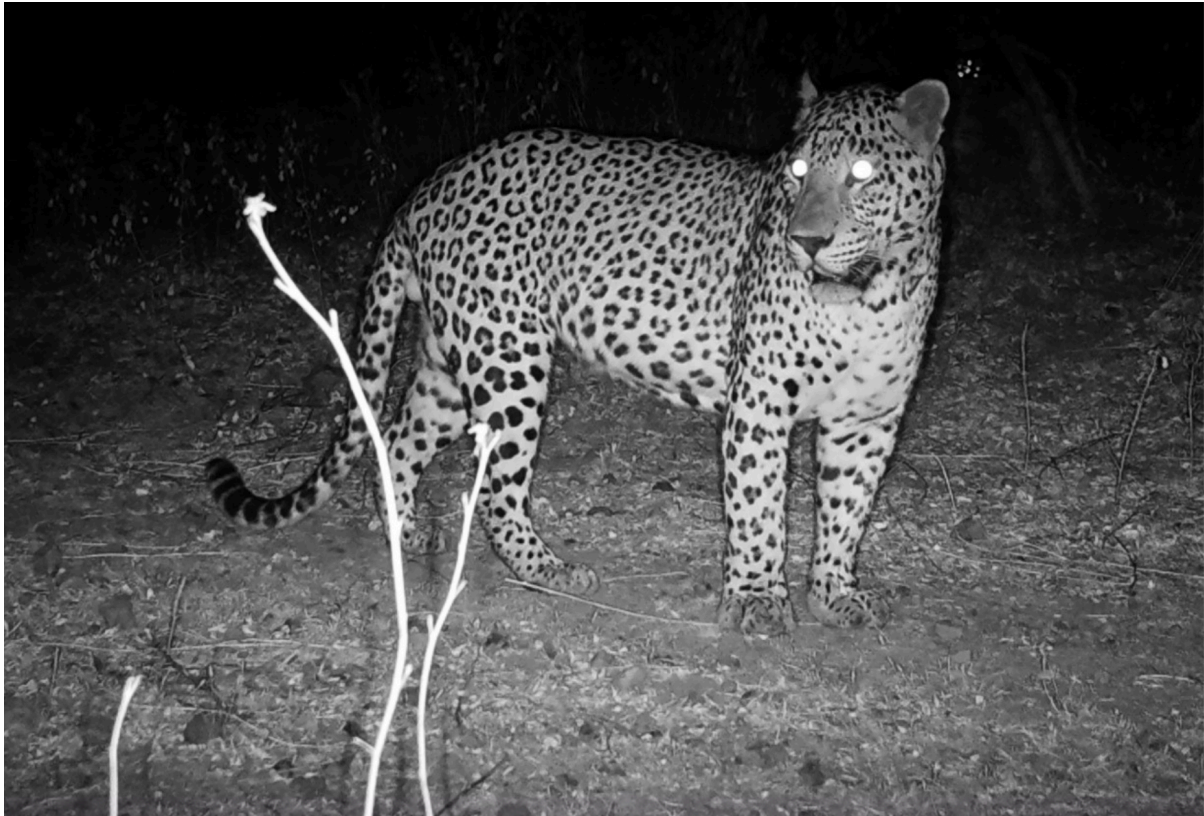
Indian Grey Wolf: is classified as Endangered (EN) on the IUCN Red List. This assessment reflects its significant population decline due to habitat loss, human-wildlife conflict, and hybridisation with feral dogs. The estimated population in India ranges between 2,000 and 3,000 individuals. It is currently only reported near Devsar, with two individuals observed at the periphery of Mandav Reserve Forest. These sightings suggest a potential range shift, likely driven by the recent leopard population explosion within Mandav, historically a wolf breeding ground. The wolves are using peripheral grassland patches near Devsar, which provide more open terrain and prey access compared to the increasingly leopard-dominated core of Mandav. Their presence indicates the species' flexibility in habitat use and highlights the cascading effects of apex predator dynamics on sympatric carnivores. Monitoring these individuals is essential to understanding long-term settlement patterns and potential impacts on prey populations.

Striped Hyena: The striped hyena (Hyaena hyaena) is currently listed as "Near Threatened" on the IUCN Red List, with an estimated global population of fewer than 10,000 mature individuals. This status reflects ongoing threats such as habitat loss, human-wildlife conflict, poisoning, and a declining prey base**.** Striped Hyenas are present in both Reshamiya (5 individuals) and Devsar (3 individuals), frequently observed along scrubby or degraded vegetation patches. In Reshamiya, they exploit livestock carcasses and anthropogenic resources, benefiting from the disturbance-adapted vegetation dominated by Senna uniflora. In Devsar, hyenas appear to use the more even grass–sedge matrix for movement and denning. As opportunistic scavengers, hyenas play an important ecological role in nutrient recycling and reducing disease risk from carcasses, while also competing with other

mesopredators such as jackals. Conserving this species and its populations in the current landscape has the potential to safeguard these neglected habitats while supporting healthy population levels.

Indian Gazelle: In Reshamiya, Indian Gazelle are observed in small groups of 7-10, occupying open grassland patches that avoid heavily grazed or Senna uniflora-dominated areas. They are most active during early morning and late afternoon, likely as an anti-predator strategy. No gazelles were recorded in Devsar, possibly due to smaller suitable habitat patches, as these are more stony, and competition from other ungulates like blue bull and wild boar. Gazelle in Reshamiya serve as important prey for large carnivores, including leopards and hyenas, and their distribution reflects the interplay between vegetation structure, predation pressure, and disturbance from pastoral activities.

Golden Jackal: Only one Golden Jackal was recently observed in Reshamiya, moving along ecotones between village edges and open grazing lands. Locals report that jackals no longer howl in the evenings, suggesting a significant decline or local disappearance. This change may reflect increased competition from leopards and hyenas, habitat degradation, or human disturbance. The reduced jackal presence highlights potential shifts in mesopredator dynamics and indicates that small carnivores may be particularly sensitive to cascading effects of apex predator expansion and changes in prey availability.

Desert Cat: Observed in both Devsar and Reshmiya, with two individuals recorded, possibly hybrids. These represent the first-ever evidence of desert cats from this landscape, a region previously missing from earlier distribution maps. This small, elusive, and primarily nocturnal species is well-adapted to arid and semi-arid habitats. Its presence suggests that, despite grazing and human pressures, local areas can still support small carnivore populations. Their presence can inform further conservation strategies for these elusive, endemic small cats of arid and semi-arid systems. Hybridisation, if managed carefully, could enhance genetic diversity and resilience, while targeted conservation interventions could help stabilise and potentially increase population numbers.

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Baseline on Leopard and Livestock Depredation

Leopard-related livestock depredation in Reshamiya village began in 2022. Primary surveys with affected households revealed both the scale of losses and gaps in compensation provided by the Forest Department. Recorded incidents include the loss of 14 goats in 2024, 9 goats in 2023, and 2 calves in 2022. In 2025 (till July), four attacks have occurred. Most incidents cluster between June and December, with one or two scattered across the rest of the year.

In Devsar, records are available only from 2024-25, documenting 9 livestock losses to leopards (8 calves and 1 sheep), spread across the year. Out of 13 affected livestock owners across both villages, only three received compensation for calf losses; no claims for goats or sheep were compensated. This is partly because leopards often carry away small livestock post-kill, leaving no carcass for verification when forest guards arrive, a condition that undermines claims.

Surveys on Livestock Depredation by Leopard

Compensation records obtained from the Forest Department for Chotila taluka show that in 2022-23, 21 individuals were compensated for leopard depredation, all for large livestock (calves, cows, buffalo); in 2023-24, 44 individuals were compensated, with only five cases involving goats. Notably, just one entry in the list was from Reshamiya and two from Devsar, suggesting low rates of claim filing, poor access to the compensation system, and limited perceived value in applying. In December 2024, the Government of Gujarat revised compensation rates for losses caused by wild animals, including leopards: ₹50,000 for milch cattle (cow/buffalo), ₹40,000 for camels, ₹5,000 for sheep/goats, ₹25,000 for non-milch camels/horses/bulls, and ₹20,000 for calves, donkeys, or ponies. However, actual payouts to affected villagers have been far lower- ₹6,000 for calves, ₹10,000 for cows/buffalo, and ₹3,000 for goats/sheep. These amounts fall far short of market values (Gir cows: ₹70,000-1,00,000; goats/sheep: ₹10,000-12,000), fueling resentment among pastoralists, some of whom now call for leopards to be removed from the landscape.

Ecologically, leopards have increasingly taken over the role once held by the Indian grey wolf (Canis lupus pallipes) as the apex predator of these semi-arid grasslands. This shift has coincided with the decline or displacement of many small and mesocarnivores. For coexistence to be viable, equitable compensation, alternative livelihood measures, and participatory conservation strategies are essential.

Case study: Post-attack Measures to Save Livestock

In Devsar, a leopard attacked a newborn calf on 16th March 2025. It survived with basic care. On 21st March, the same calf was attacked again, and this time, its condition worsened. The local vet gave up. We were informed 18 days later, when the calf was critical. Demands to capture the leopard were growing. We intervened, arranged a 7-day treatment through our contacts, and the calf showed signs of recovery, but eventually died. This case highlights how

inaccessible and costly vet care is. Most herders accept it as their fate. If coexistence is the goal, timely, affordable animal care is essential.

A reel on public dissemination of the incident was made forthe Instagram audience-
https://www.instagram.com/p/DG5fZPVCI4x/

Baseline on Nilgai, Wild Boar and Crops

Cotton and groundnut emerge as the dominant cash crops in the cultivation records, indicating a strong economic dependency among farmers. Jowar (Sorghum) and Bajra (Pear Millets) appear regularly, likely as a key fodder source for livestock. Vegetables, though grown in smaller plots, serve both household consumption and market sales. Irrigation availability varies, from daily water access to seasonal or limited supply, while overall crop diversity beyond cotton remains low, with pulses and cereals appearing infrequently.

In Reshamiya, interviews with 25 farmers established a baseline of herbivore-related crop damage. In 2023, approximately 128 acres of farmland were damaged, rising to around 180 acres in 2024. The main crop raiders were wild boar (*Sus scrofa cristatus*) and blue bull (*Boselaphus tragocamelus*), with occasional groundnut damage attributed to Indian crested porcupine (*Hystrix indica*). This pattern highlights both the vulnerability of cash crops to wildlife and the increasing pressure on agricultural livelihoods.

Surveys on Crop Raiding by Blue Bull and Wild Boar

Wild Boarlets

Blue bull Herd

Objective 2: Outreach, Capacity Development, Participation and Education

Capacity Building of Youth and Participatory Village Data Collection

To embed conservation practices within the fabric of local communities, five youth from pastoralist families were trained in essential ecological monitoring techniques. The training covered camera trap deployment, systematic data collection, and the basics of wildlife behaviour and identification. This approach did more than enhance fieldwork; it empowered the youth by building technical skills, fostering a sense of ownership, and generating local stewardship. As a result, the quality and consistency of data improved significantly, and the involvement of community members lent credibility and trust to the intervention.

Training youth in camera trapping methods and deployment to track mammal movements

Awareness and Claim Support Workshops

Recognising the bureaucratic and informational barriers pastoralists face in accessing government compensation schemes, a series of workshops was conducted to guide families through the process of filing and verifying predation-related claims. These sessions covered legal entitlements, documentation requirements, and follow-up procedures. As a direct result, the number of successful compensation claims increased, reducing the economic burden of livestock loss and restoring some level of faith in formal institutions. The workshops also opened up a space for dialogue on policy gaps, particularly in cases where predator-proofing measures are not factored into assessments.

Above- Sharing of Camera trap images and data with school children; (Below) *Separate meeting with women groups for understanding their perspectives, relations with the grasslands and wildlife*

Village Screenings to understand Landscape and Wildlife

As part of our community engagement and awareness-building initiatives in grassland conservation, we organised Reshammiya's first-ever movie night. Four short films produced by The Grasslands Trust were screened, highlighting the ecological and social narratives of India's Deccan landscapes. Despite geographic differences, these landscapes share striking similarities in both ecosystem composition and conservation challenges. Residents of Reshammiya were engaged by the parallels between their local grasslands and the Deccan, particularly in terms of wildlife. Iconic species such as the Indian grey wolf, which is experiencing population declines, and the highly adaptable Indian leopard, whose numbers are increasing, prompted discussions on human-induced impacts and the delicate balance required for sustainable coexistence. The event fostered critical reflection on broader conservation questions: the potential for learning across landscapes, the role of grasslands in the face of infrastructural expansion, and the distribution of benefits and responsibilities in conservation outcomes.


Greenhub Fellow Incubation and Documentary

Conservation *indica* collaborated with Greenhub Fellows from Greenhub Central India to co-create a documentary focusing on pastoralism, grasslands, human-wildlife conflict, and coexistence, centring on the journey of a young NGO navigating these landscapes. As part of this collaboration, we organised a dissemination session on the Greenhub Fellowship, aimed at motivating local youth to participate and upskill in lens-based conservation work. The resulting films were showcased at a film festival in Bhopal in July, where two youth participants from the community attended, representing the voices of pastoralist communities and sharing their perspectives on conservation and local ecosystems.

Workshop conducted for seven interested youth for the Greenhub Fellowship
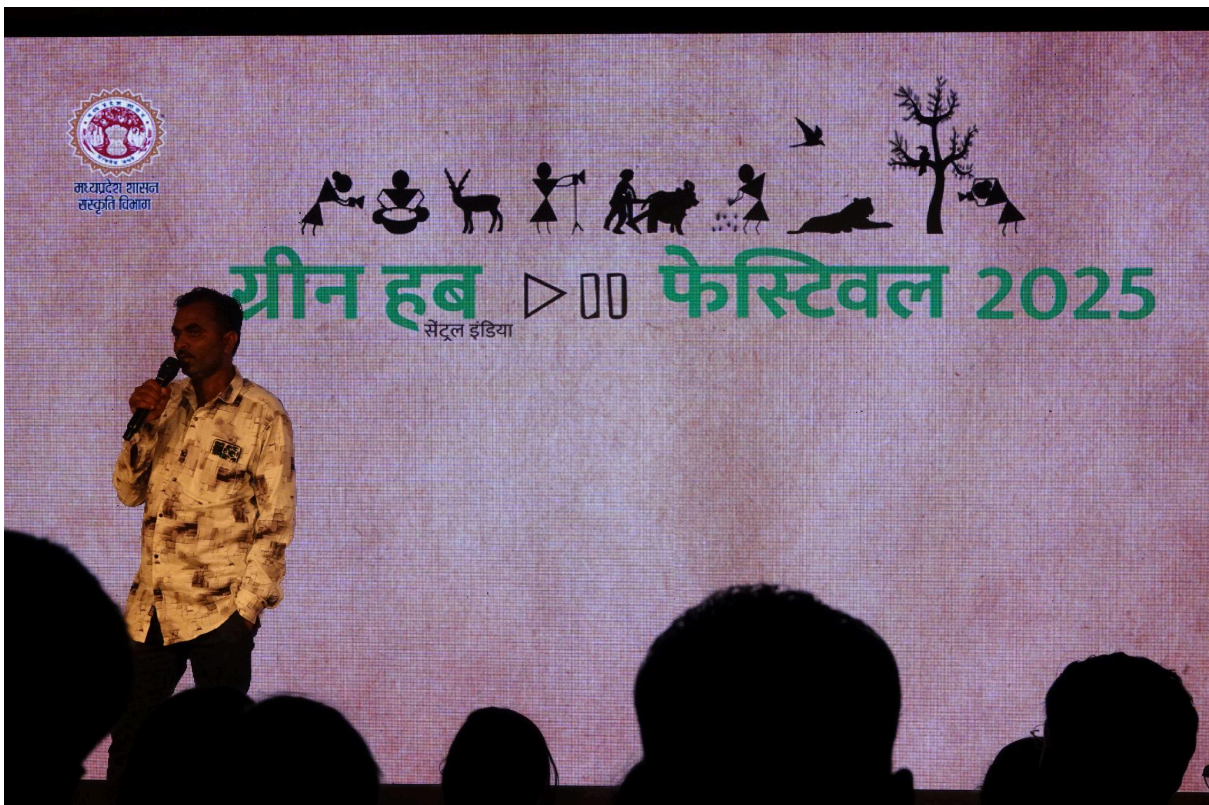
Photos from the Greenhub Fim Festival, Bhopal (Above- Govindbhai from Rabari Community and a member of Conservation indica addressing the audience)

Greenhub Fellows who made the short film for Conservation indica)

Grassland Premier League

Conservation *indica* used cricket as an innovative medium for conservation outreach by organizing the Grassland Premier League, a community cricket tournament in Reshamiya village, Chotila, Gujarat. The event brought together 90 youth from 15 villages across the region, competing under eight wildlife-themed teams. The full-day tournament was largely co-organized by the youth themselves, who also contributed 50% of the event's expenses, demonstrating strong local ownership and engagement. Commentary throughout the tournament skillfully integrated wildlife observations, ecosystem insights, and playful 'sledging' related to conservation, culminating in the Toofani Deer team winning the trophy over the Leopard Strikers and Wolf Warriors.

This event effectively combined recreation with environmental education, fostering a sense of stewardship for local grasslands while building youth networks committed to conservation. Watch the video to learn more! ▶ Grasslands Premier League 2025 in Chotila Grasslands of Gujarat

Nature Photography and Exhibition

On 5th August, Conservation Indica organised a one-day monsoon-themed phone photography contest in Reshamiya, followed by an art exhibition showcasing participants' submissions. Fifteen participants enrolled, capturing images under three categories: plants, insects, and mammals. Each photograph was accompanied by a one-liner, and participants also shared poetry, ecological facts, and reflections on cultural or religious significance related to their images.

The exhibition was held on the roof of the panchayat house, where the Sarpanch felicitated the winning entries. In addition to participant submissions, our camera trap images and bird baseline photographs were displayed, sparking vibrant discussions around Reshamiya's biodiversity and local natural heritage. This activity successfully combined creativity, local

knowledge, and ecological awareness, fostering community engagement and a deeper appreciation for the village's grassland ecosystems.

Exhibition day at Reshamiya

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