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HUMAN–JUNGLE CAT CONFLICT IN RURAL LANDSCAPES: A CASE STUDY FROM SUNDARBAN

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1. ABSTRACT:

The study focuses on understanding how nylon fencing helps reduce human–wildlife conflict in the buffer zone of the Sundarban Tiger Reserve (STR), West Bengal, India. It aims to assess local perceptions, wildlife sightings, and the condition of the existing barrier system. The research uses both qualitative and quantitative methods, including field surveys, interviews, and direct observations, conducted from March to August 2025 across 26 JFMC villages. A total of 1,040 households participate in the study. Results indicate that most respondents depend on farming and fishing for their livelihood and often work near forest areas. The majority report that the nylon fence, installed by the Forest Department over 16 years ago, remains in satisfactory condition and effectively limits tiger movement toward human settlements. Jungle cats and monkeys are the most frequently seen animals near villages, while tiger and wild boar sightings have declined. Nearly all villagers' express willingness to join conflict prevention programmes and support conservation efforts. The study highlights that regular fence maintenance, community participation, and awareness programmes are essential to maintain safety and coexistence. Overall, the findings confirm that nylon fencing plays an important role in minimising conflicts and promoting harmony among people and wildlife in the Sundarbans.

Keywords: *Human–wildlife conflict, Jungle cat, Nylon net fencing, Sundarban Tiger Reserve, Buffer zone, Conservation, Community participation, Tiger movement, Wildlife management, West Bengal*

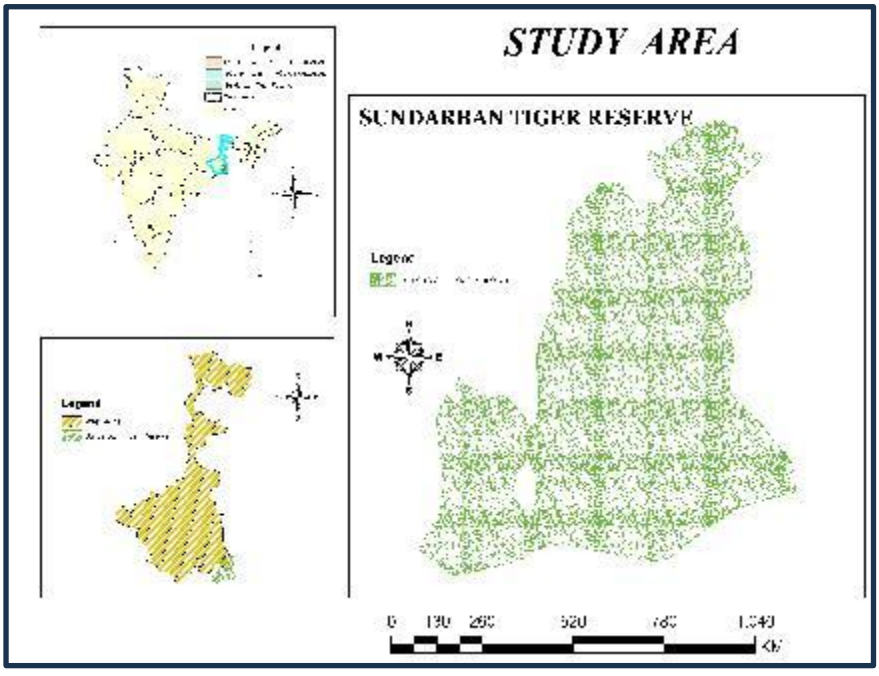
❖ 2. INTRODUCTION:

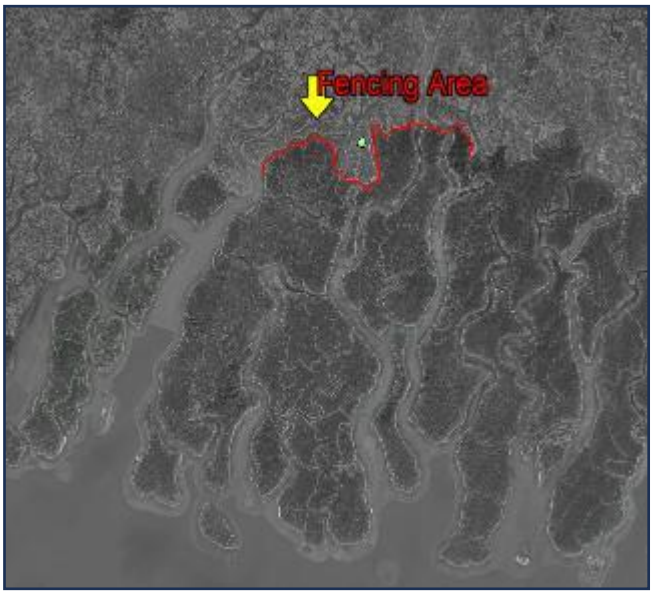
The Jungle Cat (Felis chaus), commonly referred to as the reed or swamp cat, is a medium-sized wild felid distributed across Asia and the Middle East, occupying wetlands, grasslands, scrublands, and anthropogenic landscapes such as agricultural fields. Adults exhibit a slender body, long legs, and a short, ringed tail with a characteristic black tip, with body weight ranging from 4 to 16 kg. The species is largely solitary and territorial, maintaining home ranges through scent marking and vocal communication. Unlike many small wild cats, F. chaus demonstrates a broad repertoire of vocalizations, including meows, chirps, purrs, growls, and barks. The Jungle Cat is primarily crepuscular, hunting small mammals, birds, reptiles, and insects, and is notable for its ability to leap and swim effectively—covering water distances up to 1.5 km. Hybridization with domestic cats has been documented, giving rise to the Chausie breed due to chromosomal compatibility. Although classified as Least Concern by the IUCN, populations are locally threatened by habitat loss, wetland degradation, and human-wildlife conflict, particularly predation on livestock. In certain regions, such as Jordan, the species is considered critically endangered, whereas in parts of India, it contributes significantly to ecosystem regulation by controlling small vertebrate populations. The Jungle Cat's adaptability to human-modified landscapes underscores both its resilience and the potential for conflict, highlighting the need for targeted conservation strategies and effective habitat management to ensure long-term survival. Recently, human activities such as habitat loss, fragmentation, and declining prey availability have increasingly threatened wildlife populations (Kerley et al., 2002; Treves & Karanth, 2003; Dhungana et al., 2017). Consequently, comprehending their population dynamics and distribution became essential for efficient conservation planning. Human–carnivore conflicts had also grown more frequent, threatening several wild cat species already at risk (Treves & Karanth, 2003). These conflicts usually arose when wild cats killed livestock or occasionally attacked humans, leading to retaliation from local communities. Studies pointed out that habitat degradation, poaching, and direct human–jungle cat encounters severely affected their survival (Ogurlu et al., 2010).

❖ 3. STUDY AREA:

The study was carried out in the Sundarban Tiger Reserve (STR), one of the first nine tiger reserves established in India under *Project Tiger* on 23 December 1973. The reserve is located in the South and North 24-Parganas districts of West Bengal and forms part of the world's largest mangrove forest shared with Bangladesh. The STR covered an area of 2,584.89 sq. km, which included the Sundarban National Park (1,330.12 sq. km) as the core area and a buffer zone that comprised the Sajnekhali Wildlife Sanctuary (362.42 sq. km). (STR 2023-24)

The study took place between March and August 2025 in the Buffer Zone, where several fringe villages are situated and people depend on forest resources for their daily needs. UNESCO recognised the Sundarbans as a World Heritage Site in 1987 and declared it a Biosphere Reserve in 1989 due to its global ecological value. The area supported a wide range of species, including the Bengal tiger (*Panthera tigris tigris*), fishing cat, estuarine crocodile, Gangetic and Irrawaddy dolphins, and many threatened birds and reptiles. The mangrove forests served as a strong natural barrier against cyclones, stored large amounts of carbon, and provided breeding grounds for fish and crabs, supporting both biodiversity and local livelihoods.





❖ 4. MATERIALS AND METHODS:

The study adopted a mixed-method approach that combined both qualitative and quantitative techniques. Field surveys, semi-structured interviews, and direct observations were conducted to document conflict incidents and to understand local perceptions. Data collection was carried out between March and August 2025 across 26 JFMC villages. A total of 1,040 households were randomly selected for interviews. Each respondent was questioned about the frequency of jungle cat sightings, livestock depredation, the time and location of attacks, and their perception toward the species. Field equipment, including a binocular, camera, GPS, mobile phone, and measuring tape, was used to record physical evidence such as pugmarks, kill remains, and entry routes.

Data were collected using mobile applications such as KOBO Collect and Locus Map to ensure accurate spatial and temporal recording. The collected data were subsequently analysed using Microsoft Excel, QGIS, and ArcGIS for statistical and spatial interpretation. Secondary data were also obtained from Forest Department records and previous conflict reports to supplement the field findings.

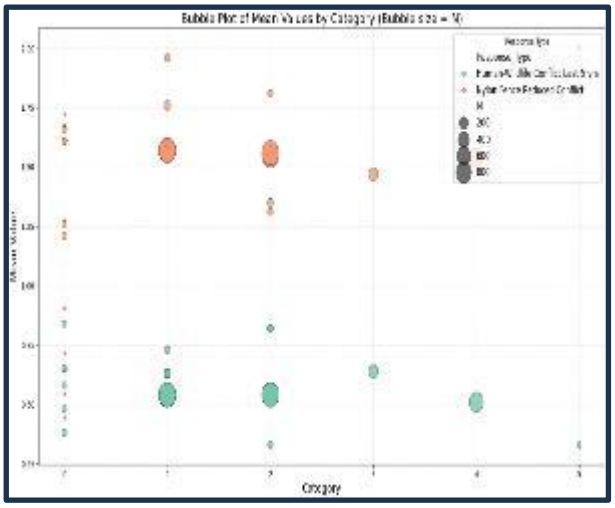
❖ 5.RESULTS:

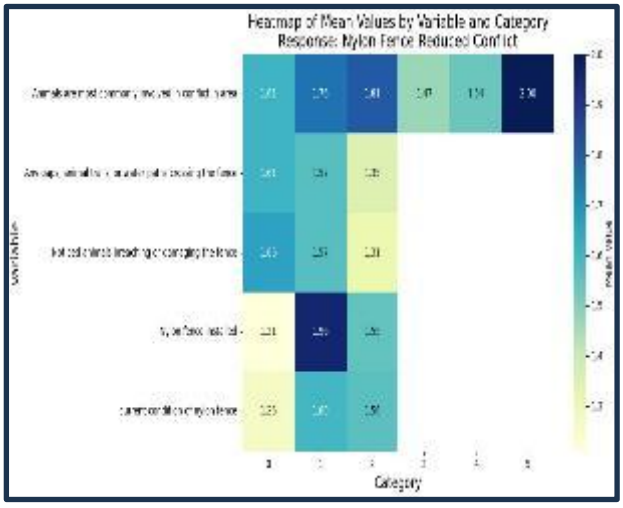
Correlations

	Age	Involved in any way in fence monitoring or maintenance	Received any training about human-wildlife conflict or fencing	Willing to participate in a village-level wildlife conflict prevent program	Receive support from forest/NGO regarding fencing or conflict mitigation
Age	1	-.029	.029	-.084**	.029
Involved in any way in fence monitoring or maintenance	-.029	1	.120**	.014	.099**
Received any training about human-wildlife conflict or fencing	.029	.120**	1	-.007	.143**

Willing to participate in a village-level wildlife conflict prevent prog.	-.084**	.014	-.007	1	.046
Receive support from forest/NGO regarding fencing or conflict mitigation	.029	.099**	.143**	.046	1

**. Correlation is significant at the 0.01 level (2-tailed).





The correlation analysis indicates a relationship between factors such as age and community involvement, and the support received through knowledge, including training and institutional assistance, in managing conflicts. Age was slightly associated with a lower level of willingness to engage in conflict prevention schemes at local levels ($r = –0.084$, $p < 0.01$), meaning that younger adults are somewhat more willing to be engaged than their elders. Being involved in either fence monitoring or repair was positively related to having received training on HWC or fencing ($r = 0.120$, $p < 0.01$), indicating that if someone is practically clubbed over the head with some faeces, so to speak, they will eventually get trained on how to do it. Similarly, training had a significantly positive association with support from forest departments and NGOs ($r = 0.143$, $p < 0.01$), indicating that trained respondents were more likely to receive institutional support. The other associations, including age, training, monitoring, and willingness to participate in support activities, were weak and not statistically significant. Taken together, the results suggest that training and policy support are mutually reinforcing with respect to CBO participation, whereas younger community members tend to be more motivated to participate in conflict prevention programmes.

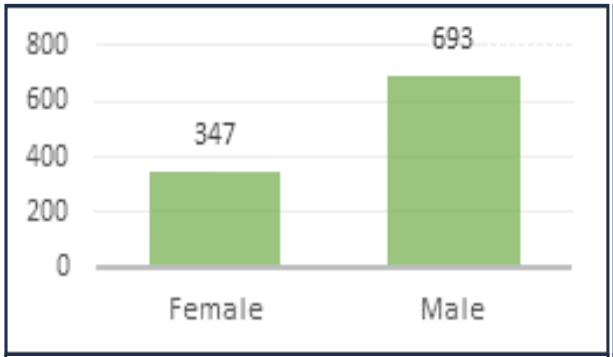


Figure No- 1: Gender Distribution of Respondents

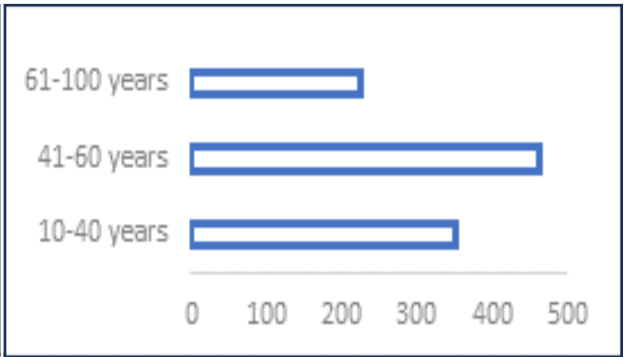


Figure No- 2: Age Distribution of Respondents

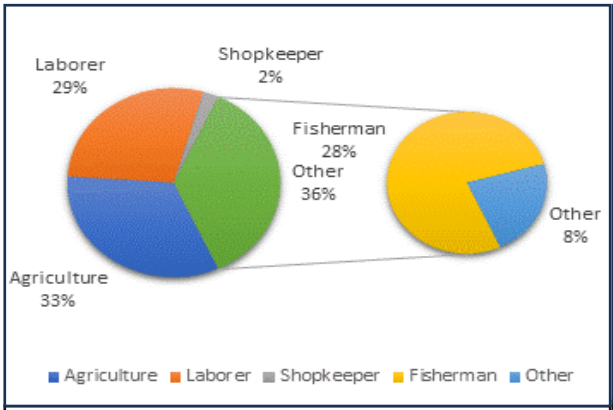


Figure No- 3: Occupational Structure of Respondents

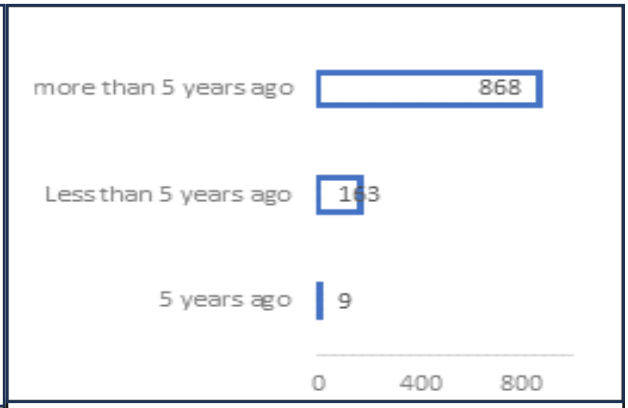


Figure No- 4: Community Experience of Tiger Entry in Villages

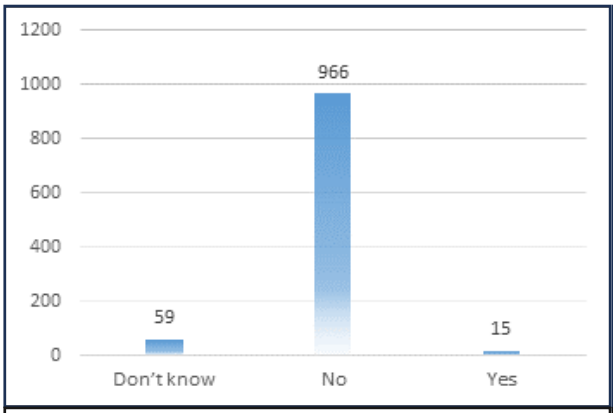


Figure No- 5: Any gaps, animal trails, or water paths crossing the fence

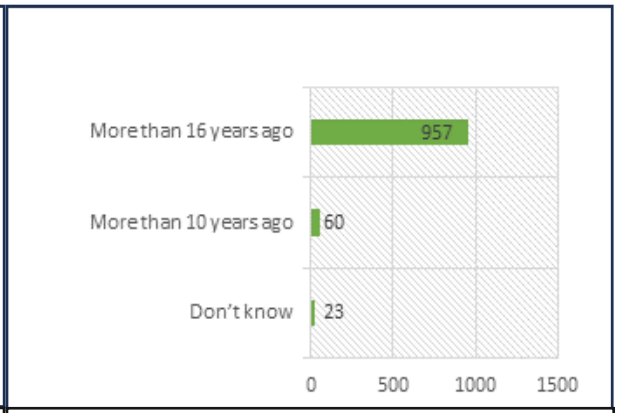


Figure No- 6: Count of the Nylon Net Fence installed (approximately)

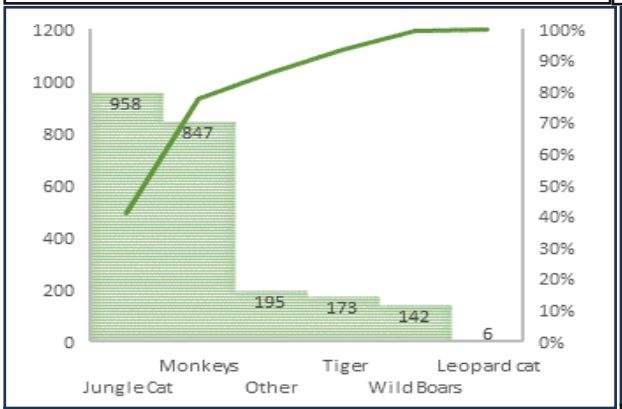


Figure No- 7: Animals are most commonly involved in conflict in area

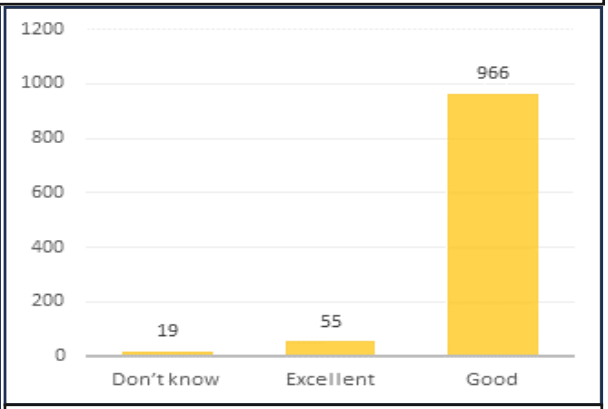


Figure No- 8: The Current Condition of the Nylon Net Fence

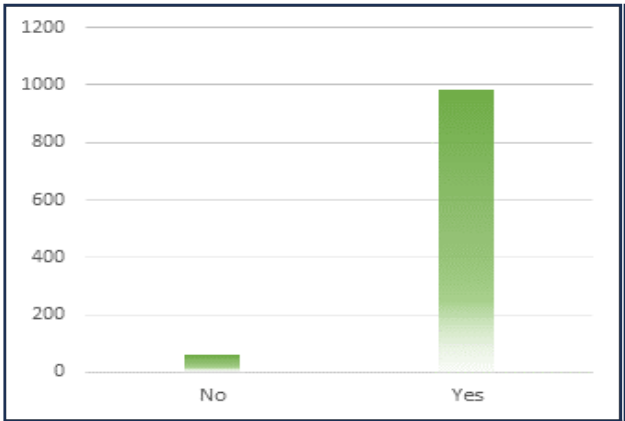


Figure No- 9: Villagers' Willingness to Participate in Wildlife Conflict Prevention Programs

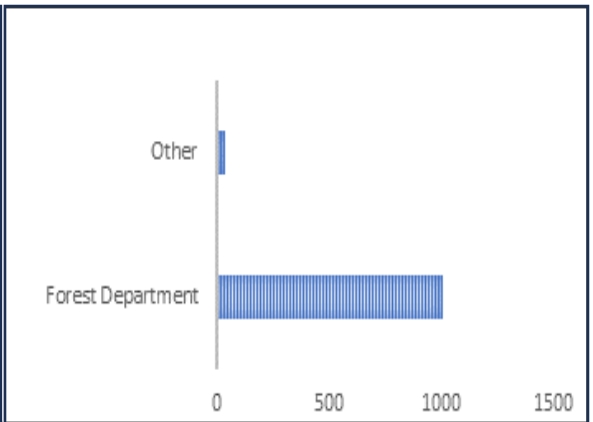


Figure No- 10: Organizations Responsible for Nylon Net Fencing Installation

The study was carried out in the buffer zone villages of the Sundarban Tiger Reserve from March to August 2025, with a total of 1,040 people taking part in the survey. Most of the respondents were men (693), while 347 were women. The majority of them were between 41 and 60 years old, showing that middle-aged people were more active in village and field activities.

Most villagers depended on natural resources for their daily income. About 33 percent were farmers; 28 percent were fishermen; 29 percent worked as daily labourers; and a few were shopkeepers or involved in other small jobs. The nylon fencing around these villages was mainly installed by the Forest Department, and most respondents said the fence had been in place for more than 16 years. Only a few mentioned that it was installed around 10 years ago, while some were unsure about the exact time.

Most people said that the nylon net fence was still in good condition and had no visible gaps or water channels passing through it, which meant it was still strong and effective. A few villagers described the fence as excellent, while some were not fully aware of its present state. According to the survey, jungle cats and monkeys were the animals most often seen near human settlements, while tiger and wild boar sightings were less frequent. Very few people reported seeing leopard cats.

Most villagers mentioned that tigers had entered their areas more than five years ago, and only a small number said such incidents occurred recently. This showed that the nylon net fence helped reduce tiger movement near villages over time. Almost all respondents expressed their willingness to take part in wildlife conflict prevention programmes and cooperate with the Forest Department.

Overall, the results showed that the nylon fencing had played an important role in reducing human–wildlife conflicts in the Sundarban buffer area and that local people were aware of its benefits and ready to support future conservation activities.

❖ 6.DISCUSSION:

The study indicated that most of the people living near the Sundarban Tiger Reserve (STR) buffer area were men, and most were between 41 and 60 years old. Many families depended on farming and fishing for their main income. Because of this, they often worked close to the forest and came in contact with wild animals. The Forest Department had installed the nylon net fence in almost all study villages more than 16 years ago. The majority reported that the fence remained in excellent condition, indicating careful maintenance. Only a few were unsure about its condition, which shows that some villagers did not fully understand how the system worked. Jungle cats and monkeys were the animals most often seen near villages, while tiger and wild boar incidents were less common. Most villagers said that tigers had entered their area more than five years ago, suggesting that the fence helped reduce tiger movement into human settlements. Almost everyone said there were no big gaps or water channels through the fence, which shows that the barrier was mostly secure. It was also positive to see that most villagers were willing to join programmes to prevent human–wildlife conflict. This means local people understood the importance of protecting both their crops and the wild animals that share their surroundings.

❖ 7.MITIGATION STRATEGIES:

Regular Fence Checking: The fence should be checked often, especially after rain or storms, to correct any damage quickly.

Involve Local People: Villagers can help watch over the fence, report damage, and assist forest staff.

Awareness programmes: Training and meetings should be arranged to teach people safe ways to deal with wildlife and explain why conservation matters.

Job Options: Giving people other sources of income—like crab farming, honey collection, or ecotourism—can reduce their need to enter forest areas.

Better Coordination: The Forest Department, NGOs, and local committees should work together so that problems are solved faster.

Scientific Monitoring: Using tools like camera traps or GPS mapping can help track animal movement and check how well the fence is working.

❖ 8.CONCLUSION:

The nylon net fence in the Sundarban Tiger Reserve buffer zone has helped reduce human–wildlife conflict, especially tiger entry into villages. Most people said the fence was in excellent shape and believed it protected them and their crops. The study also showed that local communities were ready to participate in protecting their surroundings.

For long-term success, it is important to keep the fences in optimal condition, involve local people in every step, and provide them regular training. When people and authorities work together, it becomes easier to protect both human lives and wildlife. The nylon fence, along with strong community participation, can continue to play a key role in keeping peace between people and nature in the Sundarbans.

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