SITE-SPECIFIC Chinese Pangolin

MANAGEMENT PLAN FOR THE COMMUNITY-BASED PANGOLIN CONSERVATION PROGRAM (CBPCP)





Heartfelt gratitude to our invaluable conservation partners and supporters for their unwavering commitment to the site-specific Pangolin Conservation Management Plan, ensuring a sustainable future for these threatened species.











Foreword

It is my honor to contribute this Community-Based Pangolin Conservation Mangement Plan, a testament to our commitment to protect the critically endangered Chinese pangolin and preserve our natural heritage.

The Chinese pangolin, a species of extraordinary ecological significance, faces several threats due to habitat destruction, illegal wildlife trade, and insufficient awareness about its value in maintaining biodiversity. Recognizing these challenges, this action plan provides a roadmap to mobilize our community and stakeholders for its long-term conservation.

Our ward is privileged to host forests like Taudolchhap Community Forest, which serve as critical habitats for pangolins. These areas are not only biodiversity hotspots but also a vital part of our community's cultural, religious and economic identity. This action plan emphasizes the importance of promotion a deep connection between our people and nature, empowering the local community to become stewards of conservation through sustainable practices and active participation.

The preparation of this action plan is a collaborative effort involving conservationists, researchers, policymakers, and most importantly, our local community members. It reflects the need for evidence-based approaches, capacity-building initiatives, and multi-stakeholder partnerships to address the complex challenges that threaten pangolin populations.

I wholeheartedly support the implementation of this management plan, and appeal everyone to work collectively to achieve the vision outlined in this plan for the benefit of future generations. By investing in conservation education, habitat restoration, and alternative livelihood opportunities, we can not only safeguard pangolins but also enhance the resilience of our ecosystems and communities.

On behalf of Ward 8, I extend my gratitude to Women for Conservation for bringing out this endeavor.

With Best Regards,

Pushpa Raj Basnet

Ward President 8 Suryabinayak Municipality Sipadol, Bhaktapur

him

Global Status of Pangolins

Pangolins, often referred to as "scaly anteaters," are among the most trafficked and threatened mammals globally. Until recently, there were eight known species of pangolins across Asia and Africa. In 2023, a new species, the Asian mysterious pangolin (*Manis mysteria*), was discovered, increasing the total to nine species. This discovery underscores how much remains unknown about pangolin diversity and the pressing need for stronger conservation efforts.

The nine species of pangolins are now distributed across Asia and Africa, with most facing severe threats.

1.1 Asian Pangolins (5 species):

- Chinese Pangolin (Manis pentadactyla):
 Critically Endangered
- Indian Pangolin (Manis crassicaudata):
 Endangered
- Sunda Pangolin (Manis javanica): Critically Endangered

- Philippine Pangolin (Manis culionensis):
 Critically Endangered
- Asian Mysterious Pangolin (Manis mysteria): Conservation status yet to be determined; discovered in 2023 through genetic analysis of seized scales.

1.2 African Pangolins (4 species):

- White-bellied Pangolin (*Phataginus tricuspis*): Endangered
- Black-bellied Pangolin (Phataginus tetradactyla): Vulnerable
- Giant Ground Pangolin (Smutsia gigantea): Endangered
- Temminck's Ground Pangolin (Smutsia temminckii): Vulnerable



Major Threats to Pangolins

- 2.1 Illegal Wildlife Trade: Pangolins are the most trafficked mammals globally, with scales and meat highly prized in traditional medicine and as luxury items. Millions of pangolins have been removed from the wild for illegal markets.
- 2.2 Habitat Loss: Rapid deforestation, agricultural expansion, and urban development in both Asia and Africa have led to significant habitat destruction.
- 2.3 Slow Reproductive Rate: Pangolins typically produce one offspring per year, making population recovery slow and vulnerable to exploitation.

2.4 Lack of Awareness: Misconceptions about the medicinal value of pangolin scales drive demand in traditional medicine practices.





Conservation Efforts

To combat these threats, pangolins are protected by international and national regulations:

- **3.1** CITES (Convention on International Trade in Endangered Species): All pangolin species are listed in Appendix I, prohibiting international trade.
- **3.2** IUCN Red List: Most species are classified as Endangered or Critically Endangered, reflecting their dire conservation status.
- **3.3** Community-Based Initiatives: Many conservation programs focus on local engagement, habitat restoration, and alternative livelihoods to reduce hunting pressures.





Introduction

The Chinese Pangolin (*Manis pentadactyla*), derived from the Malayan phrase "Pen Gulling," meaning "rolling ball," and classified under the order Pholidota, is one of the most fascinating yet critically endangered mammals. Its unique physiology, behavior, and ecological role have made it a subject of great interest, but it also faces significant threats due to human activities.

4.1 Taxonomy and Physical Characteristics

4.2 Taxonomy

- 4.2.1 Genus: *Manis* Linnaeus, 1758.
- **4.2.2** Order: Pholidota, derived from the Greek word "pholidotos," meaning "scaled animals."

4.3 Physical Characteristics

- **4.3.1** Covered in large, flat, keratinized scales, providing protection against predators.
- 4.3.2 Possesses a long, narrow snout and a sticky, ropelike tongue that can extend far out to capture ants and termites.
- **4.3.3** Its long, prehensile tail aids in climbing and selfdefense.
- **4.3.4** Lacks teeth; instead, it relies on strong stomach muscles and ingested sand or soil to grind its food.
- **4.3.5** Size: 30–90 cm (excluding the tail); tail length adds another 25–88 cm.
- Weight: Typically 2–7 kg, but some individuals can weigh more.

4.4 Ecology and Behavior

- **4.4.1** Diet:
 - 4.4.1.1 Specialist feeder, consuming primarily ants, termites and their larvae.
 - 4.4.1.2 Uses its strong claws to dig into termite mounds or anthills and its elongated tongue to capture prey.
- 4.4.2 Habitat:
 - 4.4.2.1 Prefers tropical and subtropical forests

but is also found in shrublands and agricultural areas with abundant ant and termite populations.

- 4.4.2.2 Creates burrows underground for resting and protection.
- 4.4.3 Behavior:
 - 4.4.3.1 Nocturnal and solitary, rarely interacting with other individuals except during the mating season.
 - 4.4.3.2 Rolls into a tight ball when threatened, using its heavily armored scales as an effective defense mechanism against predators.
 - 4.4.3.3 Non-aggressive but may lash out with its tail if captured.

4.5 Adaptations

- **4.5.1** Strong, curved claws for digging burrows and breaking open ant and termite nests.
- **4.5.2** Long, sticky tongue to extract insects from tunnels.
- **4.5.3** Can roll into a tight ball when threatened.



4.6 Distribution and Habitat

- **4.6.1** Range: Found in southern Nepal, northeastern India, Bhutan, Bangladesh, Myanmar, Thailand, Laos, Vietnam, southern China, and Taiwan.
- 4.6.2 Preferred Habitat:
 4.6.2.1 Forested regions, grasslands, and agricultural areas.

4.6.2.2 Occupies areas with sandy or loamy soil suitable for digging burrows.

4.6.2.3 Prefers altitudes ranging from lowlands (100m) to 2,000 meters.

4.7 Activity Pattern

- **4.7.1** Nocturnal and solitary, spending most of its time in burrows.
- 4.7.2 Reproduction:
 - 4.7.2.1 Mating season varies across its range.
 - 4.7.2.2 Typically gives birth to a single offspring after a gestation period of about 4–5 months.
 - 4.7.2.3 Mother shelters the young in burrows and protects them by curling around them.

4.8 Cultural and Conservation Significance

Pangolins are culturally significant in many Asian communities, often associated with myths and traditional beliefs. Despite being shy and nocturnal, the species has been heavily exploited for its:

- 4.8.1 Meat: Considered a delicacy in parts of Asia.
- **4.8.2** Scales: Used in traditional medicine, believed to have therapeutic properties.
- **4.8.3** Entertainment and Pets: Sometimes hunted for exotic animal markets.
- **4.8.4** High-Value Trade: Their rarity has driven prices up in illegal wildlife markets.

4.9 Key Threats Facing the Chinese Pangolin

4.9.1 Poaching:

- 4.9.1.1 Scales are highly valued in traditional medicine, particularly in China and Vietnam, believed to treat ailments such as inflammation, circulation issues, and lactation problems.
- 4.9.1.2 Pangolin meat is considered a luxury delicacy in some cultures, further driving demand.
- 4.9.1.3 Poachers often use inhumane methods, such as smoking pangolins out of burrows or trapping them.
- **4.9.2** Illegal Wildlife Trade:
 - 4.9.2.1 Pangolins are the most trafficked

mammals in the world.

- 4.9.2.2 Their scales, meat, and other body parts are heavily traded on the black market.
- 4.9.2.3 Cross-border trafficking networks operate in regions where enforcement is weak, particularly in South and Southeast Asia.
- 4.9.3 Habitat Destruction:
- 4.9.3.1 Deforestation for agriculture, urban expansion, infrastructure development and logging is rapidly reducing the pangolin's natural habitat.
- 4.9.3.2 Conversion of forests into farmland depletes food sources (ants and termites) and destroys burrowing sites.
- 4.9.4 Human-Wildlife Conflict:
 - 4.9.4.1 Encroachment into human settlements and farmlands often leads to persecution of pangolins, especially as they are mistaken for pests or captured opportunistically.
- 4.9.5 Low Reproductive Rate:
 - 4.9.5.1 Pangolins have a slow reproductive rate, typically giving birth to one offspring at a time, which limits their ability to recover from population declines.
- 4.9.6 Climate Change:
 - 4.9.6.1 Alterations in rainfall patterns and temperature may affect the availability of ants and termites, their primary food source, and their habitat suitability.
- 4.9.7 Population Trends:
 - 4.9.7.1 Rapidly declining across its range, with local extinctions reported in some areas.
 - 4.9.7.2 Insufficient Awareness: Many communities in the pangolin's range are unaware of the species' ecological importance or its conservation status.
- **4.9.8** Enforcement: Wildlife protection laws often lack proper enforcement, allowing illegal trade and habitat destruction to persist.
- **4.9.9** Data Deficiency: A lack of robust population data and ecological studies complicates conservation planning.
- 4.9.10 Adaptations and Survival

Despite the overwhelming threats, the Chinese Pangolin possesses unique adaptations that have contributed to its survival:

- 4.9.10.1 Nocturnal Habits: By foraging at night, it avoids human detection and predation.
- 4.9.10.2 Burrowing Behavior: Its underground lifestyle provides shelter from predators and environmental stressors.
- 4.9.10.3 Defensive Mechanism: Rolling into a ball and its hard scales make it nearly invulnerable to natural predators.

However, these adaptations are insufficient against the scale of human-induced threats like habitat destruction and illegal trade.

Priority Conservation Interventions

5.1 Strengthening Legal Protections

5.1.1 Enforce anti-poaching laws and prosecute offenders involved in illegal wildlife trade.

5.1.2 Expand protected areas and establish community-based conservation zones.

- 5.1.3 Community Engagement
 - 5.1.2.1 Conduct awareness campaigns in local communities to highlight the importance of pangolins in ecosystems.
 - 5.1.2.2 Involve communities in habitat restoration and anti-poaching efforts
- 5.1.4 Reducing Demand
 - 5.1.3.1 International campaigns to reduce the demand for pangolin scales and meat, especially in markets driving the illegal trade.

- 5.1.5 Research & Monitoring
 - 5.1.4.1 Improve understanding of pangolin ecology, population trends, and habitat requirements.
 - 5.1.4.2 Utilize technology such as camera traps to monitor populations.
- 5.1.6 Ex-Situ Conservation
 - 5.1.5.1 Establish and maintain breeding programs and sanctuary to create assurance populations, particularly in areas where pangolins face high risk.

In a nut shell, the Chinese Pangolin's conservation requires a multi-faceted approach combining enforcement, education, community involvement, and habitat protection. Collaborative efforts between governments, conservation organizations, and local communities are critical to saving this iconic species from extinction.



Purpose of the management plan

The primary goal of the management plan is to set a comprehensive and sustainable strategy for the conservation of the Chinese Pangolin (*Manis pentadactyla*) within the designated Community-Based Pangolin Conservation Area (CBPCA).It is also useful for the other community forests within Bhaktapur district that harbors the elusive Chinese Pangolin. By addressing both ecological and anthropogenic factors, the plan aims to ensure the long-term survival of this critically endangered species and its habitat.

6.1 Location and Importance of the CBPCA

Bhaktapur is located between 27036' and 27044' North latitudes and 850 21' and 85032' East longitudes with an area of about 199 sq. km. It lies in the middle mountain physiographic zone, its elevation ranges from 1331 meters above sea level to 2200 (Nagarkot) msl. It is the smallest district in the country but bears about 17.92% (2132.52 ha.) of forest area and about 90.82 % (1937.08 ha.) of district forest land is managed as community forest land i:e managed by community members. Most of the forest area is dominated by deciduous and coniferous pine forest. It comprises 0.97 ha per household (DFO, Bhaktapur, 2015.) The southern part of district bears more natural broadleaved forests dominated by Schima-Castanopsis species than in other parts of district.

Taudolchhap community forest is one of the most important pangolin habitats representing mid hill ecosystem and it is about 7 km far from the main road, Araniko Highway with an altitude ranging from approximately 1331 to over 2000m asl. More than 12 rescued pangolins have been released in the forest so far and assumed to home to more than 20 pangolins.Various Community forests like Taudolchhap Community Forest play a pivotal role in the conservation of critically endangered species such as pangolins. By fostering harmony between humans and wildlife, Community based Pangolin conservation areas like the Taudolchhap Community Forest serve as vital refuges for the critically endangered Chinese pangolins and showcase how community-led initiatives can support global biodiversity conservation efforts. In addition, it acts as ecological corridors, connecting fragmented habitats and ensuring genetic flow for species like pangolins.

6.2 Significance of Taudolchhap Community Forest

6.2.1 Habitat Protection

Community forests provide safe habitats for pangolins by maintaining dense vegetation, ample insect populations, and minimal human disturbance.

- 6.2.2 Community Involvement in Conservation 6.2.2.1 Local communities directly manage these forests, fostering a sense of ownership and responsibility toward conserving wildlife, including local and released pangolins.
 - 6.2.2.2 Community forest user groups (CFUGs) are instrumental in patrolling against



poaching and illegal logging, which threaten pangolins.

- 6.2.3 Reducing Human-Wildlife Conflict
 - 6.2.3.1 Community forests create buffer zones between human settlements and natural habitats, minimizing encounters that often lead to conflicts.
 - 6.2.3.2 Awareness programs in these areas educate locals on the ecological importance of pangolins, reducing hunting pressures.
- 6.2.4 Economic Benefits Encourage Conservation
 - 6.2.4.1 Sustainable forest products like medicinal plants, timbers, fruits and ecotourism opportunities provide alternative livelihoods, reducing reliance on harmful activities like poaching.
 - 6.2.4.2 Income generated is reinvested in conservation efforts, such as antipoaching initiatives and habitat restoration.
- 6.2.5 Conservation of Ecosystem Services
 - 6.2.5.1 Protecting pangolins in community forests also ensures the preservation of broader ecosystem services, such as soil aeration and pest control, which pangolins contribute to through their feeding behavior.
 - 6.2.5.2 These forests support the water cycle and prevent soil erosion, benefiting both wildlife and human communities.
- 6.2.6 Cultural and Educational Significance 6.2.6.1 Community forests are hubs for environmental education, raising



awareness about pangolins' role in biodiversity.

- 6.2.6.2 They strengthen cultural ties to nature, encouraging traditional practices aligned with conservation.
- 6.2.7 Research and Conservation Opportunities
 - 6.2.7.1 Community forests provide ideal sites for ecological studies on pangolins, enabling better understanding and targeted conservation actions.
 - 6.2.7.2 The data collected can inform national and international conservation strategies for critically endangered species.



Objectives

To create a comprehensive and sustainable strategy for the conservation of the Chinese pangolin in the designated community-based Pangolin Conservation Area (CBPCA).

7.1 Specific Objectives

- 7.1.1 Ensure the conservation of pangolin habitats by safeguarding forests and controlling deforestation.
- 7.1.2 Provide alternative income-generating activities to reduce dependency on activities that harm pangolins.
- **7.1.3** Raise awareness and foster local participation in pangolin conservation efforts.
- 7.1.4 Establish a system for monitoring pangolin populations and evaluating the effectiveness of conservation efforts.





Rationale of the sitespecific management plan

A site-specific management plan is crucial for the effective establishment and operation of Community-Based Pangolin Conservation Areas (CBPCAs) because the species have specific habitat requirements, such as an abundance of ants and termites, dense vegetation, and safe burrowing sites. These habitats are increasingly threatened by human activities like urbanization, agriculture, and infrastructure development. A tailored management plan ensures the identification and protection of critical habitats, mitigation of land-use changes, and restoration of degraded areas to support long-term pangolin survival.

The threats faced by pangolins vary across regions. Some areas experience high poaching pressure due to their proximity to wildlife trafficking routes, while others deal with human-wildlife conflict as pangolins venture into farmlands. A site-specific plan enables localized interventions, such as anti-poaching measures, community-based patrolling, and awareness campaigns to reduce conflict and prevent illegal activities. It also helps engage communities by designing culturally relevant awareness programs and empowering local conservation champions, including hunter-turnedconservationists.

8

Rescued and reintroduced pangolins require particular attention to ensure their survival. Site-specific plans facilitate habitat suitability assessments, post-release monitoring, and community training to track and manage interactions with reintroduced pangolins. Additionally, such plans address illegal trade, a significant threat to pangolin populations, by coordinating with law enforcement, strengthening community reporting systems, and running awareness campaigns to discourage the use of pangolin products.

The integration of sustainable livelihoods into site-



specific management plans is vital to reducing local dependence on activities harmful to pangolins. By promoting alternative income-generating activities like ecotourism, agroforestry, or the marketing of sustainable products, the plans create incentives for communities to support conservation efforts. Capacitybuilding and training further enhance the ability of community members to engage in and benefit from conservation programs.

Finally, site-specific plans formalize conservation efforts by defining clear boundaries, rules, and responsibilities, ensuring that CBPCAs are legally recognized and wellmanaged. By addressing unique ecological and social challenges, these plans not only safeguard pangolins but also build a replicable model for conservation in other regions. They empower communities, foster stewardship, and create sustainable frameworks for protecting these threatened species.

8.1 Conservation Strategies

8.1.1 Habitat Protection and Restoration

8.2 Forest Management

8.2.1 Implement community-based forest management practices to reduce logging, overgrazing, and other activities that harm pangolin habitats.

8.3 Reforestation and Habitat Enhancement

8.3.1 Promote reforestation and the restoration of degraded lands to increase suitable pangolin habitat.

8.4 Sustainable Livelihood Programs

8.4.1 Provide alternatives such as ecotourism, sustainable agriculture, and handicrafts to reduce reliance on activities that endanger pangolins.

8.5 Capacity Building

8.5.1 Train local community members on sustainable practices, wildlife protection laws, and ecotourism management.

8.6 Community Engagement and Awareness

8.6.1 Develop educational campaigns targeting local communities, schools, and other

stakeholders to raise awareness about the Chinese pangolin's ecological role and conservation needs.

8.7 Local Leadership

8.7.1 Empower local leaders to champion pangolin conservation and facilitate community decision-making processes.

8.8 Traditional Knowledge

8.8.1 Integrate traditional knowledge into conservation efforts, ensuring cultural respect and engagement.

8.9 Monitoring and Research

8.9.1 Pangolin Population Surveys: Conduct regular camera trapping, scat analysis, and other monitoring techniques to assess pangolin populations and health.

8.10 Threat Assessment

8.10.1 Identify and address emerging threats (e.g., poaching, habitat degradation) through continuous monitoring.

8.11 Research Partnerships

8.11.1 Collaborate with universities, conservation organizations, and wildlife experts to conduct research on the Chinese pangolin's ecology and behavior.





Table: Tentative activities with the time frame and budget

Phase	Timeline	Key Activities	Tentative Budget (NPR)
Phase 1: Preparation and Mobilization	Year 1-2	Stakeholder consultation and agreement on conservation goals	1,000,000
		Establishment of CBPCA boundaries and legal protection mechanisms	2,000,000
		Initiation of community education and awareness programs	1,500,000
Phase 1 Total			4,500,000
Phase 2: Habitat Restoration and Livelihood Development	Year 3-5	Launch of forest restoration projects and buffer zone creation	5,000,000
		Development of alternative livelihood programs (e.g., eco- tourism, agroforestry)	3,000,000
		Continuous monitoring and data collection on pangolin populations	2,500,000
Phase 2 Total			10,500,000
Phase 3: Scaling and Long- term Sustainability	Year 6-10	Expansion of potential areas and reforestation efforts	4,000,000
		Consolidation of sustainable livelihood programs with community participation	3,500,000
		Continued research and adaptation of management strategies based on monitoring data	2,000,000
Phase 3 Total			9,500,000
Grand Total	Year 1-10		24,500,000

8.12 Stakeholder Involvement

- 8.12.1 Local Communities:
- 8.12.1.1 Engage local community members as primary stakeholders in the CBPCA, ensuring they are involved in decisionmaking and implementation.

8.13 Government Agencies

8.13.1 Work closely with local and national government bodies to ensure legal backing and financial support for conservation efforts.

8.14 Conservation Organizations

8.14.1 Partner with international and national conservation groups for technical assistance, funding, and knowledge exchange.

8.15 Private Sector

8.15.1 Encourage the involvement of the private sector, particularly through ecotourism initiatives and sustainable resource management practices.

8.16 Monitoring and Evaluation

- **8.16.1** Performance Indicators:
- 8.16.1.1 Set measurable indicators to evaluate progress towards conservation goals (e.g., increase in pangolin population, reduction in poaching incidents).

8.17 Annual Review

8.17.1 Conduct annual reviews of the management plan's progress, adapting strategies as necessary based on monitoring data and stakeholder feedback.

8.18 Community Feedback

8.18.1 Implement a feedback mechanism for the community to report on challenges and successes, ensuring adaptive management.

8.19 Funding and Resources

8.19.1 Explore funding from governmental agencies, conservation foundations,

ecotourism revenues, and international organizations.

8.20 Resource Allocation

8.20.1 Ensure transparent and efficient allocation of resources for the implementation of activities and community support.



Call to Action

- **9.1** Encourage all stakeholders to commit to the management plan, ensuring a collective effort for pangolin conservation.
- 9.2 By following this framework, the Chinese Pangolin conservation management plan for a Community-Based Pangolin Conservation Area can guide efforts to protect and conserve this critically endangered species while supporting the local communities that play a crucial role in its survival.





Conclusion

The management plan underscores the urgency of protecting the critically endangered Chinese pangolin by fostering multi-stakeholder collaboration, emphasizing the importance of involving conservationists, government agencies, non-governmental organizations, researchers, and local communities. Tackling the complex challenges facing the Chinese pangolin such as habitat loss, illegal wildlife trade, and humanwildlife conflict requires a unified approach where each stakeholder plays a critical role.

By promoting evidence-based management, the plan advocates for targeted actions rooted in scientific research, including habitat mapping, population monitoring, and behavioral studies. These insights will inform the development of effective conservation strategies that address the species' specific ecological and behavioral needs while ensuring that resources are allocated efficiently.

Equally significant is the focus on community involvement, recognizing that the survival of the Chinese pangolin is closely tied to the stewardship of local populations. Communities living near pangolin habitats are empowered through awareness programs, capacity-building initiatives, and sustainable livelihood opportunities. This participatory approach ensures local ownership of conservation efforts, fostering long-term commitment and reducing pressures such as poaching and habitat destruction.

The management plan also aligns with broader conservation frameworks aimed at combating illegal wildlife trade by strengthening enforcement mechanisms, disrupting trafficking networks, and promoting global cooperation to curb demand for pangolin scales and meat. Habitat restoration, a core element of the plan, ensures the availability of safe and suitable environments for the pangolin to thrive while supporting the ecological balance of these areas.

By integrating science, community, and policy, the management paves the way for a sustainable future for the Chinese pangolin. It not only addresses the immediate threats but also contributes to global biodiversity goals, ensuring that this unique species continues to play its ecological role for generations to come. This holistic approach serves as a model for conserving other threatened species and demonstrates the power of collaborative conservation in safeguarding our planet's natural heritage.



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