



Pangolin Conservation Action Plan for Nepal (2018-2022)



Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation
Department of Forests

2018





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Back Cover: Indian Pangolin by Ramesh Thapa



Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation



FOREWORD

The Government of Nepal is committed to conserve and safeguard threatened and endangered wildlife including pangolins. Pangolin is one of the most elusive and poorly studied small mammals across its range. Eight species of pangolins survive in the wild, among these, two species (Chinese Pangolin *Manis pentadactyla* and Indian Pangolin *M. crassicaudata*) are recorded in Nepal. Both species are listed in schedule I of National Parks and Wildlife Conservation Act 1973 and included in Appendix I of Convention on Illegal Trade in Endangered Species of Wild Fauna and Flora (CITES).


The Pangolins are under threats mostly due to poaching, illegal trade and loss and degradation of their habitats. The species is highly threatened due to high demand of its skins, scales, and meat in the local and international illegal wildlife trade market. So, realizing these facts the CITES Conference of Parties (CoP) 17 held in Johannesburg, South Africa in 2016 included all pangolin species in appendix I from appendix II.

The CITES CoP 17 passed a separate resolution with respect to conservation and trade of pangolins that urges range States to work with appropriate bodies to develop and implement in-situ pangolin management and conservation programmes, which include population assessments, making of non detriment findings for trade in the species, monitoring, management and conservation measures. Thus, to meet the international and national urgent needs, the Government of Nepal has produced this first Pangolin Conservation Action Plan (2018-2022) for the conservation of the elusive and most threatened pangolins in the country.

Pangolin Conservation Action Plan (2018-2022) aims to secure pangolins population against emerging threats and recover in the wild. This plan focuses on enhancing understanding and knowledge on conservation status, ecology and habitat dynamics of pangolins. In addition, the plan focuses on curbing poaching and control illegal trade of pangolin and support to develop local stewardship for pangolin conservation. Furthermore, this plan incorporates priority actions to address threats of pangolins.

I sincerely thank the technical team of the Department of National Parks and Wildlife Conservation for preparing this Action Plan, and NTNC, WWF Nepal, ZSL Nepal and USAID funded Hariyo Ban Program for providing financial and technical support to produce this document. The Government of Nepal greatly acknowledges the contribution of wildlife conservation partners and expects their continuous support and commitment for the successful implementation of this plan.

I am confident that the implementation of this action plan will contribute in conserving and managing pangolins and their habitat and wish all success to ensure that pangolins population remain secure against emerging threats in Nepal.


13 April 2018

Man Bahadur Khadka
Director General



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FOREWORD

Pangolins are highly threatened and elusive mammal. Two species of Pangolins (Chinese Pangolin *Manis pentadactyla* and Indian Pangolin *M. crassicaudata*) are recorded in Nepal. Pangolins are found in diverse vegetation and land uses types, including in the proximity of the human settlements and water bodies. Pangolins are also reported to adapt well in modified habitats.

Mostly pangolin habitats are found outside the protected areas. Despite their wide distribution, poaching, illegal trade, degradation and loss of habitat are the major threats to their survival. So, an integrated conservation approach for pangolin is crucial. There is a need to focus on conservation measures, considering the biology of pangolin. Considering all these circumstances, Government of Nepal has prepared the first Pangolin Conservation Action Plan (2018-2022) which could be helpful for establishing a milestone and a bench mark for long-term conservation of the species.

Pangolin Conservation Action Plan (2018-2022) aims to increase pangolin population and secure their habitat against emerging threats. This action plan focuses on enhancing understanding and knowledge on conservation status, ecology and habitat dynamics of pangolin. Furthermore it also emphasizes on curbing poaching, controlling illegal trade and developing local stewardship for pangolin conservation.

I would like to express my sincere thanks to the technical team and all supporting organizations for preparing this document. Department of Forests will provide continuous support and is committed for the effective implementation of this plan. I am confident that, action plan will be a crucial policy document for the conservation and management of pangolins in their natural habitat in order to maintain biodiversity and harmonic environmental relationship.

Krishna Prasad Acharya
Director General

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Abbreviations and Acronyms

| | |
|---------|---------------------------------------------------------------------------------|
| ACA | Annapurna Conservation Area |
| BaNP | Banke National Park |
| BNP | Bardia National Park |
| BZUCs | Buffer Zone User Committees |
| CAMC | Conservation Area Management Committees |
| CBAPU | Community-Based Anti-Poaching Unit |
| CFUG | Community Forest Users Group |
| CIB | Central Investigation Bureau |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| CNP | Chitwan National Park |
| DFO | District Forest Office/Officer |
| DNPWC | Department of National Parks and Wildlife Conservation |
| DoF | Department of Forests |
| FECOFUN | Federation of Community Forestry Users Nepal |
| GCA | Gaurishankar Conservation Area |
| GoN | Government of Nepal |
| IUCN | International Union for Conservation of Nature |
| KCA | Kanchenjunga Conservation Area |
| MBNP | Makalu Barun National Park |
| MFSC | Ministry of Forests and Soil Conservation |
| MoFE | Ministry of Forests and Environment |
| NBSAP | National Biodiversity Strategy and Action Plan |
| NPWC | National Parks and Wildlife Conservation |
| NRM | Natural Resource Management |
| NTNC | National Trust for Nature Conservation |
| NWCCCC | National Crime Control Coordination Committee |
| PAs | Protected Areas |
| PNP | Parsa National Park |
| SAWEN | South Asia Wildlife Enforcement Network |
| ShNP | Shuklaphanta National Park |
| SMCRF | Small Mammals Conservation and Research Foundation |
| SNNP | Shivapuri Nagarjun National Park |
| SNP | Sagarmatha National Park |
| WCCB | Wildlife Crime Control Bureau |
| WWF | World Wildlife Fund |
| ZSL | Zoological Society of London |

Executive Summary

The Pangolin Conservation Action Plan for Nepal (2018-2022) aims to address the critical threats to pangolin conservation by developing appropriate conservation strategies and actions. Pangolin is one of the most elusive and poorly studied small mammal across its range. At present, only 8 species of pangolins survive in the wild. Two species of pangolins i.e. Chinese Pangolin (*Manis pentadactyla*) and Indian Pangolin (*M. crassicaudata*) occur in Nepal. A recent national survey reported the presence of pangolins in 43 districts of Nepal. Both species are included under schedule I of National Parks and Wildlife Conservation Act 1973 and listed in Appendix I of CITES. The Government of Nepal was one of the proponent countries to up list the species from Appendix-II to I on the occasion of CITES COP17, which was held in Johannesburg, South Africa in October 2017.

Major threats and challenges to pangolin include poaching and illegal trade for skins, scales, and meat; loss and degradation of their habitats, low conservation priority and poor knowledge on the species. This Action Plan (2018- 2022) is prepared to ensure long-term survival of this species by addressing these threats and challenges. The primary goal of this action plan is to secure pangolin populations from emerging threats so that the species can be recovered in the wild. Following objectives are proposed to achieve the goal of the action plan:

| | |
|--------------------|--------------------------------------------------------------------------------------------------------|
| Objective 1 | Enhance understanding and knowledge on conservation status, ecology and habitat dynamics of pangolins. |
| Objective 2 | Curb poaching and control illegal trade of pangolins. |
| Objective 3 | Identify and manage the habitat for pangolins conservation. |
| Objective 4 | Develop local stewardship for conservation of pangolins. |

In order to achieve aforementioned objectives, various actions for the implementation of this plan have been proposed. Department of National Parks and Wildlife Conservation (DNPWC) and Department of Forests (DoF) and their respective field offices under the Ministry of Forests and Environment (MoFE) will be responsible for the implementation of this action plan. Respective departments under the Ministry of Forests and Environment (MoFE) will be responsible for the implementation of this action plan. Major responsibility will lie within the Department of National Parks and Wildlife Conservation for the protected areas and Department of Forests for outside the protected areas. Community forests will play key role to conserve the pangolin and their habitats.

A total indicative budget of NPR 11,650,000 has been proposed to implement this action plan over the next 5 years. About 38.42 % of the budget is estimated for poaching and illegal trade control, followed by 21.94 % of the budget is estimated for research and studies to fill the existing knowledge gap for the species, 20.60 % for habitat management and 19.04 % of total budget is allocated for enhancing community stewardship in conservation through awareness, eco-tourism and livelihood support. The government annual budget to DNPWC and DoF will be a major source of funding with support from various conservation partners like National Trust for Nature Conservation, World Wildlife Fund Nepal, Zoological Society of London Nepal and other relevant conservation partners.



Chapter I

Introduction

1.1 Relevance of the Action Plan

The Government of Nepal is committed to conserve and safeguard threatened wildlife including the pangolins. Pangolins are now highly threatened because of the very high demand in the local and international wildlife trade for skins, scales, and meat (Duckworth et al. 2008, Molur 2008). More than one million pangolins were estimated to have been poached from the wild and illegally trafficked over the last decade from their range across the world. Also, they are one of the least studied groups of wildlife. Nepal has two species of pangolins i.e. Chinese Pangolin (*Manis pentadactyla*) and Indian Pangolin (*M. crassicaudata*) and both species are listed in the schedule I of National Parks and Wildlife Conservation Act 1973. Pangolins are listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Government of Nepal was one of the proponent countries to up list the Chinese and Indian Pangolins from Appendix-II to I on the occasion of CITES COP17, which was held in Johannesburg, South Africa in October 2017. The four Asian species have had a zero-export quota for wild-caught animals for commercial purposes since 2000, significantly restricting legal international trade.

The regional decline of pangolins has occurred largely within the last 5 decades as hunting to supply pangolin derivatives to the international trade has risen severely (Corlett 2007). But the complex supply chains, diversifying consumer demand, and paucity of basic information about the ecology, behavior and population status of pangolins makes effective conservation and management extremely challenging (Kaspal 2009).

The illegal trade in pangolins is reported to have increased in Nepal, with Kathmandu being a major hub and trade center. National and local newspapers have regularly been reporting on the pangolin trade, especially from eastern and central Nepal. Realizing the immediate need for a strategic move to control poaching and trade of this elusive and most threatened species, the Government of Nepal has prepared this conservation action plan under the leadership of Department of National Parks and Wildlife Conservation (DNPWC) in coordination with Department of Forests (DOF). The plan outlines major threats and challenges in pangolin conservation and provides strategies and actions to: a) address the gaps in knowledge of pangolin biology; b) manage and protect pangolins and their habitats; and c) control poaching and illegal trade of pangolins. This action plan has been prepared based on the prevailing government policies and programs. The major guiding policies are Forest Policy 2015, National Biodiversity Strategy and Action Plan (2014-2020); Terai Arc Landscape Strategy and Action Plan (2015-2025); Chitwan Annapurna Landscape Strategy and Action Plan (2016-2025) which also highlights poaching and illegal trade as major threats to pangolins and immediate need for strategic interventions to ensure their long-term survival.

1.2 Action Plan Development Process

The Action Plan preparation team collected and reviewed available secondary information pertaining to different aspects of pangolin conservation. The team reviewed policies, strategies, reports, protocols, regulations and other related national and global publications. Field consultations with District Forest



Rescued Indian Pangolin at Bardia National Park (Photo: Sher Bahadur Pariyar)

Officers, researchers and knowledgeable community members in different districts of Nepal where pangolins have been reported were conducted. Consultative meetings were organized in Sindhupalchok, Kavre, Dhading and Makwanpur districts.

Consultation with biologists and managers in the Ministry of Forests and Soil Conservation (MFSC), Department of Forests (DoF), Department of National Parks and Wildlife Conservation (DNPWC), National Trust for Nature Conservation (NTNC), World Wildlife Fund (WWF), Zoological Society of London (ZSL), Hariyo Ban Program, Tribhuvan University, Federation of Community Forestry Users Nepal (FECOFUN) was carried out to collect the basic information required to draft the action plan. The draft plan was circulated among experts of different conservation organizations for inputs and feedback. A national level workshop among key stakeholders was organized to share the draft plan and get their feedbacks. Comments and inputs thus collected were incorporated to finalize the action plan. Final review was made by national and international experts.

1.3 Scope of the Action Plan

This action plan provides guidance to the Pangolin bearing provinces, districts, municipalities, rural municipalities and community forests including private farmlands for implementation of recommended measures for long-term survival of the species.

The action plan consists of five chapters. First chapter is introduction; second chapter summarizes the national and international status of Pangolin conservation. The third chapter summarizes the conservation threats, challenges and opportunities of the species. The fourth chapter deals with the Pangolin Conservation Action Plan 2018-2022. The plan is presented with goal, objectives, outputs and actions. The fifth chapter includes implementation mechanisms and monitoring plan.



Chapter II

Background

2.1 Global Status and Distribution

Only eight species of pangolins survive in the wild (Corbett & Hill 1992, Gaubert & Antunes 2005). Of these, four species occur in Asia - the Indian pangolin (*Manis crassicaudata*), the Palawan pangolin (*M. culionensis*), the Chinese or Formosan pangolin (*M. pentadactyla*), and the Malayan or Sunda pangolin (*M. javanica*). The other four species are confined to Africa, south of the Sahara Desert - the Cape or Temminck's ground pangolin (*Smutsia temminckii*), the tree or white-bellied pangolin (*Phataginus tricuspis*), the giant pangolin (*Smutsia gigantea*), and the long-tailed or black-bellied pangolin (*Uromanis tetradactyla*) (IUCN 2008).

The Chinese Pangolin occurs in Nepal, Bhutan, India, Bangladesh, Myanmar, Vietnam, Thailand, Taiwan including the island of Hainan, China (Shrestha 2003, Duckworth *et al.* 2008) (Figure 1a). The Indian Pangolin is distributed across the South Asia from parts of eastern Pakistan through much of India; south of the Himalayas (excluding northeastern portions of the country), Southern Nepal, Bangladesh and Sri Lanka (Srinivasulu and Srinivasulu 2004, Baillie *et al.* 2014) (Figure 1b). There are historical records of this species in southwest China Yunnan Province (Heath 1995) and there have been dubious records in Myanmar (sources quoted in Allen 1938). It has been found up to 750 m in Pakistan, 1100 m in Sri Lanka and 2300 m in India.

Of the eight species, only two species occur in Nepal – Chinese and Indian pangolin. The common Nepali name for Pangolin is 'Saalak' which is derived from the Sanskrit word 'Sallak' (Kaspal *et al.* 2016) but there are different local names given depending upon locality and community. People in Terai call them 'Hile Machha' or 'Saal Machhari'; 'Kose' by Tamang community, 'Kayanaya' by Newar community, 'Pikichi' by Kirati community and 'Bhakunde Bhoot' in hilly areas of western Nepal. They are known as 'Padasekh' in Limbu language and 'Pakhe Machho' in Lamjung area (Basnet *et al.* 2016)

Chinese Pangolin has a small, narrow mouth and a little, pointed head; and measures a total body length of ca 40-58cm (Figure 2 a). An adult Chinese Pangolin weighs up to 9 kg and bears 15-18 rows of overlapping dark grey scales around mid-body and accompanied by hair (Kaspal *et al.* 2016). The tail is shorter with a naked tip and protective ear-flaps (Baral and Shah 2008). Whereas Indian Pangolin has corn shaped head with small dark eyes and a long muzzle (Figure 2 b). The total body length measures about 84–122 cm and weighs around 10–16 kg (Mahmood *et al.* 2013). The Indian Pangolin possesses 160-200 scales in total, about 40-46% of which are located on its tail. Scales can be 6.5–7 cm long, 8.5 cm wide, and weigh around 7-10 grams and the species bears 13-15 rows of overlapping gray scales around the mid-body. The skin and scales make up about one-fourth to one-third of the total body mass of this species (Mahmood *et al.* 2013). In the both species, females are generally smaller than males and have one pair of mammae.

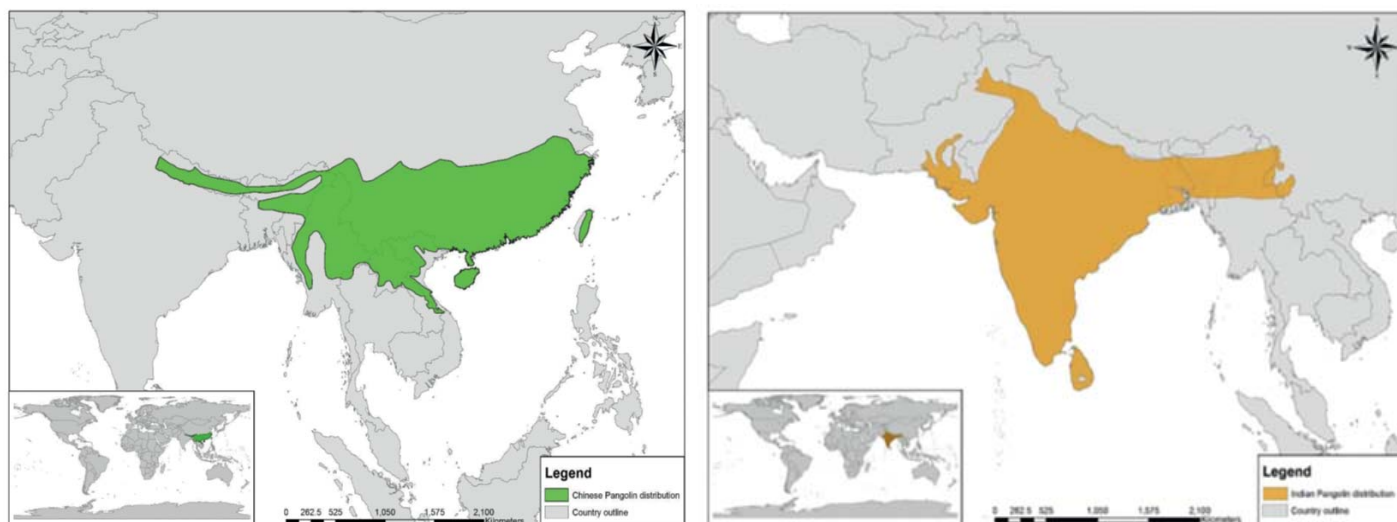


Figure 1: Global distribution of Chinese (a) and Indian (b) pangolins (source: IUCN 2016)



Figure 2: Chinese Pangolin (above) and Indian Pangolin (below) (Photo: Tulshi Laxmi Suwal)

The global conservation status of Chinese pangolin is Critically Endangered (CR) whereas the Indian pangolin is listed in Endangered category (Baillie et al. 2014). While very few estimates for pangolin population exists, the best available science indicates that, despite the protection afforded by CITES and various other national and international statutes, all eight species are in serious decline (Boakye et al. 2014, Zhou et al. 2014, Soewu & Sodiende 2015, Challender et al. 2014a). The range-wide population of the Indian Pangolin is expected to decline by at least 50% (Baillie et al., 2014) and the Chinese pangolins by up to 90% (Challender et al. 2014b) within the next 21 years if the current levels of poaching continue unabated. Most pangolins feature as the Evolutionarily Distinct and Globally Endangered (EDGE) species, a conservation programme initiated by ZSL (<https://www.edgeofexistence.org/species/species-category/mammals/>). Chinese Pangolin ranks as 15th and Indian Pangolin ranks as 83rd EDGE mammals of the world, both lying within the top 100 EDGE mammals of the world, with low to medium conservation attention afforded to them.

2.2 National Status and Distribution

Despite wide distribution of Pangolin, limited information is available on overall status of these species in Nepal, mainly due to insufficient studies focusing on the ecology of this species. The Government of Nepal has listed both species of pangolins under schedule I of NPWC Act 1973. Both species of pangolins found in Nepal are categorized as Endangered by National Red List of Mammals (Jnawali et al. 2011, Amin et al. 2018).

The first national survey conducted in 2016 revealed distribution of Chinese Pangolin in 25 districts and Indian Pangolin in 7 districts of Nepal (Figure 3 and 4). The Pangolin range district of Nepal are shown in Annex 3. The Chinese Pangolin in Nepal is distributed up to 2,000m in the central and eastern region and in the lowlands and foothills of Siwalik (Churia) range towards the west (Baral and Shah 2008). Chinese pangolins are well protected within the protected

areas including Shuklaphanta National Park, Bardia National Park, Chitwan National Park, Parsa National Park, Sagarmatha National Park, Makalu Barun National Park, Shivapuri Nagarjun National Park, Annapurna Conservation Area, Gaurishankar Conservation Area and Kanchenjunga Conservation Area.

Similarly, Indian pangolin is also reported from Shuklaphanta, Bardia, Banke, Chitwan and Parsa National Parks (Basnet et al. 2016). Although not recorded during the recent national survey, the

species is likely to occur in the eastern foothills and Terai regions since there have been many records in the adjoining Indian side.

Pangolin are found inhabiting diverse vegetation and other types of land uses, such as riverine forests, Sal forest, mixed hardwood forests, grasslands, agricultural lands and degraded marginal lands. In most cases pangolins were found in the proximity of the human settlements and near the water sources. Pangolins are reported to adapt well to modified habitats.

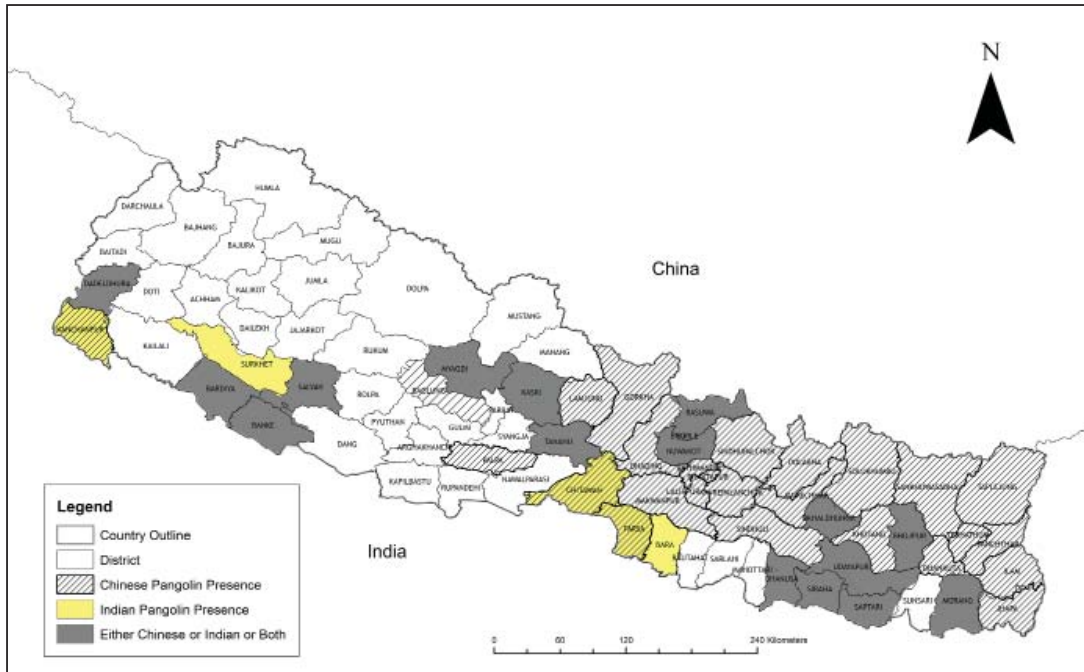


Figure 3: Distribution of Pangolin in Nepal (District wise)

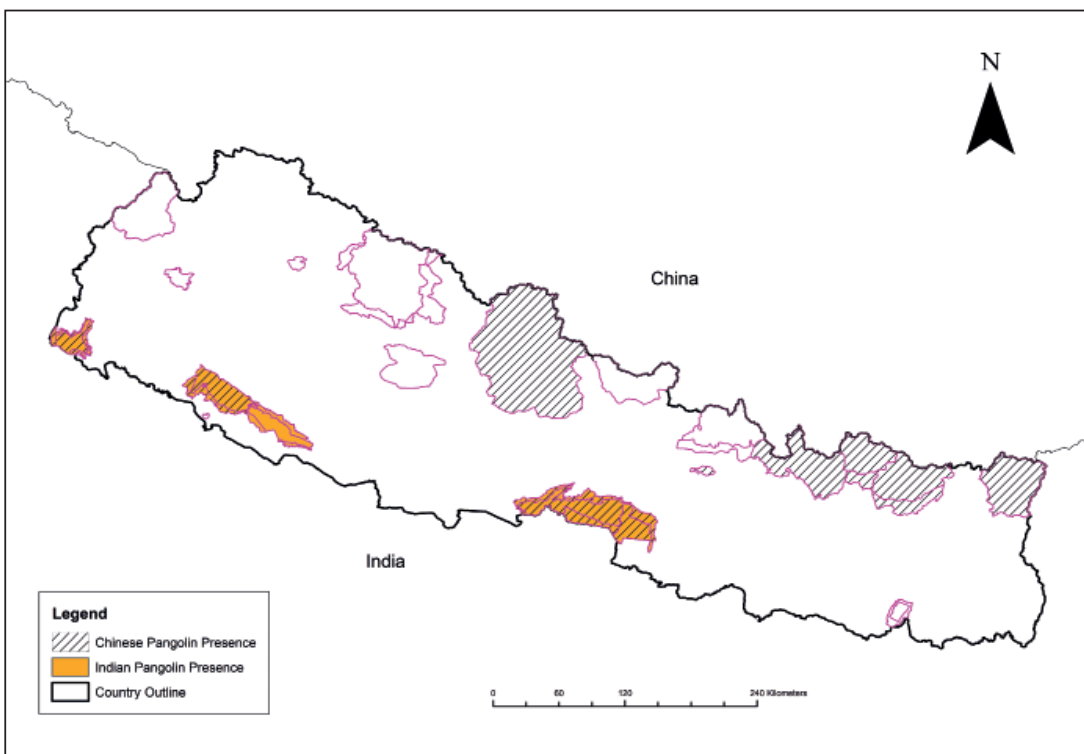


Figure 4: Distribution of Pangolin in Nepal (Protected Area Wise)



Chapter III

Issues, Threats and Challenges

Major issues, threats and challenges in pangolin conservation in Nepal are as follows:

3.1 Issues

3.1.1 Issues Related to National Conservation Priority

- Low conservation priority at national and local levels
- Lack of dedicated funding for conservation and research
- Low level of awareness regarding its conservation status,

3.1.2 Issues Related to Habitat

- Loss of habitats due to encroachment of forest and fringe areas for agricultural expansion and development of infrastructures
- Habitat fragmentation due to linear infrastructure development, such as roads and irrigation canals
- Extraction of red soil for domestic use causing habitat degradation, loss of burrows and disturbance
- Conflict with local farmers due to burrowing behavior of Pangolins in agriculture land.
- Large scale extraction of stones for commercial purposes

- Over-grazing and trampling by domestic livestock and excessive collection of litters by farmers
- Frequent wild fires
- Drying water sources, particularly in the southern hill slopes and Siwalik (Chure) range
- Damage to the critical habitats due to landslides and other natural disasters, such as earthquake
- Majority of pangolin habitats lie outside the protected area network making the species highly vulnerable to poaching and hunting; as well as development works

3.1.3 Issues Related to Wildlife Crime

- Increasing demand for pangolin body parts in the international black market
- Limited network of informants and intelligence
- Lengthy process of prosecution
- Poorly equipped anti-poaching units, informants and intelligence networks
- Limited resource for mobilization of anti-poaching units and intelligence networks
- Porous international border with India and China
- Insufficient coordination among custom offices, postal offices, border security system, transport system and judiciary in curbing wildlife crime.



(Photo: Ramesh Thapa)

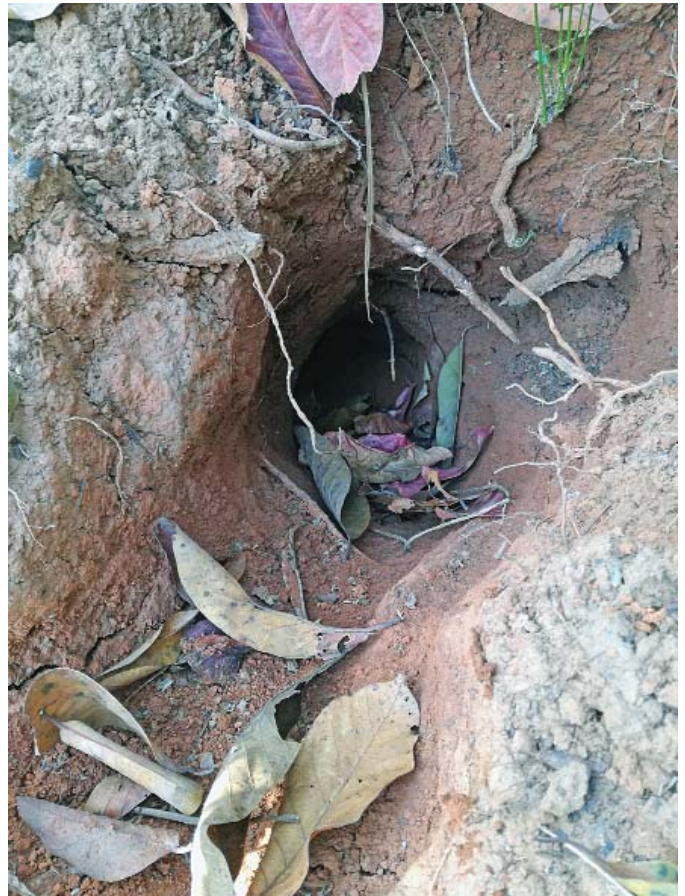
3.1.4 Issues Related to Knowledge Base

- Limited information and knowledge on pangolin ecology and population dynamics across its range
- Use of Pangolin body parts as traditional medicine by indigenous communities in many parts of its range
- Inadequate knowledge on the species, conservation status and legal provisions among local communities, and private sectors, such as tourism, transportation infrastructure developers etc.

3.2 Threats and Challenges

3.2.1 Poaching and Illegal Trade

Poaching and illegal trade is the most serious threat to the survival of these species. Pangolins are hunted for local consumption of meat and medicinal purpose - body scales (Figure 7) are believed to have medicinal properties. In recent years, all species of pangolin are indiscriminately poached for local consumption and illegal trade. IUCN (2014) reported that more than a million pangolins were poached in the decade prior to 2014 and the animals are trafficked mainly for their scales, which are believed to treat a variety of health conditions in traditional Chinese medicine, and as a luxury food in Vietnam and China. Due to high value in international market, hunting for medicinal and consumptive use at local level is already insignificant with almost all poached animals ending in international market (Challender et al., 2014b). Pangolin scales are believed as a symbol of good luck and used for making garlands, finger rings and used as decorative in lady bags, boots, jackets and instruments. There is also a superstition among certain local people that sighting of a pangolin brings bad luck and in such cases occasional killings are also reported (Kaspal et al. 2016).



Threats to Pangolin: burrow was dug out by poachers to find pangolin (Photo: Ambika Prasad Khatiwada)



Chinese Pangolin scale (Photo: Ambika Prasad Khatiwada)

3.2.2 Habitat Loss, Degradation, Shrinkage and Fragmentation

Habitat loss, degradation and fragmentation are other major threats to pangolins. Pangolins are primarily found in forests and open lands. However, most of the forest and open lands outside the protected areas do get little consideration for protection. Rampant development of rural roads has posed additional threats across their range (Basnet et al. 2016). Unsustainable harvest of forest resources, such as firewood, timber and non-timber forest products and extraction of stones continue to exert pressure on the habitat, disturb the animals and increase possibilities of poaching. Further, recreational activities, agriculture expansion, infrastructure development have degraded and fragmented habitats in recent years. Linear infrastructure, mainly irrigation canals in Banke, Bardia and Kanchanpur prevents movements of pangolin and can possibly cause drowning. Other linear infrastructures including the Kathmandu-Nijgadh fast track, planned railway across Terai, feeder roads in midhills will lead to the loss and fragmentation of pangolin habitats. Presence of pangolins in an area is determined by prey availability, substrate, canopy cover, litter depth and distance to water source rather than forest and land-use types (Basnet et al. 2016). Fodder and litter collection, grazing and trampling by domestic livestock, and uncontrolled wild fire have adverse impacts on the species as well as their habitats. NBSAP (2014-2020) has also pointed out development of infrastructures inside forest areas and opening of tracks and illegal construction of schools, hospitals, temples and other infrastructures within forest areas as a major threat to forest and biodiversity in Siwalik and Terai.

3.2.3 Climate Change Impacts

Climate change can cause prolonged dry spells, heavy rainfall, floods and flash floods resulting in possible scarcity of water resources bringing pangolins in contact with human settlements, permanently damaging burrows and increased deaths of pangolins. Most of the pangolin habitats in the mid and high hills are prone to landslides of various sizes. Landslides cause severe damage to natural ecosystems including habitats of herpetofauna, avifauna and a range of mammals including pangolin.

Further, forest fire was identified as one of the serious threats (Basnet et al. 2016) and incidences of forest fire are likely to increase due to climate change impacts leading to extended dry spells. Increased fires destroy pangolin habitat, and cause pangolin deaths, especially when they become trapped in burrows, and die of smoke inhalation and suffocation.

3.2.4 Collaboration and Coordination

For a species like pangolin which is widely poached and illegally traded in the international market, coordination and collaboration among key stakeholders and Pangolin range states is utmost important. As the species has received low conservation priority, greater collaborations among government, conservation partners, local communities and private sectors become crucial. Nepal has demonstrated a commendable achievement in collaboration and coordination among DNPWC, DoF, Nepal Army, Nepal Police to halt rhino and tiger poaching and trade of their body parts. Additional effort is required to tackle poaching and illegal trade of pangolin and other species of flora and fauna as well. As most of the potential habitats of pangolin remain outside the protected areas, effective coordinated and collaborative efforts among security personnel, officials from provinces and district forest offices, municipalities, rural municipalities, community forest user groups and private sectors to tackle poaching and illegal trade at local level are required. Enhancing law enforcement system through Community Based Anti-Poaching Unit (CBAPU), district level Wildlife Crime Control Bureau (WCCB), central level Wildlife Crime Control Bureau (WCCB) and National Wildlife Crime Control Coordination Committee (NWCCCC) is essential. Similarly, the role of South Asia Wildlife Enforcement Network (SAWEN) could be one of the best forums to coordinate and collaborate wildlife crime control among the range countries and trade route countries.

3.3 Opportunities

The NPWC Act 1973 has placed both species of pangolins under schedule I as protected wildlife highlighting the need for urgent conservation actions. Despite receiving inadequate priority in the past, nowadays, both the species of pangolins are getting attention at national level. The recent National survey 2016, international conference on small mammals (2017), increasing number of ecological studies, community based conservation are few initiatives that emphasized on conservation and management of pangolins and its habitats.

It is further substantiated by landscape conservation strategies for Terai and mountains which emphasize maintaining and enhancing a viable population of pangolins and recommend promoting and establishing community-based conservation outside the PAs (Protected areas).

3.4 Laws and Policy Frameworks

Following key laws, policies and species conservation action plans were consulted during the formulation of this action plan:

- Constitution of Nepal, 2015
- National Parks and Wildlife Conservation Act 1973 (2029 BS)
- Act on control of International Trade in Endangered Fauna and Flora, 2017
- Forest Act, 1993(2049 BS)
- Environmental Protection Act 1995
- Nepal Environmental Policy and Action Plan (1993)
- Forest Policy 2071 BS (2015)
- National Biodiversity Strategy and Action Plan (2014-2020)
- Terai Arc Landscape Strategy and Action Plan 2015-2025
- Strategy and Action Plan 2016-2025, Chitwan-Annapurna Landscape, Nepal



Termite mound (Photo: Ambika Prasad Khatiwada)



Chapter IV

Pangolin Conservation Action Plan (2018-2022)

4. 1. Goal

Secure Pangolin populations against emerging threats and recover in the wild

4.2. Objectives

The major objectives to achieve the goal of the action plan are:

Objective 1. Enhance understanding and knowledge on conservation status, ecology and habitat dynamics of pangolin.

Rationale:

Considering the limited knowledge of the species and inadequate research priority given to the species in the past, it is a crucial to undertake long term studies in generating information and gain in-depth knowledge on biology, population status, distribution, space use pattern and habitat requirement of pangolins. Adequate information is pre-requisite for designing long term conservation strategies and monitor population dynamics in the future. Identification of key areas for further ecological research is key to successful conservation in the long-run.



Chinese Pangolin with her male baby (Photo: Tulshi Laxmi Suwal)

Outputs:

- Information on biology, population status, distribution, space use, behavior and habitat requirement of pangolin obtained.
- Findings of scientific research in designing and implementing pangolin conservation programs and projects incorporated.

Actions:

- Prepare standard monitoring Protocol for Pangolin Conservation in Nepal
- Conduct training on pangolin habitat and population monitoring techniques
- Design and conduct scientific studies on population status, distribution, space use, behavior and habitat requirement of pangolins in potential and priority areas
- Conduct periodic nation-wide occupancy surveys focusing on pangolin distribution
- Determine status of pangolin habitat and create a national-scale spatial data layer
- Establish monitoring plots and transect lines in forests, grasslands and other habitats
- Capacity building to field staff and citizen scientists on Pangolin research and monitoring
- Provide institutional and technical support to local government and related stakeholders outside PAs to monitor and manage habitat
- Engage academic institutions for short term as well as long term studies on pangolins and their habitats

Objective 2. Curb poaching and control illegal trade of pangolin**Rationale**

Poaching and illegal trade of pangolin and their body parts are the most serious threats to pangolin survival. The GoN constituted a high level National Wildlife Crime Control Coordination Committee (NWCCCC) under the chairmanship of the Hon. Minister for Forests and Soil Conservation. This high level mechanism assists to conserve flagship species and subsequently help to control poaching and illegal trade of small mammals as well. Likewise, in coordination of the Director General of the DNPWC, a Central Level Wildlife Crime Control Bureau (WCCB) has been formed representing all national security organizations and experts to control wildlife crimes in Nepal.

This central level Bureau is supported by district level WCCB units in priority districts. Nepal Police has also formed a special branch named the Central Investigation Bureau (CIB) Pillar number 4 to combat wildlife crimes in Nepal. In totality, all enforcement agencies are coordinating and cooperating to halt the wildlife crimes in Nepal under the umbrella of DNPWC. These new institutional arrangement have been playing significant role in controlling wildlife crime since their establishment. At the grassroots level, community based anti-poaching units have been institutionalized, and over 4,500 local youths have been mobilized to deter wildlife crimes under the community based anti-poaching units (CBAPUs). Trans-boundary cooperation agreements with India and People's Republic of China have been instrumental to control poaching and trade at trans-border areas. Similarly, South Asia Wildlife Enforcement Network (SAWEN) has been established to coordinate and collaborate among the range countries to combat wildlife crime. More importantly, community forests have initiated mainstreaming biodiversity conservation in their Community Forest Operation Plans giving high conservation priority to the threatened flora and fauna within their jurisdiction. In this context, this action plan envisions to strengthen the current efforts and build the national and local capacity to combat against wildlife poaching and illegal trade.

Outputs:

- Poaching and illegal trade of pangolin and its body parts in Nepal substantially reduced
- Enhanced capacity of local and national level law enforcement agencies to control wildlife crime
- Strengthened cooperation and coordination among enforcement agencies and other stakeholders
- Capacities of judiciaries, custom offices, postal services, transport and other private sectors built and engaged in controlling trade of wildlife and their body parts
- Enhanced capacity of community based organizations such as BZUC, CBAPU CFUG etc.
- Trans-boundary meetings with India and China regularized

Actions:

- Conduct awareness campaigns on protected species, anti-poaching and conservation laws.
- Conduct capacity building program to PA and DFO staff, judiciary, custom offices, airports postal services, transport and other relevant private sectors
- Conduct training for protected areas staff, DFOs of priority areas and communities anti-poaching units on the use of appropriate new technology
- Improve the wildlife crime investigation process and enhance the evidence collection system through capacity building and training
- Strengthen, build capacity and mobilize community based anti-poaching units in all PAs and priority districts
- Strengthen informant networks, information gathering and communication networks for anti-poaching operation
- Expand and strengthen WCCBs in additional districts along trade routes
- Provide equipment and logistics support to maintain and improve anti-poaching operations
- Engage WCCB and law enforcement agencies in controlling pangolin poaching and trade
- Conduct capacity building program for mobilization of BZUCs (Buffer Zone User Committees), CFUGs (Community Forest User group) and Conservation Area Management Committees (CAMC) and other local stakeholders to control poaching at local level
- Organize regular coordination meetings at local, regional and national level for sharing information on pangolin related activities
- Organize regular transboundary conservation cooperation meetings with neighboring countries

Objective3. Identify and manage the habitat for pangolins conservation**Rationale:**

As pangolin populations are recorded widely from outside protected areas, it is vital to thoroughly map all potential and priority sites, and their connectivity to ensure survival of the species. Priority areas outside will be mapped and site-specific management plans will be formulated in coordination with respective province, district forest offices and community forests. As the species is also widely found in fringe areas and agricultural fields, these areas will also be mapped and managed by mobilizing local farmers to reduce the threats to the habitats and species. Impacts of existing linear infrastructures will be studied and provisions for wildlife friendly passes will be made. Private farmlands and community forests are the major habitat of pangolin. So the involvement of farmers in particular and mobilization of community forestry user groups in general is crucial to conserve pangolin and its habitat.

Outputs:

- All potential pangolin habitats mapped, priority areas identified and managed
- Threats to pangolin habitats reduced

Actions:

- Identify critical pangolin habitat and map the priority sites
- Provide institutional and technical support to local government and related stakeholders to monitor and manage habitat
- Control human and livestock pressure in pangolin habitats
- Formulate and implement mitigation measures for development and other construction works in the prime/designated pangolin habitats
- Engage communities to restore and manage forests, open areas and wetlands in potential habitats
- Protect available termite mound to the extent possible

Objective 4. Develop local stewardship for conservation of pangolin**Rationale:**

Conservation of any species requires adequate awareness and information from grassroots level to decision makers. As pangolins are widely distributed in diverse habitats and primarily inhabit in the proximity of settlements, engagement of local people to conserve species, their habitats and control poaching is vital. Community based NRM groups, such as BZUCs, CAMCs, CFUGs, collaborative forest management groups, community forest guards, local youth clubs, eco-clubs, mothers' groups can play crucial role in overall conservation at species as well as ecosystem levels. Sensitization and engagement of development agencies, local government authorities, private sectors, and infrastructure developers is expected to minimize the adverse impact of infrastructures on wildlife and their habitats.

Direct economic benefits to the local communities especially through activities such as developing tourism using pangolins as a key attraction would help gain local support for conservation. This action plan will give high priority to develop local stewardship in conserving pangolin and their habitats.

Outputs:

- Capacities of community based NRM groups, CBAPUs, youth groups/clubs, eco-clubs and mothers' groups enhanced
- Biodiversity conservation mainstreamed in operational plans of community managed forests
- Information sharing mechanism established and operationalized
- Public awareness enhanced
- Local livelihoods improved through community-based ecotourism
- Local stewardship in pangolin conservation developed

Actions:

- Assess local knowledge, traditions, attitude and perceptions on pangolin conservation
- Develop awareness packages for policy makers, developers, local government and local communities on pangolin conservation
- Design and develop community-based ecotourism plans for key pangolin conservation sites
- Train forest user groups and local communities to implement the ecotourism plans
- Conduct trainings, workshops and exposure visits at the local, district and national level for community based eco-tourism



Indian Pangolin at Kailali District (Photo: Dr Hem Sagar Baral)

- Develop information sharing mechanism between community based organizations and local law enforcement agencies
- Organize events to disseminate conservation messages
- Lobby with authorities of the local and federal governments to give adequate priority for conservation of wild flora and fauna during their annual planning processes and ensure for budgetary provisions
- Aware people via different means of audio visuals radios and televisions



Chapter V

Plan Implementation and Monitoring

5.1 Implementing Agency

The respective departments of the Ministry of Forests and Environment and their sub-ordinate offices will implement this action plan. Department of National Parks and Wildlife Conservation will be responsible for implementing and coordinating the activities in the protected areas including buffer zone where as Department of Forests will be responsible for implementing the activities outside protected areas in national forests, community forests and any other land-use types. The Pangolin Range PAs and DFOs will incorporate the activities regarding Pangolin conservation in their annual program where as conservation partners will solicit the necessary fund for the program implementation. Conservation partners such as NTNC, WWF Nepal, ZSL Nepal, Small Mammal Conservation and Research Foundation (SMCRF), Himalayan Nature (HN), academic institutions (universities and colleges), community-based organizations, such as BZUC, CFUG and CAMC, other relevant organizations and private sectors and communication media will be encouraged to support the implementation of this action plan.

5.2 Financial Plan

This section of action plan provides indicative financial resources required to implement the activities specified in the plan. The total estimated budget for the implementation of the action plan is NPR 111,650,000 to implement the activities for achieving the desired objectives.

| Objectives | Indicative Budget (NPR) | % Weight |
|-------------------------------------------------------------------------------------------------------------------|-------------------------|------------|
| Objective 1: Enhance understanding and knowledge on conservation status, ecology and habitat dynamics of pangolin | 24,500,000.0 | 21.94 |
| Objective 2: Curb poaching and control illegal trade of pangolin | 42,900,000.0 | 38.42 |
| Objective 3: Identify and manage priority sites to improve habitat quality for pangolin conservation | 23,000,000.0 | 20.60 |
| Objective 4: Develop local stewardship for conservation of pangolin | 21,250,000.0 | 19.04 |
| TOTAL | 111,650,000.0 | 100 |

The output-wise detail budgeting is provided in **Annex 2**.

5.3. Monitoring of the Plan Implementation

DNPWC will be responsible for monitoring activities inside the protected areas while DoF will be responsible for monitoring the activities conducted outside the protected areas. These two institutions will lead in monitoring and review of the plan in different phases. Annual progress of action plan implementation will be reflected in the annual progress reports of both departments. This action plan will be reviewed towards the end of plan by DNPWC in coordination with DoF with the support of conservation partners. If deemed necessary, a mid-term review of the action plan will also be conducted. The findings and learning from these periodic reviews will feed into the next action plan.

References

- Allen, G.M. (1938). The Mammals of China and Mongolia, Part 1. American Museum of Natural History, New York.
- Amin, R., H. S. Baral, B.R. Lamichhane, L.P. Poudyal, S. Lee, S.R. Jnawali, K.P. Acharya, G.P. Upadhyaya, M.B. Pandey, R. Shrestha, D. Joshi, J. Griffiths, A.P. Khatiwada & N. Subedi (2018). The status of Nepal's mammals. *Journal of Threatened Taxa* 10(3).
- Baillie, J., D. Challender, P. Kaspal, A. Khatiwada, R. Mohapatra, & H. Nash (2014). *Manis crassicaudata*. The IUCN Red List of Threatened Species 2014: e.T12761A45221874. <http://dx.doi.org/10.2305/IUCN.UK.2014-2.RLTS.T12761A45221874.en>. Downloaded on 21 December 2017.
- Baral, H. S. & K. B. Shah (2008). Wild Mammals of Nepal. Himalayan Nature, Kathmandu.
- Basnet, K., K.B. Shah, T.L. Suwal, S. Thapa, S. Gurung, S. Koirala, P.C. Aryal & A. Thapa (2016). National Pangolin Survey 2016 Final Report submitted to WWF Nepal/Hariyo Ban Program Baluwatar, Nepal. Small Mammals Conservation and Research Foundation and People's Help Group. November 2016.
- Boakye, M. K., D. W. Pietersen, A. Kotze, D. L. Dalton & R. Jansen (2014). Ethnomedicinal use of African pangolin by traditional medical practitioners in Sierra Leone. *Journal of Ethnobiology and Ethnomedicine*, 10, 1-10.
- Challender, D. W. S., J. Baillie, G. Ades, P. Kaspal, B. Chan, A. Khatiwada, L. Xu, S. Chine, R. KC, H. Nash & H. Hsieh (2014a). *Manis pentadactyla*. The IUCN Red List of Threatened Species. Version 2014.3. <http://www.iucnredlist.org/details/full/12764/0>.
- Challender, D.W.S., C. Waterman, J. E. M. Baillie & the IUCN-SSN Pangolin Specialist Group (2014b). Scaling up pangolin conservation: IUCN SSC Pangolin Specialist Group Conservation Action Plan. Zoological Society of London, London, England.
- Corbett, G.B. & J.E. Hill (1992). The mammals of the Indomalayan region: a systematic review. Natural History Museum Publications, Oxford University Press, Oxford, U.K.
- Corlett, R. T. (2007). The Impact of Hunting on the Mammalian Fauna of Tropical Asian Forests. *Biotropica* 39(3):292–303.
- Duckworth, J.W., R. Steinmitz, A. Pattanavibool, T. Zaw, D. Tuoc & P. Newton (2008). *Manis pentadactyla*. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <http://www.iucnredlist.org>.
- Gaubert, P. & A. Antunes (2005). Assessing the taxonomic status of the Palawan pangolin *Manis culionensis* (Pholidota) using discrete morphological characters. *Journal of Mammalogy*, 86, 1068-1074.
- Heath, M. E. (1995). *Manis pentadactyla*. *Mammalian Species*, 414, 1-6.
- IUCN (2008). *Manis javanica*. IUCN Red List of Threatened Species. IUCN, Gland, Switzerland.
- IUCN (2014). IUCN Red List of Threatened Animals. IUCN, Gland, Switzerland.
- IUCN (2016). IUCN Red List of Threatened Animals. IUCN, Gland, Switzerland.
- Jnawali, S. R., H. S. Baral, S. Lee, N. Subedi, K. P. Acharya, G. P. Upadhyay, M. Pandey, R. Shrestha, D. Joshi, B. R. Lamichhane, J. Griffiths, A. Khatiwada & R. Amin (2011). The Status of Nepal's Mammals: The National Red List Series. Department of National Parks and Wildlife Conservation, Kathmandu, Nepal.
- Kaspal, P. (2009). Saving the Pangolin: Ethno zoology and Pangolin conservation awareness in human dominated landscape. A Preliminary report to The Rufford Small Grants Foundation.
- Kaspal, P., K.B. Shah & H.S. Baral (2016). SAALAK (i.e. Pangolin). Himalayan Nature, Kathmandu, Nepal.
- Mahmood, T., K. Jabeen, I. Hussain & A.R. Kayani (2013). Plant species association, burrow characteristics and the diet of the Indian pangolin, *Manis crassicaudata*, in the Potohar Plateau, Pakistan. *Zoological Society of Pakistan*, 45, 1533-1539.
- Molur, S. (2008). *Manis crassicaudata*. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2 <www.iucnredlist.org>. Downloaded on 17 January 2012.
- Shrestha, T. K. (2003). Wildlife of Nepal (Second Edition). Bimala Shrestha, Kathmandu, Nepal.
- Soewu, D. A. & O. A. Sodiende (2015). Utilization of pangolin in Africa: fuelling factors, diversity of uses and sustainability. *International Journal of Biodiversity and Conservation*, 7, 1-10.
- Srinivasulu, C. & B. Srinivasulu (2004). Checklist of Scandents and Pholidots (Mammalia: Scandentia and Pholidota) of South Asia. *Zoo's Print Journal* 19(2):1372–1374.
- Zhou, Z. M., Y. Zhou, C. Newman & D. W. Macdonald (2014). Scaling up pangolin protection in China. *Frontiers in Ecology and the Environment*, 12, 97-98.

Annexes

Annex 1: Logical Framework

| Objectives | Indicators | Means of verification | Assumption/Risk |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Goal: Secure Pangolin populations against emerging threats and recover in the wild | | | |
| Objective 1. Enhance understanding and knowledge on conservation status, ecology and habitat dynamics of pangolin | status of pangolins improved from 2016 National Surveys | National survey report | It is assumed that Pangolin study and research continues to receive adequate attention for funding at international and national level. |
| Output 1.1 Information on biology, population status, distribution, space use, behavior and habitat requirement of pangolin obtained. | Information on biology, behaviors, ecology and status of pangolin is available | Research papers, reports, thesis | |
| Output 1.2 Findings of scientific research in designing and implementing pangolin conservation programs and projects incorporated | Information on habitat and distribution of pangolin is available | | |
| Actions | | | |
| Prepare standard monitoring Protocol for Pangolin Conservation in Nepal | | | |
| Conduct training on pangolin habitat and population monitoring techniques | | | |
| Design and conduct scientific studies on population status, distribution, space use, behavior and habitat requirement of pangolins in potential and priority areas | | | |
| Conduct periodic nation-wide occupancy surveys focusing on pangolin distribution | | | |
| Determine status of pangolin habitat and create a national-scale spatial data layer | | | |
| Establish monitoring plots and transect lines in forests, grasslands and other habitats | | | |
| Capacity building to field staff and citizen scientists on Pangolin research and monitoring | | | |
| Provide institutional and technical support to local government and related stakeholders outside PAs to monitor and manage habitat | | | |
| Engage academic institutions for short term as well as long term studies on pangolins and their habitats | | | |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------|
| Objective 2.Curb poaching and control illegal trade of pangolin | | | Government agencies will be supportive in reducing the poaching and undertake necessary actions |
| Output 2.1 Poaching and illegal trade of pangolin and its body parts in Nepal substantially reduced | No of poaching incidents & illegal trade seizures and arrests | Annual reports of DFOs, PA, DOF and DNPWC | |
| Output 2.2 Enhanced capacity of local and national level law enforcement agencies to control wildlife crime | Poaching attempts prevented based on information provided. | Reports, database of DFO, PA | |
| Output 2.3 Strengthened cooperation and coordination among enforcement agencies and other stakeholders | Cases admitted in courts per poaching incident | | |
| Output 2.4 Capacities of judiciaries, custom offices, postal services, transport and other private sectors built and engaged in controlling trade of wildlife and their body parts | Number of functional NRM groups, number of meetings and trainings | | |
| Output 2.5 Enhanced capacity of community based organizations such as BZUC, CBAPU CFUG etc. | Number and nature of coordinated actions taken at national and local level | | |
| Output 2.6 Trans-boundary meetings with India and China regularized | | | |
| Actions | | | |
| <ul style="list-style-type: none"> ■ Conduct awareness campaigns on protected species, anti-poaching and conservation laws. | | | |
| <ul style="list-style-type: none"> ■ Conduct capacity building program to PA and DFO staff , judiciary, custom offices, airports postal services, transport and other relevant private sectors | | | |
| <ul style="list-style-type: none"> ■ Conduct training for protected areas staffs, DFOs of priority areas and communities anti-poaching units on the use of new technology | | | |
| <ul style="list-style-type: none"> ■ Improve the wildlife crime investigation process and enhance the evidence collection system through capacity building and training | | | |
| <ul style="list-style-type: none"> ■ Strengthen, build capacity and mobilize community based anti-poaching units in all PAs and priority districts | | | |
| <ul style="list-style-type: none"> ■ Strengthen informant networks, information gathering and communication networks for anti-poaching operation | | | |
| <ul style="list-style-type: none"> ■ Expand and strengthen WCCBs in additional districts along trade routes | | | |
| <ul style="list-style-type: none"> ■ Provide equipment and logistics support to maintain and improve anti-poaching operations | | | |
| <ul style="list-style-type: none"> ■ Engage WCCB and law enforcement agencies in controlling pangolin poaching and trade | | | |
| <ul style="list-style-type: none"> ■ Conduct capacity building program for mobilization of BZUCs (Buffer Zone User Committees), CFUGs (Community Forest User group) and Conservation Area Management Committees (CAMC) and other local stakeholders to control poaching at local level | | | |
| <ul style="list-style-type: none"> ■ Organize regular coordination meetings at local, regional and national level for sharing information on pangolin related activities | | | |
| <ul style="list-style-type: none"> ■ Organize regular transboundary conservation cooperation meetings with neighboring countries | | | |

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Objective 3. Identify and manage the habitat for pangolins conservation | Area of priority habitats maintained or improved | Reports, database of DFO, PA | Habitat management interventions lead to increased sightings of the species and also increase in status |
| Output 3.1 All potential pangolin habitats mapped, priority areas identified and managed | Status of pangolins in restored areas, | | |
| Output 3.2 Threats to pangolin habitats reduced | | | |
| Actions | | | |
| <ul style="list-style-type: none"> Identify critical pangolin habitat and design site-specific management plan | | | |
| <ul style="list-style-type: none"> Provide institutional and technical support to local government and related stakeholders outside PAs to monitor and manage habitat | | | |
| <ul style="list-style-type: none"> Create fire lines in the pangolin habitats to control forest fire | | | |
| <ul style="list-style-type: none"> Control human and livestock pressure in pangolin habitats | | | |
| <ul style="list-style-type: none"> Formulate and implement mitigation measures for development and other construction works in the prime/designated pangolin habitats | | | |
| <ul style="list-style-type: none"> Engage communities to restore and manage forests, open areas and wetlands in potential habitats | | | |
| <ul style="list-style-type: none"> Protect available termite mound to the extent possible | | | |
| Objective 4. Develop local stewardship for conservation of pangolin | Number and nature of actions taken by multi-stakeholders at local and national level, | Reports, meeting minutes and follow-up actions | Local and national stakeholders are keen to collaborate while local communities in priority areas and willing to initiate community-managed areas while the risk is that all of the priority habitats may not have the potential for ecotourism |
| Output 4.1 Capacities of community based NRM groups, CBAPUs, youth groups/clubs, eco-clubs and mothers' groups enhanced | Ecotourism revenues generated by communities | | |
| Output 4.2 Biodiversity conservation mainstreamed in operational plans of community managed forests | Awareness events and campaigns | | |
| Output 4.3 Information sharing mechanism established and operationalized | | | |
| Output 4.4 Public awareness enhanced | | | |
| Output 4.5 Local livelihoods improved through community-based ecotourism | | | |
| Output 4.6 Local stewardship in pangolin conservation developed | | | |
| Actions | | | |
| <ul style="list-style-type: none"> Assess local knowledge, traditions, attitude and perceptions on pangolin conservation | | | |
| <ul style="list-style-type: none"> Develop awareness packages for policy makers, developers, local government and local communities on pangolin conservation | | | |
| <ul style="list-style-type: none"> Design and develop community-based ecotourism plans for key pangolin conservation sites | | | |
| <ul style="list-style-type: none"> Train forest user groups and local communities to implement the ecotourism plans | | | |
| <ul style="list-style-type: none"> Conduct trainings, workshops and exposure visits at the local, district and national level for community based ecotourism | | | |
| <ul style="list-style-type: none"> Develop information sharing mechanism between community based organizations and local law enforcement agencies | | | |

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| ■ Organize events to disseminate conservation messages |
| ■ Lobby with authorities of the local and federal governments to give adequate priority for conservation of wild flora and fauna during their annual planning processes and ensure for budgetary provisions |
| ■ Aware people via different means of audio visuals radios and televisions |

Annex 2: Indicative Budget

| SN | Activities | Quantity | Unit | Indicative budget NPR | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|-----------------------|--------|--------|--------|--------|--------|
| Objective 1. Enhance understanding and knowledge on conservation status, ecology and habitat dynamics of pangolin | | | | | | | | | |
| Actions | | | | | | | | | |
| 1.1 | Prepare standard monitoring Protocol for Pangolin Conservation in Nepal | 1 | Time | 5,000,000.0 | | | | | |
| 1.2 | Conduct training on pangolin habitat and population monitoring techniques | 1 | Time | 1,300,000.0 | | | | | |
| 1.3 | Design and conduct scientific studies on population status, distribution, space use, behavior and habitat requirement of pangolins in potential and priority areas | 1 | Time | 2,500,000.0 | | | | | |
| 1.4 | Conduct periodic nation-wide occupancy surveys focusing on pangolin distribution | 4 | Time | 1,500,000.0 | | | | | |
| 1.5 | Determine status of pangolin habitat and create a national-scale spatial data layer | 3 | Time | 1,500,000.0 | | | | | |
| 1.6 | Establish monitoring plots and transect lines in forests, grasslands and other habitats | 1 | Nos | 1,200,000.0 | | | | | |
| 1.7 | Capacity building to field staff and citizen scientists on Pangolin research and monitoring | 5 | Times | 5,000,000.0 | | | | | |

| | | | | | | | | | |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------|---------------------|--|--|--|--|--|
| 1.8 | Provide institutional and technical support to local government and related stakeholders outside PAs to monitor and manage habitat | 45 | Nos | 4,500,000.0 | | | | | |
| 1.9 | Engage academic institutions for short term as well as long term studies on pangolins and their habitats | 15 | Students | 2,000,000.0 | | | | | |
| | Sub total | | | 24,500,000.0 | | | | | |
| Objective 2. Curb poaching and control illegal trade of pangolin | | | | | | | | | |
| Actions | | | | | | | | | |
| 2.1 | Conduct awareness campaigns on protected species, anti-poaching and conservation laws. | 35 | events | 3,500,000.0 | | | | | |
| 2.2 | Conduct capacity building program to PA and DFO staff , judiciary, custom offices, airports postal services, transport and other relevant private sectors | 5 | events | 2,800,000.0 | | | | | |
| 2.3 | Conduct training for protected areas staffs, DFOs of priority areas and communities anti-poaching units on the use of new technology | 3 | events | 1,800,000.0 | | | | | |
| 2.4 | Improve the wildlife crime investigation process and enhance the evidence collection system through capacity building and training | 3 | events | 1,800,000.0 | | | | | |
| 2.5 | Strengthen, build capacity and mobilize community based anti-poaching units in all PAs and priority districts | 100 | Units | 5,000,000.0 | | | | | |

| | | | | | | | | | |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------|---------------------|--|--|--|--|--|
| 2.6 | Strengthen informant networks, information gathering and communication networks for anti-poaching operation | 100 | Units | 6,500,000.0 | | | | | |
| 2.7 | Expand and strengthen WCCBs in additional districts along trade routes | 10 | Districts | 5,000,000.0 | | | | | |
| 2.8 | Provide equipment and logistics support to maintain and improve anti-poaching operations | 6 | events | 3,000,000.0 | | | | | |
| 2.9 | Engage WCCB and law enforcement agencies in controlling pangolin poaching and trade | 5 | years | 3,500,000.0 | | | | | |
| 2.10 | Conduct capacity building program for mobilization of BZUCs (Buffer Zone User Committees), CFUGs (Community Forest User group) and Conservation Area Management Committees (CAMC) and other local stakeholders to control poaching at local level | 50 | events | 2,500,000.0 | | | | | |
| 2.11 | Organize regular coordination meetings at local, regional and national level for sharing information on pangolin related activities | 25 | events | 2,500,000.0 | | | | | |
| 2.12 | Organize regular transboundary conservation cooperation meetings with neighboring countries | | as needed | 5,000,000.0 | | | | | |
| | Sub total | | | 42,900,000.0 | | | | | |
| Objective 3. Identify and manage the habitat for pangolins conservation | | | | | | | | | |
| Actions | | | | | | | | | |

| | | | | | | | | | |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----|-------|-------------------|--|--|--|--|--|
| 3.1 | Identify critical pangolin habitat and design site-specific management plan | 5 | sites | 2,500,000.0 | | | | | |
| 3.2 | Provide institutional and technical support to local government and related stakeholders outside PAs to monitor and manage habitat | 10 | sites | 5,000,000.0 | | | | | |
| 3.3 | Create fire lines in the pangolin habitats to control forest fire | 10 | sites | 2,500,000.0 | | | | | |
| 3.4 | Control human and livestock pressure in pangolin habitats | 10 | sites | 5,000,000.0 | | | | | |
| 3.5 | Formulate and implement mitigation measures for development and other construction works in the prime/ designated pangolin habitats | 1 | Nos | 1,500,000.0 | | | | | |
| 3.6 | Engage communities to restore and manage forests, open areas and wetlands in potential habitats | 5 | sites | 2,500,000.0 | | | | | |
| 3.7 | Protect available termite mound to the extent possible | 40 | sites | 4000000.0 | | | | | |
| | Sub total | | | 23000000.0 | | | | | |
| Objective 4. Develop local stewardship for conservation of pangolin | | | | | | | | | |
| Actions | | | | | | | | | |
| 4.1 | Assess local knowledge, traditions, attitude and perceptions on pangolin conservation | 1 | Nos | 1,500,000.0 | | | | | |
| 4.2 | Develop awareness packages for policy makers, developers, local government and local communities on pangolin conservation | 3 | Nos | 2,000,000.0 | | | | | |

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|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------|----------------------|--|--|--|--|--|
| 4.3 | Design and develop community-based ecotourism plans for key pangolin conservation sites | 2 | sites | 1,000,000.0 | | | | | |
| 4.4 | Train forest user groups and local communities to implement the ecotourism plans | 2 | events | 4,000,000.0 | | | | | |
| 4.5 | Conduct trainings, workshops and exposure visits at the local, district and national level for community based eco-tourism | 10 | events | 5,000,000.0 | | | | | |
| 4.6 | Develop information sharing mechanism between community based organizations and local law enforcement agencies | 15 | events | 1,500,000.0 | | | | | |
| 4.7 | Organize events to disseminate conservation messages | 3 | events | 500,000.0 | | | | | |
| 4.8 | Lobby with authorities of the local and federal governments to give adequate priority for conservation of wild flora and fauna during their annual planning processes and ensure for budgetary provisions | 7 | nos | 750,000.0 | | | | | |
| 4.9 | Aware people via different means of audio visuals radios and televisions | 5 | times | 5000000.0 | | | | | |
| | Sub total | | | 21,250,000.0 | | | | | |
| | GRAND TOTAL | | | 111,650,000.0 | | | | | |

Annex 3: Districts Showing Distribution of Pangolin in Nepal

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|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Distribution of Chinese Pangolin in 25 districts | Bhaktapur, Baglung, Chitwan, Dhading, Dhankuta, Dolakha, Gorkha, Ilam, Jhapa, Kathmandu, Kavre, Kanchanpur, Khotang, Lalitpur, Lamjung, Makwanpur, Palpa, Parsa, Panchthar, Sankhuwasabha, Sindhuli, Sindhupalchowk, Solukhumbu, Taplejung, Terathum and Ramechhap, Bardia |
| Distribution of Indian Pangolin in seven districts | Kanchanpur, Chitwan, Parsa and Bara, Surkhet, Banke, Bardia |
| Either Chinese Pangolin or Indian Pangolin or Both (14 districts) | Dadeldhura, Salyan, Myagdi, Kaski, Tanahu, Rasuwa, Nuwakot, Okhaldhunga, Bhojpur, Udaypur, Dhanusa, Siraha, Saptari, Morang |
| Chinese Pangolin distribution in ten PAs | MBNP, SNP, GCA, SNNP, ACA, PNP, CNP, BNP, ShNP, KCA |
| Indian Pangolin distribution in five PAs | ShNP, BNP, BaNP, CNP, PNP |



Active burrow (Photo: Tulshi Laxmi Suwal)



The Pangolin Conservation Action Plan for Nepal (2018-2022) has been prepared in collaboration with NTNC, WWF Nepal and ZSL Nepal

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