

OWL CONSERVATION ACTION PLAN FOR NEPAL 2020 - 2029



Government of Nepal
Ministry of Forests and Environment



Department of National Parks and
Wildlife Conservation

Department of Forests and
Soil Conservation



Kathmandu, Nepal
2020





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Citation

DNPWC and DFSC 2020. Owl Conservation Action Plan for Nepal 2020-2029.
Department of National Parks and Wildlife Conservation and Department of Forests and Soil Conservation. Kathmandu, Nepal.

Layout and Design: Bishal Gautam
Cover Photo: © Manshanta Ghimire
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Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation



Date: 13 July 2020

FOREWORD

Nepal's disproportionately rich biodiversity is well documented and its conservation effort to conserve this wealth has been appreciated globally. These efforts ranged from species focused to landscape level conservation that puts a serious emphasis on people's participation in the process. While Nepal has made good progress in species focused conservation by preparing and implementing species conservation action plans, many species are yet to be included in the process. Owls are bird species which are well known to human society in terms of icon of ecological, religious, and economic importance. Out of 225 number of owl species recorded globally 23 are recorded in Nepal however none of them are considered globally threatened. Though nine and three species of owls have been categorized as threatened and data deficient respectively by State of Nepal's Birds 2016.

Owls are nocturnal birds of prey, and are associated with almost every society and culture in the world. With diversity in size and food habit, they have diverse ecological functions to perform in the nature. At present, they are under serious threats primarily due to hunting and poaching, use of pesticide, superstition, use of their body parts. In addition, intensified anthropogenic activities such as harvesting of non-timber forest products, livestock grazing, forest fire, and habitat loss and degradation, lack of food resources, etc. are the inducing threats for their long-term survival.

Owl Conservation Action Plan (2020-2029) has been prepared with an aim to protect and manage owl habitats and increase their population in Nepal which will be achieved by holistic approach of conservation including research, implementation of conservation initiatives, awareness building, habitat improvement and threat management.

I sincerely thank the technical team of the Department of National Parks and Wildlife Conservation and Department of Forests and Environment for taking lead in the process of preparing Owl Conservation Action Plan. I also thank Rufford Small Grants for providing financial support and Friends of Nature (FON Nepal) for the technical support to produce this document. I greatly acknowledge reviewers for their contribution to bring this document in such a robust form. The government of Nepal greatly acknowledges the contribution of wildlife conservation partners and requests for their continuous support and commitment for the successful implementation of this plan.

I humbly appeal all concerned government agencies, development and conservation partners and local communities for effective and successful implementation of this plan. I am hopeful that implementation of this plan will be supportive in owl species research and conservation in Nepal.

Dr. Ramchandra Kandel
Officiating Director General





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FOREWORD

Nepal's bird diversity is astonishing considering its small size and owls constitute around 2.5% of total bird diversity in the country which accounts to a total of 23 species. Most owl species are categorized as Least Concern by IUCN Red List while nine species are categorized under various threats categories by the IUCN's National Red List. No owl species have been included in the schedule I (endangered species) of National Park and Wildlife Conservation Act 1973. Furthermore, all owl species are enlisted in appendix II of CITES.

Owls are interesting birds of prey having diverse size and ecological functions. They are associated with cultures around the world because of their unique ecology. Most of the habitats of owls lie outside the protected areas which have been under various management regimes such as Community Forests, Collaborative Forests and Government Managed Forests. They are highly threatened due to illegal hunting and poaching, use of pesticide, superstition and use of their body parts. There are other threats too, most of which are anthropogenic, including indiscriminate harvesting of non-timber forest products, livestock grazing, forest fire, and habitat loss and degradation. In order to address these issues, Government of Nepal has put consistent efforts for combating the illegal trade and focuses on practicing integrated conservation approach.

Owl Conservation Action Plan (2020-2029) for Nepal has been prepared to conserve owls and manage their habitats in Nepal. I firmly believe that this Owl Conservation Action Plan will be an important asset prioritizing the most pressing research and conservation issues in the country. I thank the joint team from the Department of National Parks and Wildlife conservation and Department of Forests and Soil Conservation for leading and developing this Owl Conservation Action Plan. I would like to extend sincere thanks to Rufford Small Grants and Friends of Nature (FON Nepal) for providing financial and technical support. The plan corroborates and is on line with National Biodiversity Strategy and Action Plan of Nepal. I appreciate and acknowledge the Reviewers for their contributions to enhance the draft with their thought comments and suggestions. The government of Nepal greatly acknowledges the contribution of wildlife conservation partners and request for their continuous support and commitment for the successful implementation of this plan.

Last but not the least, I appeal for collaborative actions from all concerned stakeholders and conservation partners and local communities for effective and successful implementation of this plan. I am hopeful that implementation of this plan will be supportive in owl species research and conservation in Nepal

13/07/2020

Man Bahadur Khadka
Director General



PHOTO :
CHIRANJEEVI KHANAL





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ACRONYMS AND ABBREVIATIONS

AD	Anno Domini
BCN	Bird Conservation Nepal
BS	Bikram Sambat
BZCF	Buffer Zone Community Forests
CBAPU	Community Based Anti-Poaching Unit
CBO	Community Based Organization
CF	Community Forest
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
DFO	Division Forest Office
DFSC	Department of Forests and Soil Conservation
DNPWC	Department of National Parks and Wildlife Conservation
FON	Friends of Nature
IUCN	International Union for Conservation of Nature
NBSAP	National Biodiversity Strategy and Action Plan
NP	National Park
NPR	Nepalese Rupee
NPWC	National Park and Wildlife Conservation
NTNC	National Trust for Nature Conservation
OCAP	Owl Conservation Action Plan
PA	Protected Area
WWF	World Wide Fund for Nature
ZSL	Zoological Society of London





PHOTO :
MANSHANTA GHIMIRE





EXECUTIVE SUMMARY



Owls in Nepal comprise of two families (Tytonidae and Strigidae) and 23 species namely Barn Owl (*Tyto alba*), Eastern Grass Owl (*Tyto longimembris*), Mountain Scops Owl (*Otus spilocephalus*), Oriental Scops Owl (*Otus sunia*), Collared Scops Owl (*Otus bakkamoena*), Eurasian Eagle Owl (*Bubo bubo*), Rock Eagle Owl (*Bubo bengalensis*), Spot-bellied Eagle Owl (*Bubo nipalensis*), Dusky Eagle Owl (*Bubo coromandus*), Brown Fish Owl (*Ketupa zeylonensis*), Tawny Fish Owl (*Ketupa flavipes*), Brown Wood Owl (*Strix leptogrammica*), Himalayan Wood Owl (*Strix niviculum*), Collared Owlet (*Glaucidium brodiei*), Asian Barred Owlet (*Glaucidium cuculoides*), Mottled Wood Owl (*Strix ocellata*), Jungle Owlet (*Glaucidium radiatum*), Little Owl (*Athene noctua*), Spotted Owlet (*Athene brama*), Brown Hawk Owl (*Ninox scutulata*), Long-eared Owl (*Asio otus*), Short-eared Owl (*Asio flammeus*) and Oriental Bay Owl (*Phodilus badius*). Out of the 23 species, current status of two species i.e. Long-eared Owl and Oriental Bay Owl is vagrant and possibly extinct respectively. It is also believed that Oriental Bay Owl may never have occurred in Nepal. However all of these species are distributed widely in the Indian subcontinent and other parts of the world. As a result all of them are categorized as Least Concern in the International Union for Conservation of Nature (IUCN)'s Red List. However nine and three species of owls have been categorized respectively as threatened and Data Deficient by State of Nepal's Birds 2016.

Owls are one of the most commonly known group of birds to general people in Nepal which has helped to create myths and folklores in almost all cultures in the country. However very little information is available on their ecology and status due to limited scientific research. They are also illegally hunted and traded bird species in Nepal. The extent of their trade permeates to the neighboring countries too. The conservation threats to the species of this group overlaps in majority of cases which include habitat loss, illegal hunting and trapping for meat and trade, traditional/medicinal use of body parts and capturing for pet keeping. In addition, owls also suffer from pesticide use and low level of conservation awareness.

Conservation initiatives on owls are rarely taken up which results from the fact that all owl species are considered common. Due to this particular reason, there is little funding available to the researchers and conservationists interested to work on these species that has caused a lack of knowledge on their population and ecology and has led to a very low level of conservation awareness among the broad range of stakeholders. Despite these reasons, conservation activities targeted towards owls are getting more attention in the country in recent years.

The goal of this action plan is to ensure viable population of owls and conserve their habitat through strategic actions and participatory approach. Desired objectives of this action plan are;

1. Enhance the quality of habitat
2. Promote scientific research to enhance knowledge
3. Reduce illegal hunting and trade
4. Sensitize stakeholders and build their capacity for long term conservation of owls
5. Build partnership at local, national and international level

Each objective is further detailed out with outputs, actions, objectively verifiable indicators, means of verification and risks/assumptions in the log frame. The total estimated cost for the ten year plan is NPR 110,150,000. Department of National Parks and Wildlife Conservation and Department of Forests and Soil Conservation will own the document and coordinate with different stakeholders to ensure the successful implementation of this action plan. In the recently developed federal structure, relevant provincial level government agency i.e. Ministry of Industry, Tourism, Forests and Environment will have an important role in the implementation of this action plan. Local level governments will be coordinated via Division Forest Office, Warden Office and other conservation stakeholders.



1.1 Relevance of the Action Plan

Species wise action plan is important for conservation initiatives of targeted species that has been emphasized by Nepal Biodiversity Strategy and Action Plan (NBSAP) (MoFSC 2014). This has guided the development of action plans for many endangered species in the country. Owls are one of the most threatened species of birds in Nepal and deserve conservation initiatives. Hence, there is a need to develop an Owl Conservation Action Plan (OCAP) to guide noble initiatives for the long term conservation of owls in the country.

1.2 Action Plan Development Process

A meeting of the task force was held at the Department of National Parks and Wildlife Conservation (DNPWC) to authorize a core team to prepare a draft of the action plan. The core team prepared a draft action plan based on literature review, stakeholder discussions, interviews, field visits and workshops. The draft plan was shared to the technical team set up by DNPWC for their feedback. Feedback and comments from the team were incorporated, and the draft plan was reviewed by the experts. After receiving comments from the experts, the draft of the action plan was finalized by the core team and proceeded for endorsement by the government.

1.3 Scope of the Action Plan

The preparation of the action plan is primarily guided by National Biodiversity Strategy and Action Plan, 2014-2020. Other legal frameworks such as Nepal's National Parks and Wildlife Conservation Act 2029 Bikram Sambat (BS) (1973 AD), Forest Act 2049 BS (1993 AD), Forest Policy 2075 BS (2018 AD), and the management plans of respective Protected Areas (PAs) are also reviewed. The action plan will be implemented to address the needs for long-term conservation of owl species in Nepal. It assumes that owl conservation in Nepal will benefit from the collaborative efforts of a wide range of stakeholders which include policy and decision makers, wildlife law enforcement agencies, conservation partners, research and academic institutions and community based organisations. All stakeholders will collectively address the conservation issues of owls with their respective expertise, capacity and experience for the successful implementation of OCAP. The conservation measures outlined in the document will also be applicable to the regions within the country where owls are distributed. However, the illegal trade of owls from Nepal to both India and China is also common (Ahmed 2010, Acharya and Ghimirey 2017), thus requiring transboundary cooperation and coordination to protect owls. The action plan for conservation of owls also encourages transboundary dialogue and collaboration to discourage the increasing illegal wildlife trade activities.

2.0 BACKGROUND

2.1 General Introduction of the Species

Owls are nocturnal birds of prey comprising more than 257 species around the world (Romulo et al. submitted). Owls in Nepal comprise of 23 species (Box 1) that are distributed over a wide range of geographical areas within the country (GC et al. 2017).

All species of owls currently known to reside in Nepal are categorized Least Concern globally by IUCN (Birdlife International 2016). However five out of 23 species are categorized as Vulnerable nationally. These are Barn Owl, Brown Wood Owl, Short-eared Owl, Rock Eagle Owl and Brown Fish Owl. Only one species i.e. Spot-bellied Eagle Owl has been categorized as Endangered while three species namely Eastern Grass Owl, Dusky Eagle Owl, Tawny Fish Owl are categorized as Critically Endangered. Nine species i.e. Mountain Scops Owl, Collared Scops Owl, Collared Owlet, Asian Barred Owlet, Jungle Owlet, Little Owl, Spotted Owlet, Brown Hawk Owl and Himalayan Wood Owl are categorized as Least Concern. The remaining three species Eurasian Eagle Owl, Oriental Scops Owl and Mottled Wood Owl are Data Deficient (Inskipp et al. 2016, GC et al. 2017).

Of these species, Long-eared Owl is considered as vagrant and has not been categorized. Oriental Bay Owl was also recorded only in the early 19th century with the help of a skin found in a Kathmandu shop (Hodgson 1829, 1844) which might not have originated in Nepal (Inskipp and Inskipp 1985); however if it did occur it is believed to be extirpated from the country (Inskipp et al. 2016, GC et al. 2017).

Owls occur in a wide array of habitat types and elevational gradient. For eg. species like Spot-bellied Eagle Owl lives in relatively undisturbed old growth forest which is very different from Spotted Owlet or Barn Owl which prefer areas that are close to human settlement. As human population is increasing very rapidly anthropogenic threats such as habitat loss, degradation and fragmentation has impacted Nepal's birds badly including owls (Duncan 2003, Inskipp et al. 2016). A wide-ranging owl trade,

Box 1: Owl species occurring in Nepal

Barn Owl (*Tyto alba*), Eastern Grass Owl (*Tyto longimembris*), Mountain Scops Owl (*Otus spilocephalus*), Oriental Scops Owl (*Otus sunia*), Collared Scops Owl (*Otus bakkamoena*), Eurasian Eagle Owl (*Bubo bubo*), Rock Eagle Owl (*Bubo bengalensis*), Spot-bellied Eagle Owl (*Bubo nipalensis*), Dusky Eagle Owl (*Bubo coromandus*), Brown Fish Owl (*Ketupa zeylonensis*), Tawny Fish Owl (*Ketupa flavipes*), Brown Wood Owl (*Strix leptogrammica*), Mottled Wood Owl (*Strix ocellata*), Himalayan Wood Owl (*Strix nivicolium*), Collared Owlet (*Glaucidium brodiei*), Asian Barred Owlet (*Glaucidium cuculoides*), Jungle Owlet (*Glaucidium radiatum*), Little Owl (*Athene noctua*), Spotted Owlet (*Athene brama*), Brown Hawk Owl (*Ninox scutulata*), Long-eared Owl (*Asio otus*), Short-eared Owl (*Asio flammeus*) and possibly Oriental Bay Owl (*Phodilus badius*).

mainly of Rock Eagle Owl takes place in Nepal from where the birds are illegally exported to India, Bangladesh, China and the Middle East (Acharya and Ghimirey 2009). The hunting and trade of owls is also common in Nepal's two neighbors i.e. India and China which has made Nepal a strategic location for trade (Ahmed 2010, Acharya and Ghimirey 2017). A recent study showed that all the owl species are illegally hunted and traded which account for at least 2000 individuals annually in Nepal (Acharya and Ghimirey 2017). Similarly owls are persecuted because of negative social and cultural beliefs, while some young people kill birds, often using catapults purely for entertainment (Acharya and Ghimirey 2009). Overfishing, which has led to a marked fish decline in wetlands especially in the Terai, is a major threat to all large fish-eating owl species including Brown Fish Owl and Tawny Fish Owl (BCN and DNPWC 2011). Lack of conservation awareness, limited resource availability within enforcement agencies (Inskipp et al. 2016) and road kill (Pers. comm. Rishi Baral) are some other threats to the species in the country.

2.2 Major Conservation Efforts and Achievements

2.2.1 National/International Conservation Policy

Forests occupy 44.74% of Nepal's total land area of 147,516 km² and protected areas occupy a total of 23.39% however there is significant overlap of these two. The recent forest policy has focused mainly the conservation of biodiversity, wetland and protected areas (MoFE 2018)

The principal guiding policy document such as NBSAP (2014-2020) has encouraged to prepare and implement the conservation action plan for nationally and globally important species. While all owl species in Nepal have been categorized as Least Concern globally, a national assessment indicates that three species are Critically Endangered, one Endangered, five Vulnerable, nine Least Concern and three Data Deficient. All the owls recorded in Nepal are listed in the Appendix II of the Convention of International Trade on Endangered Species of Fauna and Flora (CITES) (CITES 2019). The Forestry Sector Strategy (2016-2025) also aims to protect and sustainably manage forest, plant resources, wildlife, watersheds and other ecosystems as well as make them climate-resilient through an inclusive, decentralised, competitive and well-governed forestry sector providing equitable employment, income and livelihood opportunities.

Nepal's new constitution of 2015 fundamentally transforms the country from a unitary political structure to a federal system. The constitution and subsequent Government of Nepal Regulations 2018, Provincial Government Regulations 2018, and Local Government Operation Act 2017 have attempted to clarify the roles and responsibilities of each government level, but the process of delimiting each level's powers is still underway. Table 1 shows federal, provincial, local and concurrent powers related to various categories of protected areas, as defined by the constitution and the aforementioned laws.

Table 1: Level of government and their relative power on protected areas management.

PA Categories	Federation Powers	Provincial Powers	Local Level Powers
National Parks, Wildlife Reserves, Wetlands	Policy, law, standards, plans and management		Human-wildlife conflict management, maintenance of wetland records
Conservation Areas	Policy, law, standards and plans	Management	
Buffer Zone	Policy, law and standards		Buffer Zone forest management (community, leasehold and religious forests)
Local-level Conservation Areas			Formulation and implementation of policy, law and standards and plans related to local biodiversity conservation Management and utilization, maintaining records of biodiversity and wetlands
Wildlife and Birds (Zoos and Biological Gardens)	Policy, law and standards	Management	Policy and monitoring of wildlife farming and bird, trophy management, wildlife based tourism and income Local level zoo management
International Treaties	Formulation and implementation of policy, law and standards as required by each multilateral environmental agreement		Implementation

2.2.2 Conservation Initiatives

Illegal hunting and trade of owls has been recorded in Nepal and is one of the foremost threats to the species. Government of Nepal has given legal protection for owl species of Nepal by provisioning penalties to people poaching such species or get involved in their illegal trade. In such cases there is a provision of penalizing the offenders with a fine of NPR 20,000 to NPR 50,000 or an imprisonment of 6 months to 1 year or both. This acts as deterrent to people trying to kill owls or harm them in any way. Government has also recently categorized different owl species into threat categories based on the most updated information available (Inskipp et al. 2016).

Despite major threats imposed on all the owl species in the country, conservation measures have been initiated and have proved to be instrumental. Declaration and management of one quarter of the country's land as Protected Areas (PAs), establishment of Division Forest Offices (DFOs) for undertaking conservation issues outside PAs, the establishment of Pillar 4 for Environment and Wildlife Crime at the Central Investigation Bureau under Nepal Police, sensitization of over 19670 students and 30242 members of the public through more than 655 conservation camps, more than 25 owl conservation interviews, celebration of public based conservation events 'Nepal Owl Festival' from 2012 to 2020 are some of the key conservation measures initiated together by both government and non-government agencies in Nepal (Inskipp et al. 2016, Acharya and Ghimirey 2017). In addition, conservation materials (including books) have been produced and distributed widely in the country to raise awareness about the importance of owls. Besides these, many more sporadic activities have been carried out to bolster the conservation status of owls in Nepal.

2.2.3 Research Initiatives

The establishment of 14 baseline monitoring points in Manang and Mustang districts in 2009 was an important step in owl research in the country. However there have been little progress in this aspect considering there have been more effort on conservation dissemination (Acharya and Ghimirey 2009). Some short term research on ethno-zoology of owls have been carried out though. Also the exploration of illegal hunting and trade dynamics on some species of owls have been carried out since 2008 and is still undergoing (Acharya and Ghimirey 2009, Acharya and Ghimirey 2017).

Effects of land use and land cover on the occurrence of Barn Owl in Kathmandu Valley, Nepal was assessed in 2015 (Gurung 2015). Ethno-owl documentation was carried out in Bhaktapur (Gosai et al. 2012), Pokhara (Wagle 2012, Khadka 2016) and Manang/Mustang (Acharya and Ghimirey 2009). Similarly 'Investigating the nesting and roosting habitat characteristics of Asian Barred Owlet (*Glaucidium cuculoides*) in Raghuganga, Myagdi district' was carried out recently (Subedi 2019).

2.2.4. Conservation Threats

2.2.4.1 Habitat loss and Degradation

Himalayas and their foothills in Nepal have witnessed massive forest loss which has put a high pressure on all wildlife species in the region including owls. The highest rate of deforestation that Nepal witnessed was between 1947 and 1980, where Nepal's forest cover declined at an annual rate of 2.7% (from 57% to 23% of the total area) (UNEP 2001). Habitat loss (through deforestation, forest fires and fires in grassland) is one of the most important threats to all the owl species in Nepal (Inskipp et al. 2016).

The annual rate of deforestation in Nepal has decreased from 1.9% to 1.35% (DFRS 2015) though the remaining forest patches are under severe pressure from increasing human population in the country. Recent studies indicate an increase in the overall forest area in the country (DFRS 2015). However, examination of the forest cover changes in different physio-geographic regions shows that gains in forest cover have been in the mountains, partly because of community forestry and as a result of agricultural abandonment. Forest losses are still continuing in the *Tera*i and *Churia* region that has threatened owls due to habitat loss as a regular phenomenon.

2.2.4.2 Illegal Hunting and Trade

This group of birds are some of the most hunted and traded bird species in Nepal though the purpose of hunting might differ or overlap among species (Inskipp et al. 2016, Acharya and Ghimirey 2017). Poaching of owls for meat has also been found to be common among youngsters. About 25% of school students are reported to use catapults out of which 3% have killed owl (Acharya and Ghimirey 2017). Catapult, guns, and traps are often used to catch and kill owls. The trend of stealing juveniles from the nest for domestication and using them to attract customers for their business is also increasing in Nepal. Owl meat is considered as an effective medicine by some people for various ailments.

Mainstream media, both print and electronic, mostly focus on the illegal trade reports of flagship mammal species such as Bengal Tiger, One-horned Rhino, Snow Leopard and Himalayan Black Bear. The reports of illegal trade in owls are also grabbing headlines of news these days. However owls are traded alive unlike other animals. Incidents related to export and domestication of owls to earn money overnight have been recorded in high number in recent years. Unfortunately the rescue and rehabilitation of seized owls in natural habitat have been observed to be ineffective due to their changed behavior which has resulted in large number of owls getting end up at zoos all over the country.

Ahmed (2010) reported illegal trade in 13 species of owls in India in thousands. The route from Kolkata to Kathmandu via Raxaul has been documented as an important trade route through which owls are entered to Nepal. Ahmed also indicated that Nepal is one of the hubs for owl trade to and from India and China which was also corroborated by Acharya and Ghimirey (2017).

2.2.4.3 Legal Provision

Nine species of birds have been provided priority protection by the National Park and Wildlife Conservation (NPWC) Act 1973 (DNPWC 1973). These species are Black Stork (*Ciconia nigra*), White Stork (*Ciconia ciconia*), Sarus Crane (*Antigone antigone*), Cheer Pheasant (*Catreus wallichii*), Impeyan Pheasant (*Lophophorus impejanus*), Satyr Tragopan (*Tragopan satyra*), Bengal Florican (*Houbaropsis bengalensis*), Lesser Florican (*Sypheotides indicus*) and Giant Hornbill (*Buceros bicornis*). However, there are many other species which are in a threatened state without any special protection from the government including some owl species. The recent fifth amendment of the act also could not update the priority protected list for bird species. However recognizing the precarious conservation situations of owls and other bird species there has been a recent attempt to update the protected list of all wildlife including owls. Two species have been proposed to be included in the Appendix I while 14 species are proposed to be included in Appendix II. Rest seven species are proposed in Appendix IV.

About 23.39% of total land area of Nepal has been listed as protected areas at present (MoFE 2018). However, there is an absence of skilled human resources for the protection and research of owls and other birds in national parks and conservation areas. Rescued birds are usually taken to the nearest forest office, conservation area or warden office, but the lack of expertise in such areas creates hurdles for their full rehabilitation. The probability of such individuals surviving in the wild after being released has been found to be very low. The recent fifth amendment of NPWC Act has a provision of establishing wildlife rehabilitation center in each of seven provinces of Nepal which will hopefully help in reducing such incidents.

Studies have also shown that birds are less prioritized in terms of research and conservation. Nepal has not designated any protected area focusing on threatened or iconic bird species. More attention has been provided to megafauna that are believed to providing increasing revenues for the country through tourism. So legal and management interventions are required to take up this issue proactively.

In order to coordinate support to wildlife law enforcement process, the Government of Nepal has reformed a number of institutions from local to central level. This includes National Tiger Conservation Committee chaired by Honourable Prime Minister, National Wildlife Crime Control Coordination Committee at Minister Level, Wildlife Crime Control Bureau at Director General Level and Wildlife Crime Control Unit at District Level.

2.2.4.4 Social Belief

Various social beliefs, both negative and positive, have become a part of owl's identity. However, the negative social beliefs have resulted in more harm than good to owls. For example, it is believed that a paste or ointment made from owl bone cures Mastitis which is swelling of breasts in women (*Thunelo* in Nepali). It is also said that wearing a necklace made from owl bone gives courage to travel during the night. Keeping a dead owl in the home is believed to keep away negative energies. In the high Himalayan region, there is a tradition to keep owl and crow feathers in the house with a belief that it will protect the house from evil while the family is away. However, scientific reasons behind these myths and superstitious beliefs have not been found.

Superstitious beliefs related to the use of different parts of owl in Nepal are:

- Eating meat from head and leg relieves body ache and joint pain
- Replacing human eye with an owl eye would enable human to see during night
- Owl bone soup is taken as something that can cure cancer
- Keeping owl feathers at the entrance protect home from negative energies
- Using a mixture of oil and owl feather paste reduces hair fall
- Keeping dead owl at entrance keeps negative energies away from home
- Owl meat cures asthma, diarrhea and cancer
- Owl meat mixed with mustard oil can cure body ache
- Owl claws can cut glasses
- Ointment made out of owl bones cures body ache and heals bone fracture
- Owl blood in liquid form cures ear infection
- Claws and bills of owls are used by witch doctors

2.2.4.5 Use of Pesticides and Poisons

Research in Israel has shown that providing artificial nest for Barn Owl to control rodents is profitable from farming point of view (Kan et al. 2013). Use of pesticides, rodenticides and poisons in agriculture and horticulture sectors are increasing worldwide. Rodents exposed to these rodenticides if ingested by owls will have detrimental effects to their

internal organs eventually causing death. A study conducted in Canada showed that mouse tend to be clumsy after being poisoned and are more likely to be preyed upon by owls (McClure 2010). Pesticides and poisons are commonly used in agriculture in Nepal too accounting to around 0.14 kg of pesticides per hectare (Sharma et al. 2012). About 15% of the pesticides in Nepal are imported from India. While the Government of Nepal has banned 14 different types of pesticides from import and use, the open border and loose checking at the available border check posts make it hard to regulate the ban. This also makes it difficult to determine the exact amount of pesticides imported annually.

2.2.4.6 Lack of Coordination among Stakeholders

Owl conservation in Nepal involves range of stakeholders ranging from researchers, academicians, government agencies, non-governmental organisations and communities. Successful conservation needs concentrated and cohesive effort from all the stakeholders and agencies. While owl conservation has gained good momentum in the recent years there seem to be a clear lack of coordination among stakeholders leading to inefficient conservation of the species.

2.2.4.7 Lack of Rescue and Release Facility

Documentation of injured owls have increased in recent years probably because of quick information sharing through social media. Sometimes seized owls are also found injured due to mishandling. In both cases, there is a lack of skilled person to rescue owls in Nepal, however conservationists are doing their best to rescue and release these owls in nature based on the available online information. Some people bring them to nearest veterinary hospital for further treatment. While treating birds is done most of the times it is the lack of rehabilitation facility that is making the matter worse. Serious injury need longer time to heal and rehabilitate which is a serious concern as no exclusive rescue, rehabilitation and release facility is available at the moment in the country.

2.2.4.8 Others

Expanding human settlements and demolition of old buildings where owls had the opportunity to nest and roost is becoming common as a result of modernization. This makes some species of owls susceptible such as Barn Owls and Spotted Owlets which often nest in human houses. Another result of modernization is the decrease in agricultural practices which is also not helping owls as it means decreased food supply. Destruction of their nests, collision with moving vehicles, getting trapped in

mist nests used for the study of bats and other small bird species, getting trapped in fishing nets are some of the other threats. Reason like spread of disease among owls hasn't been recorded yet however it is also a novel avenue to look at.



Photo: Manoj Poudel



Photo: Raju Acharya



Photo: Sagar Giri



Photo: Pushpa Raj Acharya



Photo: Suman Ghimire

3.0 CHALLENGES AND OPPORTUNITIES



3.1 Challenges

3.1.1 Habitat Encroachment

Encroachment of natural habitat (forests, wetlands and grasslands) is one of the major problems in conserving owls including other wildlife in Nepal. Encroachment is mainly due to expanding human settlement as well as due to conversion of forests and grasslands for agriculture.

Extension of current road network without proper planning is one of the important threats as it fragments the habitat and breaks habitat corridors. Increase in the road network has also resulted in owls colliding with the speeding vehicles. Regular follow up is also required to minimize the impact of mega project like hydropower and other linear infrastructures on owls so as to devise proper solutions.

3.1.2 Use of Pesticides

Despite knowing the negative impacts of pesticides on biodiversity (Gieger et al. 2010) the use of pesticides in Nepal is increasing which is currently estimated to be 0.14 kg/ha. Although this is relatively small compared to many other countries, the trend is increasing annually (Sharma et al. 2012) which is alarming. Many species of owls visit cultivated lands to feed on mice and rats where the use of pesticides is very common. This results in bioaccumulation of pesticides in their bodies impacting them negatively in the long term.

3.1.3 Research Gaps

Research efforts in Nepal have generally focused on megafauna like Bengal Tiger, Asian Elephant and Greater One-horned Rhino (Barber-Meyer et al. 2012, Neupane et al. 2017, Subedi et al. 2017). While information on the distribution of owl species is relatively well known but ecological information is scarce. This has created a knowledge vacuum especially on status, detail dynamics of illegal hunting and trade, land use and food preference, habitat overlap, impact of artificial owl nests on agricultural production and nest use of other bird species.

3.1.4 Legislation

NPWC Act 1973 has specifically mentioned punishment for offenders against illegal hunting of owls inside protected areas but there is no clear policy on the punishment for people who commit the aforementioned crime outside the protected areas. This creates a confusion while executing cases related to owl hunting and trade.

An undercover survey has revealed that for people involved in illegal owl trade (black market) the monetary benefit upon selling the owls are greater than the penalty by the government in case they are caught. This has resulted in people still getting involved in the trade as the offenders can pay the penalty easily in case they successfully carry out the trade. This is one reason why people still get involved with illegal hunting and trade of owls in the country.

3.1.5 Low Level of Public Awareness

Incidents of local people nest picking and raising owls to sell at a high price without being aware about the legal aspects of their action is a common phenomenon. General people are not well aware on the sanctions and punishments that legal framework has provided to discourage the illegal hunting and trade of owls.

3.2 Opportunities

3.2.1 Research and Knowledge Enhancement

Knowledge on owls in Nepal is mostly based on anecdotal sources and their association with humans being is the most commonly known aspect. Scientific research lag behind in comparison though some research on the trade of owl species has been carried out. Furthermore researches on their population status and ecology will contribute immensely in enhancing the knowledge of these aspects. By catch data of owls resulting from other studies can also be utilized in this regard. Further research on cultural association with humans and ethno-zoology will also be important for understanding human perceptions.

3.2.2 Tourism Promotion

Tourism is an important source of income in Nepal. It is believed that a significant number of tourists visiting Nepal come for birding as well. Birds including owls are an integral part of tourist attraction. Nepal provides an opportunity to observe different species of owls easily and in short span of time. The culture of 'Owling' is also developing gradually in the country which could be utilized for promoting owl tourism. For eg. Phulchowki forest in the south-west of Kathmandu valley is increasingly being used for owling by birders. This can be further developed into an owling site for tourists. Jalapa village from Khotang district of eastern Nepal has recently established an owl park to promote domestic tourism in the area and it is working gradually. Annual event 'Nepal Owl Festival' is also playing an important role to attract domestic tourists in the country.

3.2.3 Conservation breeding program for endangered species

After the initial success of Gharial and Vulture conservation breeding program there is a



wealth of knowledge and lessons learnt about captive breeding for conservation of other endangered species. This experience would be highly important in conservation breeding program for owls whenever necessary especially in the government owned rehabilitation and rescue centers and federal zoos or even in the community managed sites.

4.0 LEGAL AND POLICY FRAMEWORK

The following extracts outline the protection afforded to owls through various legal and policy frameworks in Nepal.

4.1 National Park and Wildlife Conservation (NPWC) Act 2029 BS (1973 AD) with Fifth Amendment 2073 BS (2017 AD)

NPWC Act has defined wildlife as mammals, birds, reptiles, pisces, amphibians and insects of any kind other than domesticated and this term also includes the eggs of Oviparous creatures. This act is an important legal instrument that protects any species of wildlife in Nepal. The act also gives an authority to the Government of Nepal to declare an area of high biodiversity as a protected area. The area can be given the status of "National Park", "Strict Nature Reserve", "Wildlife Reserve", "Hunting Reserve", "Conservation Area" and "Buffer Zone".

The act also prohibits actions within protected area which further warrants owl protection. These actions are:

- To hunt wildlife,
- To construct or possess house, hut, shelter, or any other structures of any material,
- To occupy, clear, reclaim or cultivate any part or grow or harvest any crop,
- To graze any domestic animal or bird, or feed water to it,
- To cut, clear, fell, remove or block trees, plants, bushes or any other forest resources, or do anything to cause any forest resources dry, or set it on fire, or otherwise harm or damage it,
- To dig mines, stones or remove any mineral, stone, boulder, earth or any other similar material,
- To cause damage to forest resources or wildlife or birds or any land,
- To carry arms, ammunition or poison, or use them,
- To take any domestic or any other kind of animal or trophy by persons other than government employees on deputation or visitors of the public paths within the national park or reserve, and
- To block, divert any river or stream flowing through national park or reserve, or any other source of water, or use any harmful or explosive materials therein.

The act also specifies penalization for people who either kills, hunts or injures any owl species in any part of the country irrespective of inside or outside protected areas though they are not

provided priority protection. It has also provided provision to penalize people who kills or injures owls with a fine ranging from twenty thousand to fifty thousand rupees or face imprisonment ranging from six months to one year or both.

Punishment for accomplices: In case any person who knowingly helps any person in committing any offense is punishable under this Act, such accomplice shall be punished with half the punishment to be given to the principal offender.

Along with the NPWC Act 2029 BS, many other related laws and bylaws or regulations are in place namely, NPWC regulation 2030, Chitwan National Park regulation 2030 and Bardia National Park regulation 2053, Wildlife Reserve Regulation 2034, Himali National Park regulation 2036 and Conservation Area Management rule 1996.

4.2 Forest Act 2049 BS (1993 AD) and Forest Act 2076 BS (2019 AD)

Biodiversity conservation is also considered as environmental services. This Act categorises two types of forests in Nepal namely National Forest and Private Forest. National Forest is further categorized into: "Government Managed Forest", "Inter Provincial Forest", "Forest Protection Area", "Community Forest", "Leasehold Forest", "Private Forest" and "Religious Forest". Some of the prohibited actions within the National Forest are:

- To deforest, plough, dig or cultivate in the land of Forest Area and to construct house or hut,
- To set fire or to do any act to cause firing,
- To remove, traffic or sell and distribute forest products from the forest area,
- To cut trees/plants or their branches, extract resin or bark or to damage them in any way,
- To damage any other forest products by negligence while cutting, felling, dragging or removing trees from the forest area under the license,
- To extract boulders, pebbles, sand or soil, burn charcoal or lime or manufacture other finished products from them or collect them,
- Contravening the terms of the permit in the case when a permit is received to transport the forest products,
- To hunt wildlife, to keep wildlife parts, involve in trade, and
- To commit any offence contrary to this Act and the Rules made thereunder.

Provision of punishments are arranged in the act for committing aforementioned offences

4.3 Buffer Zone Management Regulation 2052 BS (1996 AD)

Conservation in Buffer Zone: The warden shall have the responsibility to do or get the following conservation works done in the buffer zones:

- Wildlife conservation,
- Natural environment and natural resources management,
- Biodiversity conservation,
- Forest management and protection, and
- Development works.

Some of the prohibited actions within the Buffer Zone are:

- Occupy any land without legal ownership or cut trees, clear forests or cultivate forest land,
- Any activities damaging forest resources or to set fire in the forests,
- Use of any harmful poison or explosive substances into the river, stream or source of water flowing in the buffer zone, and
- Hunting illegally and any acts damaging to wildlife.

4.4 Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) 1973 AD and Amendment in 2018 AD

Nepal is a signatory to CITES according to which all owl species are included in Appendix II. This include species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.

An import permit issued by the Management Authority of the State of import is required. This may be issued only if the specimen is not to be used for primarily commercial purposes and if the import will be for purposes that are not detrimental to the survival of the species. In the case of a live animal or plant, the Scientific Authority must be convinced so that the proposed recipient is suitably equipped to house and care for it.

An export permit or re-export certificate issued by the management authority of the State of export or re-export is also required. An export permit may be issued only if the specimen was legally obtained; the trade will not be detrimental to the survival of the species; and an import permit has already been issued. A re-export certificate may be issued only if the specimen was imported in accordance with the provisions of the convention and, in the case of a live animal or plant, if an import permit has been issued. In the case of a live animal or plant, it must be prepared and shipped to minimize any risk of injury, damage to health or cruel treatment.

Major features of the Act;

- No one is allowed to keep, trade, captive, marketing the parts of endangered species of flora and fauna, however allowed for study, trade, production after approval/recommendation from scientific community, and
- Seized parts of flora and fauna will be tasted, managed and released as per necessary.

5.0 METHOD OF ACTION PLAN FORMULATION



Nepal has been successful in leading conservation initiatives for many flagship species which include One-horned Rhino and Bengal Tiger. Most of these efforts bore fruit due to proper planning by developing action plans of activities to be carried out for successful conservation. OCAP is an effort to conserve species which are heavily persecuted in the country.

An application was submitted to DNPWC for preparing OCAP on April 2018 which was approved in October 2018. A terms of reference which included the process of the action plan preparation was finalized on May 2019. An initial sharing on the working modality for the action plan was made on 29 May 2019 at DNPWC. Following this a series of field consultation and discussions were held at Jalapa, Khotang in Province 1, Pokhara and Nawalparasi in Province 4. The draft was publicly shared on 15 September 2019 during a national workshop for OCAP at Kathmandu attended by representatives from the Department of Forests and Soil Conservation (DFSC), DNPWC, other conservation partners and individual experts. The comments and suggestions from the workshop were incorporated prior to sending the document for review. The review and subsequent finalization process lasted till 25 December 2019. Review of the final draft and finalization by the core team was completed by 15 March 2020. OCAP was endorsed by the government on 13 July 2020. The document was sent for final design before going to press. Final copy from the press was thoroughly checked for errors by the core team prior to final print.

6.0 OWL CONSERVATION ACTION PLAN (2020 - 2029)

6.1 Goal

Ensure viable population of owls and conserve their habitat through participatory approach

6.2 Objectives

6.2.1 Enhance the Quality of Habitat

Issues

Habitat loss and degradation, eutrophication, use of pesticides and modification of houses.

Rationale

Existence of owls depend on the diversity of habitats i.e. wetland, forest, farmland, grassland, human settlement and so on. Due to explosion of human population in the recent years most of these habitats are either being lost or degrading. Eutrophication reduces the area and quality of the wetlands, the use of pesticide affecting the food items of owls, forest fire and degradation impacting the habitat and modification of traditional housing pattern has affected the possible nesting location for these birds in and around human settlements. To address these issues, it is extremely important to work towards improving the degrading habitat and also to create new ones. Thus, participatory habitat management and conservation approach would help in long term conservation of owls.

Outputs

1. Degraded owl habitats identified and restored, and
2. Artificial nests for owls created with proper intervention and natural habitat managed.

Actions

1. Manage the quality of degraded grasslands,
2. Control forest and grassland fires,
3. Regulate the overgrazing activities in western Terai,
4. Reduce eutrophication in wetlands,
5. Conserve old trees in community forests and protected areas,
6. Plantation in degraded areas,
7. Advocate for the implementation of Environmental Impact Assessment Reports in mega projects/infrastructures,

8. Promote artificial nests in semi urban areas and farmlands (Lumbini, Pokhara, Koshi and Bhaktapur), and
9. Promote and coordinate for establishing owl conservation areas at provincial and local level.

6.2.2 Promote Scientific Research to Enhance Knowledge

Issues

Limited research.

Rationale

Owls remain one of the least studied bird groups in the country despite its social and cultural significance. The group remains very little studied except on issues such as preliminary investigation on illegal hunting and trade, habitat preference in the Kathmandu valley and ethno-ornithological studies. However, it is important to have first-hand information on ecology, population status and habitat requirements of the species. This will help in expanding scientific knowledge on the issues that need addressing for long term conservation of these species.

Outputs

1. Standardized monitoring system for owls across Nepal developed,
2. Robust scientific information on ecological/distribution modeling and threat assessment documented,
3. The intensity and magnitude of their illegal hunting and trade documented, and
4. Database on all owl species available at one platform.

Actions

1. Identify research priority sites for all owl species,
2. Develop monitoring protocol/manual for all owl species,
3. Carry out species distribution modelling of all owl species,
4. Assess habitat preference and overlap,
5. Study the land use change and its impact on owl species diversity,
6. Assess population status of critically endangered and endangered owl species,
7. Assess the magnitude, intensity of illegal hunting and trade of owls in Nepal,
8. Establish an owl related centralized online database management system,
9. Initiate study on the long term impact of pesticides on Barn Owls/Spotted Owlets in semi urban areas and Terai,

10. Conduct diet composition and food preferences of Barn Owl and Spotted Owlet,
11. Establish new long-term monitoring stations both inside and outside PAs in three physio-geographic regions (Terai, mid-hill and high mountain),
12. Conduct regular monitoring at established monitoring stations in every five years,
13. Document ethno-owl relations in the three physio-geographic regions,
14. Study the impact of climate change on various ecological aspects of owls such as shift and modification in habitats, food and breeding habits, etc.,
15. Impact assessment of artificial nests on local agricultural production,
16. Success rate/occupancy assessment of artificial nests, and
17. Use satellite tagging to monitor owls (endangered and critically endangered).

6.2.3 Reduce Illegal Hunting and Trade

Issues

Little knowledge on hunting and trade dynamics, lack of rehabilitation and release center.

Rationale

Owls are the most live traded avian species in Nepal. Approximately 2000 owls of different species are illegally traded either to India and/or China every year. They are mostly poached for meat, entertainment and medicinal value. Similarly, they are also illegally traded to India and China for their presumed use in black magic and in traditional medicine respectively.

Outputs

1. Illegal hunting and trade reduced.

Actions

1. Develop information sharing system to support enforcement agencies,
2. Develop mobile apps for enforcement agencies to identify owl species,
3. Ban the use of catapults at local level,
4. Discourage the use of insecticides/pesticides,
5. Provide training and orientation to enforcement agencies on illegal hunting and trade of owls, and
6. Investigate cyber-crime and share with enforcement agencies

6.2.4 Sensitize Stakeholders and Build their Capacity for Long Term Conservation of Owls

Issues

Limited conservation knowledge, participatory habitat monitoring.

Rationale

Owl are one of the most illegally hunted/traded bird groups in Nepal (Acharya and Ghimirey 2017). Habitat loss, high rate of hunting/trade pressure and negative social beliefs are major threats to all the species of owls. All these threats have a cumulative impact on the status of owl species which have negative bearing on their conservation. All the aforementioned threats are closely related to humans and thus need collaboration with a broad range of stakeholders with local people at the center for long term conservation of owls and their habitat.

Outputs

1. Conservation stakeholders widely sensitized on owl conservation issues,
2. Owl conservation issues incorporated in management/work/operational plans of all conservation agencies, and
3. Trained stakeholders in owl monitoring and habitat management.

Actions

1. Organise owl conservation camps in major trade routes,
2. Initiate 'National Owl Conservation Day' and continue 'Nepal Owl Festival',
3. Produce and disseminate owl conservation awareness materials for wider audience (print, audio and video),
4. Organise local and national information sharing workshops,
5. Collaborate with conservation agencies to streamline owl conservation issues in their respective work/operation plans,
6. Disseminate sanction provision in case local people found guilty in illegal hunting and trade of owls,
7. Conduct training on owl rescue, handling and release,
8. Organise forest fire control training for PA staffs, Community Forest (CF), Buffer Zone Community Forest (BZCF) and community based anti-poaching unit (CBAPU) members,
9. Train people involved in rescue or rehabilitation of wildlife including owls,
10. Initiate a pilot project on community based owl monitoring system,
11. Sensitize and engage non-conventional conservation partners such as media houses, corporate and private sector in owl conservation,

12. Initiate community outreach program for farmers from Lumbini, Pokhara, Koshi and Bhaktapur,
13. Conduct workshops targeting University students to encourage them in owl research and conservation,
14. Display Owl conservation materials at existing museum,
15. Establish Owl conservation museum in and around Chitwan National Park,
16. Establish and promote owl conservation park/center,
17. Initiate digital campaign for owl conservation issues,
18. Establish National Owl Conservation Award,
19. Declare owl conservation ambassadors at various levels,
20. Support existing rescue and rehabilitation centers for owls technically and financially,
21. Support province/local based mini zoos technically, and
22. Provide expertise and equipment required for rescue.

6.2.5 Build Partnership at Local, National and International Level

Issues

Limited coordination and cooperation at all levels.

Rationale

Collaboration is an important aspect of any conservation initiatives and owl conservation is not an exception. Hence partnership building will be important to conserve owls in Nepal. Partnership at policy level will be vital in framing owl favourable policies and guidelines while at local level it will be essential to form partnership for implementing conservation initiatives. In order to achieve this, identification and categorization of stakeholders is important. A framework on how to cooperate and collaborate with each stakeholders and at which level would also be an important task. Hence partnership at all levels will have to be built and maintained. International partnership is mandatory to combat with the transboundary owl trade in Nepal and neighboring countries.

Outputs

1. Network and coordination with local, national and international conservation organizations increased, and
2. Performance of enforcement agencies enhanced.



Actions

1. Form new and strengthen existing eco-clubs, women's groups, community-based organizations (CBOs) for more collaboration at local level for anti-poaching activities,
2. Advocate existing CBAPUs to incorporate illegal owl hunting and trade issues in their agenda,
3. Discuss owl conservation issues in regular coordination meetings between stakeholders (Federal, Provincial and Local),
4. Highlight and share owl conservation issues at periodic trans-boundary coordination meetings, and
5. Coordinate with government enforcement agencies to deter poaching and illegal owl trade.

7.0 PLAN IMPLEMENTATION AND MONITORING

7.1 Implementing Agency

DNPWC will take the responsibility of overall implementation of the OCAP and will undertake the activities inside the Protected Areas while DFSC will support the implementation through the relevant agency of the state government i.e. Ministry of Industry, Tourism, Forest and Environment. Local government will play an important role in executing the actions mentioned in the plan. In addition, the conservation partner organizations will also contribute to implement the action plan.

The researches and studies will be conducted by Bird Conservation Nepal (BCN), Friends of Nature (FON) Nepal, National Trust for Nature Conservation (NTNC), IUCN Nepal, World Wide Fund for Nature (WWF) Nepal, Zoological Society of London (ZSL) Nepal and school/college/Universities in partnership and coordination with DNPWC and DFSC. Similarly, other research organizations will also be encouraged to support and conduct research on owls. Technical and financial support from conservation partners such as NTNC, IUCN Nepal, WWF Nepal, ZSL Nepal and BCN will be acquired for the effective implementation of the action plan. Besides, state and local government, Buffer Zone Management Committee, Buffer Zone User's Committee and local communities, CBAPUs, security forces and various government and non-government agencies will also have great contribution in the implementation of this action plan. Community forest users' group/committee are one of the best grassroots organization to implement action plan along with other community based organisations like youth clubs and mother groups.

7.2 Financial Plan

Total estimated cost for the implementation of the action plan for 10 years is NPR **110,150,000** (One hundred ten million and one hundred fifty thousand). The fund will be allocated from government regular budget, existing conservation partners such as NTNC, IUCN Nepal, WWF Nepal, and ZSL Nepal. Other national conservation organizations including local and provincial governments will be encouraged to fund for the implementation of the plan. Detail breakdown of the budget is presented in Appendix-4. The summary of the indicative budget is given below (Table 2).

Table 2: Summary of the indicative budget

Objectives	Budget (NPR)	Percentage contribution
Objective 1: Enhance the quality of habitat	19,100,000	17
Objective 2: Promote scientific research to enhance knowledge	28,900,000	26
Objective 3: Reduce illegal hunting and trade	7,200,000	7
Objective 4: Sensitize stakeholders and build their capacity for long term conservation of owls	45,850,000	42
Objective 5: Build partnership at local, national and international level	9,100,000	8
Total budget	110,150,000	100

7.3 Monitoring and Review of the Plan Implementation

The DNPWC, DFSC, PA managers, provincial governments, local governments and concerned DFOs will conduct and compile all their progress and present to central level review meeting annually. Data sharing mechanism from DFO to the province and central level should be facilitated. Review will be focused on the achievements made on planned activities in every fiscal year, issues and challenges while implementing the action plan and development of a detailed work plan for forthcoming year. Major conservation partners will be involved in the review meeting.

A five year mid-term and final review of the action plan will be conducted by a team of independent experts who will be outsourced by the DNPWC and DFSC. Both the mid-term and final review findings will be shared in national level workshops.



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BHIM GHIMIRE



- Acharya, R. and Ghimirey, Y. 2009. Assessment of status, threats and the ethno-ornithological relationship and its extension for the conservation of owls in Nepal. Unpublished Report submitted to World Owl Trust, UK.
- Acharya, R. and Ghimirey, Y. 2017. *Owl: Clever or Dumb?* Friends of Nature and Rufford Small Grants. Kathmandu, Nepal.
- Ahmed, A. 2010. Imperiled custodians of the night. A study on the illegal trade, trapping and use of owls in India. TRAFFIC India/WWF India. New Delhi, India
- Barber-Meyer, S.M., Jnawali, S.R., Karki, J.B., Khanal, P., Lohani, S., Long, B., Mackenzie, D.I., Pandav, B., Pradhan, N.M.B., Shrestha, R., Subedi, N., Thapa, G., Thapa, K. and Wikramanayake. 2012. Influence of prey depletion and human disturbance on Tiger occupancy in Nepal. *Journal of Zoology*. doi:10.1111/j.1469-7998.2012.00956.x
- BCN and DNPWC 2011. *The state of Nepal's birds 2010*. Bird Conservation Nepal and Department of National Parks and Wildlife Conservation. Kathmandu
- BirdLife International 2016. *Tyto alba*. The IUCN Red List of Threatened Species 2016: e.T22688504A86854321. <https://bit.ly/30isiLo> Downloaded on 18 September 2019.
- CITES 2019. Checklist of CITES species. Retrieved from <https://bit.ly/3hegJfb>
- DFRS 2015. State of Nepal's Forests. Forest Resource Assessment (FRA) Nepal, Department of Forest Research and Survey (DFRS). Kathmandu, Nepal.
- DNPWC 1973. Department of National Park and Wildlife Conservation Act 1973, fifth amendment.
- Duncan, J.R. 2003. *Owls of the World: their life, behavior and survival*. A Firefly Book (U.S.) Inc. PP 319.
- GC, S., Acharya, R. and Ghimirey, Y. 2017. *Owls of Nepal*. Friends of Nature and Rufford Small Grants. Kathmandu, Nepal.
- Geiger, F., Bengtsson, J., Berendse, F., Weisser, W.W., Emmerson, M., Morales, M.B., Cierienger, P., Liira, J., Tscharnkte, T., Winqvist, C., Eggers, S., Bommarco, R., Paart, T., Bretagnolle, V., Plantegenest, M., Clement, L.W., Dennis, C., Palmer, C. and Inchuasti, P. 2010. Persistent negative effects of pesticides on biodiversity and biological control potential on European farmland. *Basic and Applied Ecology*, 11: 97-105.
- Gosai, K.R., Koju, N.P. and Karmacharya, D.K. 2012. Local perception about owls in Nepal-A case study in Bhaktapur district. Report submitted to Friends of Nature.
- Gurung, S. 2015. Effects of land use and land cover on occurrence of Barn Owl in Kathmandu Valley, Nepal. A thesis submitted in partial fulfillment of MSc, Central Department of Zoology, Kathmandu, Nepal.
- Hodgson, B. H. 1829. Notes and original watercolour paintings of the birds of Nepal, Tibet and India, held in the Zoological Society of London Library. Unpublished.
- Hodgson, B. H. 1844. Catalogue of Nipalese birds, collected between 1824 and 1844. In Gray, J. E., Zoological Miscellany
- Inskipp, C. and Inskipp, T.P. 1985. A guide to the birds of Nepal. London: Croom Helm.

- Inskipp C., Baral H. S., Phuyal S., Bhatt T. R., Khatiwada M., Inskipp, T, Khatiwada A., Gurung S., Singh P. B., Murray L., Poudyal L. and Amin R. 2016. The status of Nepal's Birds: The national red list series. Zoological Society of London, UK.
- Kan, I., Mtro, Y., Horvitz, N., Kimhi, A., Leshem, Y., Yom-Tov, Y. and Nathan, R. 2013. Agricultural Rodent control using Barn Owl: Is it profitable?. *American journal of Agricultural Economics*, 96: 733–752; doi: 10.1093/ajae/aat097
- Khadka, M. 2016. Ethno-ornithological Study of Owls in Hemja of Kaski District, Nepal. A Project Paper submitted for partial fulfillment of the requirement of Bachelor of Science in Forestry Degree, Tribhuvan University, Institute of Forestry, Hetauda, Nepal.
- McClure, R. 2010. "Super-Toxic" Rat Poison Kills Owls, Scientific American. Published on December 13, 2010
- MoFE 2018. *National Forest Policy*. Ministry of Forest and Environment. Kathmandu, Nepal.
- MoFSC 2014. Nepal Biodiversity Strategy and Action Plan (2014-2020). Ministry of Forests and Soil Conservation, Nepal.
- Nepaune, D., Kunwar, S., Bohara, A.K., Risch, T.S. and Johnson, R.L. 2017. Willingness to pay for mitigating human-elephant conflict by residents of Nepal. *Journal of Nature Conservation*, 36: 65-76.
- Romulo, C., Ingalls, J., Sheffield, S.R., Johnson, D.H. and Eves, H.E. (Submitted). Global Distribution, Diversity, Conservation Hotspots, and Support for Owls as a Biodiversity Indicator Standard.
- Sharma, D.R., Thapa, R.B., Manandhar, H.K., Shrestha, S.M. and Pradhan, S.B. 2012. Use of Pesticides in Nepal and Impacts on Human Health and Environment. *Journal of Agriculture and Environment*, 13: 67-74.
- Subedi, A. 2019. Investigating the nesting and roosting habitat characteristics of Asian Barred Owlet (*Glaucidium cuculoides*) in Raghuganga, Myagdi district. Report submitted to Friends of Nature.
- Subedi, N., Lamichhane, B.R., Amin, R., Jnawali, S.R. and Jhala, Y.V. 2017. Demography and viability of the largest population of one-horned rhinoceros in Nepal. *Global Ecology and Conservation*, 12: 241-252.
- UNEP 2001. Nepal: State of the Environment 2001. United Nations Environment Programme, Thailand.
- Wagle, S. 2012. Local perception about owls in Pokhara. Research report submitted to Friends of Nature. Kathmandu, Nepal.



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PRASHANT PANSARI



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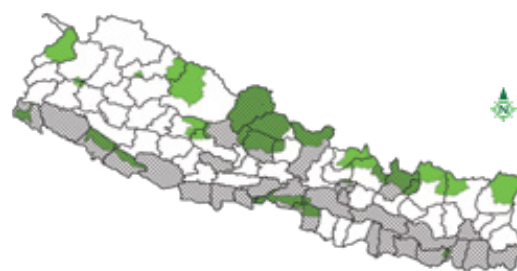
APPENDIX 1



SPECIES PROFILE

**ONLY THE PROFILES FOR SPECIES THAT ARE KNOWN TO BE
RECORDED COMMONLY IN NEPAL HAVE BEEN PROVIDED.**

BARN OWL



Protected Areas
 Distribution

English Name	Barn Owl
Nepali Name	गोटे लाटोकोसेरो
Scientific Name	<i>Tyto alba</i>
Altitude	Upper limit: 2100 m; lower limit: 75 m
Distribution in Districts	Banke, Bardia, Bhaktapur, Chitwan, Dang, Dhankuta, Dhanusha, Dolakha, Gorkha, Gulmi, Jhapa, Kailali, Kanchanpur, Kapilbastu, Kaski, Kathmandu, Lalitpur, Mahottari, Makwanpur, Morang, Myagdi, Nawalparasi, Parsa, Rupandehi, Saptari, Sindhuli, Siraha, Sunsari and Udayapur
Distribution in Protected Areas	Annapurna Conservation Area, Banke National Park, Bardia National Park, Chitwan National Park, Gaurishankar Conservation Area, Koshi Tappu Wildlife Reserve, Parsa National Park and Shuklaphanta National Park
Global Distribution	Largely extends throughout the world
National Status	Vulnerable
National Population Estimation	<1000
Global Population Estimation	222,000-460,000 mature individuals
Threats	Destruction of nests, Illegal hunting and trade, excessive use of pesticides, modification of old houses to new one which are un-friendly to owls, house owners disliking them for piling rodents

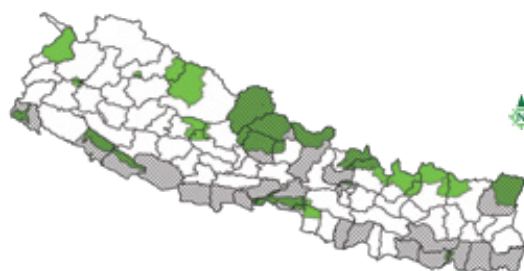
EASTERN GRASS OWL



 Protected Areas
 Distribution

English Name	Eastern Grass Owl
Nepali Name	घाँसे लाटोकोसेरो
Scientific Name	<i>Tyto longimembris</i>
Altitude	Upper limit: 225 m; lower limit: 150 m
Distribution in Districts	Bardia, Chitwan and Kanchanpur
Distribution in Protected Areas	Bardia National Park, Chitwan National Park and Shuklaphanta National Park
National Status	Critically Endangered
National Population Estimation	<10
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, illegal hunting and trade, grassland fire, livestock pressure

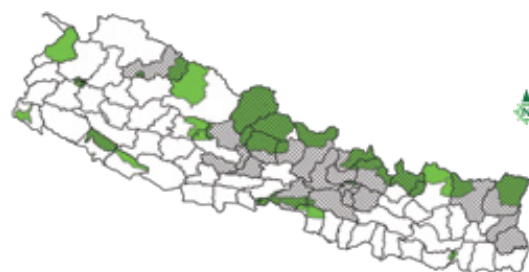
SHORT EARED OWL



 Protected Areas
 Distribution

English Name	Short-eared Owl
Nepali Name	लघु कर्ण लाटोकोसेरो
Scientific Name	<i>Asio flammeus</i>
Altitude	Upper limit: 4130 m; lower limit: 75 m
Distribution in Districts	Banke, Bardia, Chitwan, Dang, Gorkha, Jhapa, Kanchanpur, Kapilbastu, Kaski, Kathmandu, Manang, Morang, Nawalparasi, Nuwakot, Rautahat, Rupandehi, Saptari, Sarlahi, Siraha, Sunsari, Taplejung and Udayapur
Distribution in Protected Areas	Annapurna Conservation Area, Banke National Park, Bardia National Park, Chitwan National Park, Lamtang National Park, Manaslu Conservation Area and Shuklaphanta National Park
National Status	Vulnerable
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	109000 - 372000 mature individuals
Threats	Habitat loss, illegal hunting and trade excessive use of pesticides, grassland fire, livestock pressure

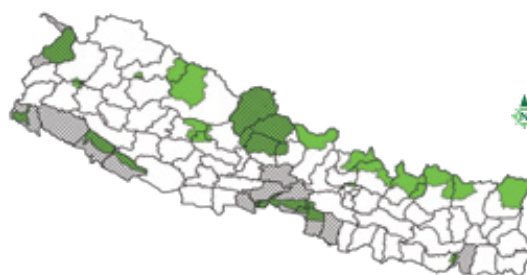
MOUNTAIN SCOPS OWL



 Protected Areas
 Distribution

English Name	Mountain Scops Owl
Nepali Name	लेकाली उलुक
Scientific Name	<i>Otus spilocephalus</i>
Altitude	Upper limit: 2745 m; lower limit: 1525 (-970) m
Distribution in Districts	Bhaktapur, Chitwan, Dhading, Gorkha, Gulmi, Ilam, Kaski, Kathmandu, Kavrepalanchok, Lalitpur, Lamjung, Makwanpur, Mugu, Mustang, Myagdi, Nuwakot, Panchthar, Parbat, Rasuwa, Sankhuwasabha, Sindhupalchok, Syangja and Taplejung
Distribution in Protected Areas	Annapurna Conservation Area, Bardia National Park, Gaurishankar Conservation Area, Khaptad National Park and Lamtang National Park
National Status	Least Concern
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, illegal hunting and trapping, forest fire, loss of old trees suitable for nesting and roosting

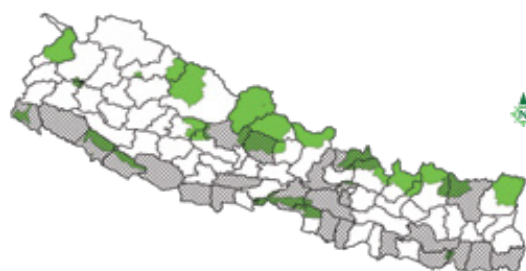
ORIENTAL SCOPS OWL



 Protected Areas
 Distribution

English Name	Oriental Scops Owl
Nepali Name	लोखर्क उलुक
Scientific Name	<i>Otus sunia</i>
Altitude	Upper limit: 365 (-2800) m; lower limit: 100 m
Distribution in Districts	Banke, Bara, Bardia, Chitwan, Kailali, Kanchanpur, Mustang, Nawalparasi, Parsa, Sunsari and Tanahun
Distribution in Protected Areas	Annapurna Conservation Area, Banke National Park, Bardia National Park, Chitwan National Park, Parsa National Park and Shuklaphanta National Park
National Status	Data Deficient
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, illegal hunting, forest fire, loss of old trees suitable for nesting and roosting

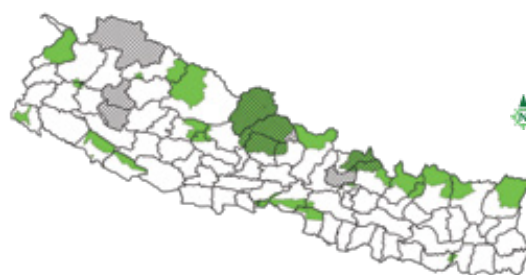
COLLARED SCOPS OWL



■ Protected Areas
 Distribution

English Name	Collared Scops Owl
Nepali Name	चित्री उलुक
Scientific Name	<i>Otus bakkamoena</i>
Altitude	Upper limit: 1525 m; lower limit: 185 m
Distribution in Districts	Banke, Bara, Bardia, Chitwan, Dang, Dhading, Dhanusa, Jhapa, Kailali, Kanchanpur, Kapilbastu, Kaski, Kathmandu, Lalitpur, Makwanpur, Morang, Myagdi, Palpa, Rasuwa, Rautahat, Rupandehi, Sankhuwasabha, Saptari, Sunsari and Udayapur
Distribution in Protected Areas	Bardia National Park, Chitwan National Park, Khaptad National Park, Koshi Tappu Wildlife Reserve, Lamtang National Park, Makalu Barun National Park and Parsa National Park
National Status	Least Concern
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, illegal hunting and trapping, use of catapult, loss of old trees, loss of nesting trees in and around settlement

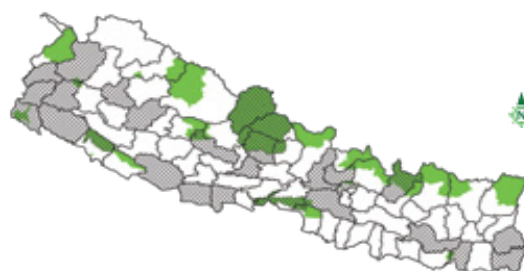
EURASIAN EAGLE OWL



Protected Areas
 Distribution

English Name	Eurasian Eagle Owl
Nepali Name	हिमाली हाप्सिलो
Scientific Name	<i>Bubo bubo</i>
Altitude	Upper limit: 5000 m; lower limit: 3700 m
Distribution in Districts	Dailekh, Humla, Kalikot, Manang, Mustang and Nuwakot
Distribution in Protected Areas	Annapurna Conservation Area and Lamtang National Park
National Status	Data Deficient
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	100,000-500,000 mature individuals
Threats	Illegal hunting and trade, use of it's body parts

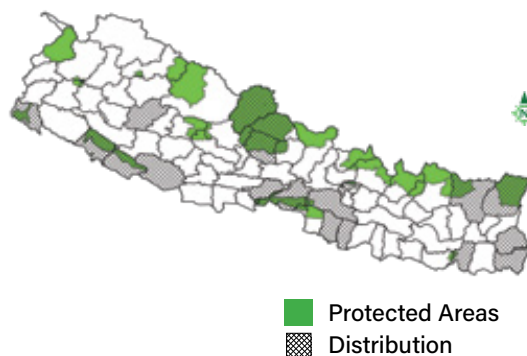
ROCK EAGLE OWL



 Protected Areas
 Distribution

English Name	Rock Eagle Owl
Nepali Name	हाप्सिलो
Scientific Name	<i>Bubo bengalensis</i>
Altitude	Upper limit: 1800 (-2100) m; lower limit: 150 m
Distribution in Districts	Baglung, Baitadi, Bajhang, Dadeldhura, Dang, Dhading, Dolakha, Doti, Ilam, Jajarkot, Jhapa, Kailali, Kalikot, Kanchanpur, Kapilbastu, Kaski, Kathmandu, Makwanpur, Nuwakot, Rupandehi, Sunsari, Syangja and Udayapur
Distribution in Protected Areas	Annapurna Conservation Area, Bardia National Park and Chitwan National Park
National Status	Vulnerable
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Illegal hunting and trade

SPOT-BELLIED EAGLE OWL



English Name	Spot-bellied Eagle Owl
Nepali Name	महाकौशिक
Scientific Name	<i>Bubo nipalensis</i>
Altitude	Upper limit: 2150 m; lower limit: 250 m
Distribution in Districts	Banke, Bara, Bardia, Chitwan, Dang, Ilam, Jajarkot, Jhapa, Kanchanpur, Kaski, Kathmandu, Makwanpur, Nawalpur, Rautahat, Sankhuwasabha, Sunsari and Taplejung
Distribution in Protected Areas	Annapurna Conservation Area, Banke National Park, Bardia National Park and Chitwan National Park, Shuklaphanta National Park
National Status	Endangered
National Population Estimation	50-250
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, loss of old trees used for roosting and nesting, illegal hunting, trapping and trade, keeping as pets

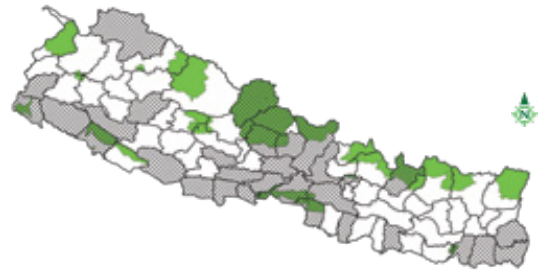
DUSKY EAGLE OWL



Protected Areas
 Distribution

English Name	Dusky Eagle Owl
Nepali Name	भासोलुक
Scientific Name	<i>Bubo coromandus</i>
Altitude	Upper limit: 300 m; lower limit: 75 m
Distribution in Districts	Chitwan, Kailali and Kanchanpur
Distribution in Protected Areas	Bardia National Park, Chitwan National Park and Koshi Tappu Wildlife Reserve
National Status	Critically Endangered
National Population Estimation	10-40
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, loss of old trees used for nesting and roosting, eutrophication in lakes and ponds, loss of prey due to excessive use of pesticides, Illegal hunting and trade

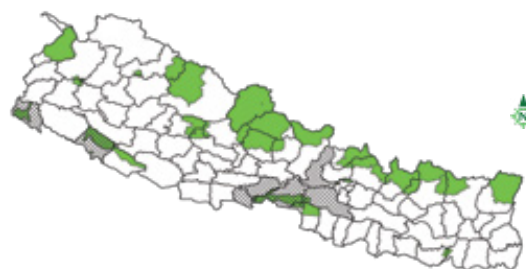
BROWN FISH OWL



■ Protected Areas
 Distribution

English Name	Brown Fish Owl
Nepali Name	मलहा हुचील
Scientific Name	<i>Ketupa zeylonensis</i>
Altitude	Upper limit: 1525 (-1900) m; lower limit: 75 m
Distribution in Districts	Bardia, Chitwan, Dadeldhura, Dang, Dhading, Dhanusa, Dolakha, Gorkha, Gulmi, Humla, Ilam, Jajarkot, Jhapa, Kailali, Kanchanpur, Kapilbastu, Kaski, Kathmandu, Lamjung, Makwanpur, Morang, Nawalparasi, Nawalpur, Palpa, Parsa, Rautahat, Rupandehi, Sunsari, Surkhet and Tanahun
Distribution in Protected Areas	Annapurna Conservation Area, Bardia National Park, Chitwan National Park, Koshi Tappu Wildlife Reserve and Parsa National Park
National Status	Vulnerable
National Population Estimation	1000-3000
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, loss of mature trees, eutrophication, use of pesticide and less available the prey species, illegal hunting and trade, keeping as pets

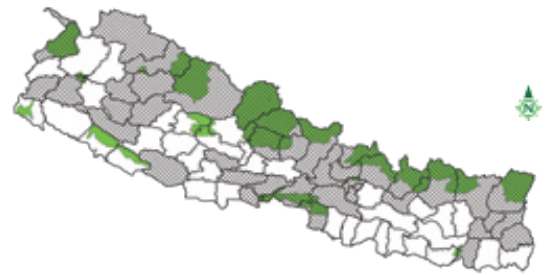
TAWNY FISH OWL



■ Protected Areas
 Distribution

English Name	Tawny Fish Owl
Nepali Name	कैलो मलाहा हुचील
Scientific Name	<i>Ketupa flavipes</i>
Altitude	Upper limit: 305 m; lower limit: 250 m
Distribution in Districts	Bardia, Chitwan, Dhading, Kanchanpur, Makwanpur, Nawalparasi and Nawalpur
Distribution in Protected Areas	Bardia National Park, Chitwan National Park and Shuklaphanta National Park
National Status	Critically Endangered
National Population Estimation	<20
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Forest destruction, loss of wet lands, loss of mature trees, use of poison for fishing, illegal trade, keeping as pets

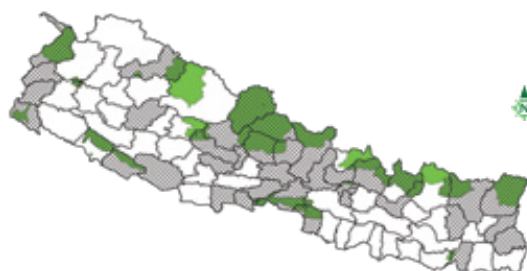
COLLARED OWLET



 Protected Areas
 Distribution

English Name	Collared Owlet
Nepali Name	सानो डुन्डुल
Scientific Name	<i>Glaucidium brodiei</i>
Altitude	Upper limit: 3035 (-3500) m; lower limit: 610 (-250) m
Distribution in Districts	Bhaktapur, Chitwan, Dadeldhura, Dailekh, Dang, Darchula, Dhading, Dhankuta, Dolakha, Dolpa, Doti, Gorkha, Gulmi, Humla, Ilam, Jajarkot, Jumla, Kalikot, Kaski, Kathmandu, Lalitpur, Lamjung, Makwanpur, Manang, Mugu, Mustang, Nawalparasi, Nuwakot, Palpa, Panchthar, Parsa, Ramechhap, Rasuwa, Sankhuwasabha, Sindhupalchok, Solukhumbu, Sunsari, Surkhet, Taplejung and Terhathum
Distribution in Protected Areas	Annapurna Conservation Area, Chitwan National Park, Khaptad National Park, Lamtang National Park and Parsa National Park
National Status	Least Concern
National Population Estimation	Not assessed
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, illegal hunting, keeping as pet

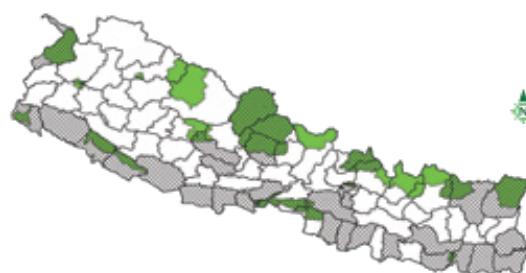
ASIAN BARRED OWLET



Protected Areas
Distribution

English Name	Asian Barred Owlet
Nepali Name	तुलो डुन्दुल
Scientific Name	<i>Glaucidium cuculoides</i>
Altitude	Upper limit: 2000 (-2745) m; lower limit: 245 m
Distribution in Districts	Baglung, Baitadi, Banke, Bhaktapur, Bhojpur, Chitwan, Dadeldhura, Dang, Darchula, Dhading, Gorkha, Gulmi, Ilam, Jajarkot, Kanchanpur, Kaski, Kathmandu, Lalitpur, Lamjung, Manang, Mugu, Mustang, Myagdi, Nawalparasi, Nawalpur, Nuwakot, Panchthar, Parsa, Parbat, Ramechhap, Rupandehi, Sankhuwasabha, Sindhupalchok, Sunsari, Tanahun and Taplejung
Distribution in Protected Areas	Bardia National Park, Chitwan National Park, Gaurishankar Conservation Area, Khaptad National Park, Makalu Barun National Park and Parsa National Park
National Status	Least Concern
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, Loss of old trees suitable for nesting and roosting, forest fire, illegal hunting and trade,

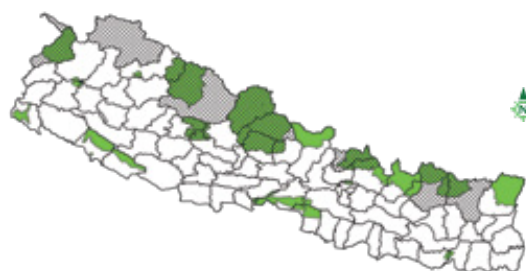
JUNGLE OWLET



 Protected Areas
 Distribution

English Name	Jungle Owlet
Nepali Name	डुन्डुल
Scientific Name	<i>Glaucidium radiatum</i>
Altitude	Upper limit: 1600 m; lower limit: 915 m
Distribution in Districts	Baglung, Banke, Bara, Bardia, Dang, Darchula, Dhanusa, Gulmi, Ilam, Jhapa, Kailali, Kanchanpur, Kapilbastu, Kaski, Kathmandu, Lalitpur, Makwanpur, Morang, Nawalparasi, Nawalpur, Rautahat, Rupandehi, Sankhuwasabha, Saptari, Sarlahi, Sunsari, Taplejung and Udayapur
Distribution in Protected Areas	Annapurna Conservation Area, Bardia National Park, Chitwan National Park, Lamtang National Park, Makalu Barun National Park, Parsa National Park and Shivapuri Nagarjun National Park
National Status	Least Concern
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Forest destruction, illegal hunting and trade, trapping, use of catapult

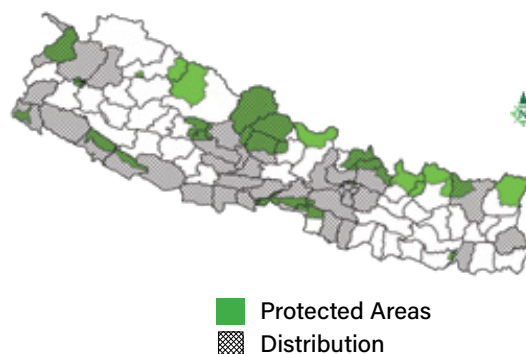
LITTLE OWL



■ Protected Areas
■ Distribution

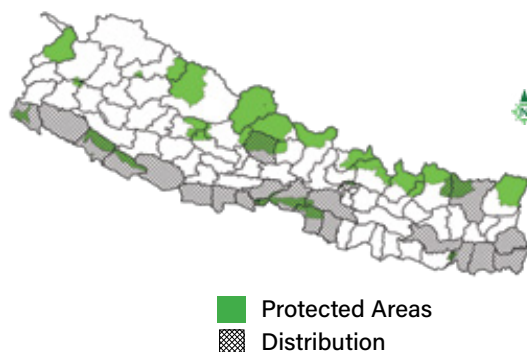
English Name	Little Owl
Nepali Name	हिमाली कोचलगाँडे
Scientific Name	<i>Athene noctua</i>
Altitude	Upper limit: 4950 m; lower limit: 2715 (2300) m
Distribution in Districts	Darchula, Dolpa, Humla, Manang, Mustang, Rasuwa, Sankhuwasabha and Solukhumbu
Distribution in Protected Areas	Annapurna Conservation Area, Dhorpatan Hunting Reserve, Lamtang National Park, Makalu Barun National Park and Shey Phoksundo National Park
National Status	Least Concern
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	5 – 10 million mature individuals
Threats	Illegal hunting and trade

SPOTTED OWLET



English Name	Spotted Owlet
Nepali Name	कोचलगाँडे लाटोकोसेरो
Scientific Name	<i>Athene brama</i>
Altitude	Upper limit: 1525 (2745) m; lower limit: 75 m
Distribution in Districts	Baglung, Bajhang, Bajura, Banke, Bara, Bardia, Bhaktapur, Chitwan, Dadeldhura, Dang, Darchula, Dhading, Dhanusha, Gulmi, Ilam, Jhapa, Kanchanpur, Kailali, Kapilbastu, Kaski, Kathmandu, Kavrepalanchok, Lalitpur, Mahottari, Makwanpur, Morang, Myagdi, Nawalparasi, Nawalpur, Nuwakot, Palpa, Parbat, Rautahat, Rupandehi, Sankhuwasabha, Saptari, Sindhupalchok, Sunsari, Syangja and Udayapur
Distribution in Protected Areas	Annapurna Conservation Area, Bardia National Park, Chitwan National Park, Dhorpatan Hunting Reserve, Khaptad National Park, Lamtang National Park, Parsa National Park and Shivapuri Nagarjun National Park
National Status	Least Concern
National Population Estimation	Not assessed
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Illegal hunting and trade, loss of prey species due to excessive use of pesticides, modern ways of constructing houses not favourable for owls

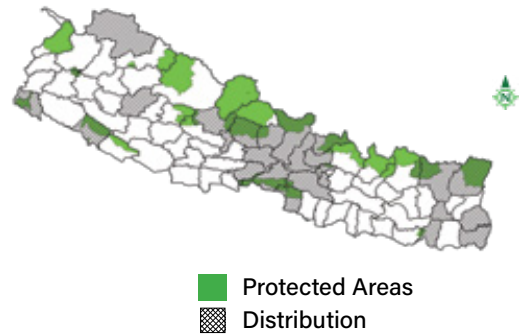
BROWN HAWK OWL



English Name	Brown Hawk Owl
Nepali Name	कालपेचक
Scientific Name	<i>Ninox scutulata</i>
Altitude	Upper limit: 1500 m; lower limit: 75 m
Distribution in Districts	Banke, Bara, Bardia, Chitwan, Dang, Ilam, Jhapa, Kailali, Kanchanpur, Kapilbastu, Kaski, Kathmandu, Makwanpur, Morang, Nawalparasi, Nawalpur, Parsa, Rupandehi, Sankhuwasabha, Sunsari and Udayapur
Distribution in Protected Areas	Bardia National Park, Koshi Tappu Wildlife Reserve, Makalu Barun National Park and Shivapuri Nagarjun National Park
National Status	Least Concern
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, loss of mature trees, loss of prey species due to excessive use of pesticides, Illegal hunting and trade

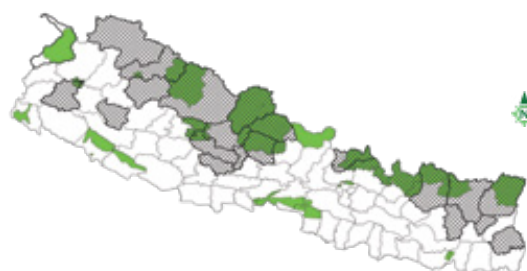


BROWN WOOD OWL



English Name	Brown Wood Owl
Nepali Name	चस्मे उलुक
Scientific Name	<i>Strix leptogrammica</i>
Altitude	Upper limit: 3100 (-3300) m; lower limit: 150 m
Distribution in Districts	Bardia, Chitwan, Dhading, Dhankuta, Gorkha, Humla, Ilam, Jajarkot, Jhapa, Kanchanpur, Kaski, Kathmandu, Lalitpur, Lamjung, Makwanpur, Myagdi, Nawalpur, Nuwakot, Parsa, Parbat, Rasuwa, Sankhuwasabha, Sunsari, Tanahun and Taplejung
Distribution in Protected Areas	Chitwan National Park, Khaptad National Park, Makalu Barun National Park, Parsa National Park and Shuklaphanta National Park
National Status	Vulnerable
National Population Estimation	<700
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss and degradation, forest fire, loss of mature trees used for roosting and nesting, illegal hunting and trade

HIMALAYAN WOOD OWL



 Protected Areas
 Distribution

English Name	Himalayan Wood Owl
Nepali Name	कैलो पहाडी उलुक
Scientific Name	<i>Strix niviculum</i>
Altitude	Upper limit: 4000 m; lower limit: 2000 m
Distribution in Districts	Baglung, Bhojpur, Dailekh, Dolpa, Doti, Gulmi, Humla, Ilam, Jumla, Kaski, Manang, Mugu, Mustang, Myagdi, Parbat, Rasuwa, Sankhuwasabha, Solukhumbu, Taplejung and Terhathum
Distribution in Protected Areas	Annapurna Conservation Area, Dhorpatan Hunting Reserve, Gaurishankar Conservation Area, Khaptad National Park and Lamtang National Park
National Status	Least Concern
National Population Estimation	Not assessed
Trend	Believed to be decreasing
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Habitat loss, illegal hunting and trade, loss of mature trees.

MOTTLED WOOD OWL



 Protected Areas
 Distribution

English Name	Mottled Wood Owl
Nepali Name	कब्रार लाटोकोसेरो
Scientific Name	<i>Strix ocellata</i>
Altitude	Upper limit: 120 m
Distribution in Districts	Bardia, Chitwan, Nawalparasi, Nawalpur and Rupandehi
Distribution in Protected Areas	Chitwan National Park
National Status	Data Deficient
National Population Estimation	Not assessed
Global Status	Least Concern
Global Population Estimation	Not assessed
Threats	Forest destruction, loss of mature trees used for roosting and nesting, chasing and killing because of superstition



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TASHI R. GHALE





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DHAN BAHADUR CHAUDHARY



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UTSAB JUNG THAPA



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ROAR SOLHEIM

Goal: Ensure viable population of owls and conserve their habitat through participatory approach.

Hierarchy of Objectives		Objectively Verifiable Indicator	Means of Verification	Risk/Assumption
Objective 1: Enhance the quality of habitat				
Output 1.1. Degraded owl habitats identified and restored	More sightings/encounters of rare or endangered owl species	Reports from locals, Scientific articles, Media reports	All conservation stakeholders carry out their share of responsibilities	
Output 1.2. Artificial nests for owls created with proper intervention and natural habitat managed	More sightings/number of recolonized species recorded	Reports from locals, Scientific articles, Media reports, Mid-term evaluation report	All conservation stakeholders carry out their share of responsibilities	
Actions				
• Manage the quality of degraded grasslands • Control forest and grassland fires • Regulate the overgrazing activities in western Terai • Reduce eutrophication in wetlands • Conserve old trees in community forests and protected areas • Plantation in degraded areas • Advocate for the implementation of Environmental Impact Assessment reports in mega projects/infrastructure • Promote artificial nests in semi urban areas and farmlands (Lumbini, Pokhara, Koshi and Bhaktapur) • Promote and coordinate for establishing owl conservation areas at provincial and local level				
Objective 2: Promote scientific research to enhance knowledge				
Output 2.1. Standardized monitoring system for owls across Nepal developed	National protocol on owl research and monitoring developed Baseline research stations established at three geographical regions	Owl research and monitoring protocol document	Stakeholders fully collaborate in developing the protocol	

Output 2.2. Robust scientific information on ecological/distribution modeling and threat assessment documented	Enhanced knowledge on owl ecology, habitats, distribution and population	Annual reports, Research report and thesis, Journal articles, Potential habitat map	Projected funding secured
Output 2.3. The intensity and magnitude of their illegal hunting and trade documented	Every facet of hunting and trade of owls known	Research report, Media news/articles	Factual information on hunting and trade will be collected
Output 2.4. Database on all owl species available at one platform	Centralize database management system in full operation	Fully functioning online database site	Stakeholders and general people share the data
Actions			
- Identify research priority sites for all owl species - Develop monitoring protocol/manual for all owl species. - Carry out species distribution modelling of all owl species. - Assess habitat preference and overlap - Study the land use change and its impact on owl species diversity - Assess population status of critically endangered and endangered owl species - Assess the magnitude, intensity of illegal hunting and trade of owls in Nepal - Establish an owl related centralized online database management system. - Initiate study on the long term impact of pesticides on Barn Owls/Spotted Owlets in semi urban areas and Terai. - Conduct diet composition and food preferences of Barn owl and Spotted Owllet - Establish new long-term monitoring stations both inside and outside PAs in three physio-geographic regions (Terai, mid-hill and high mountain) - Conduct regular monitoring at established monitoring stations in every five years - Document ethno-owl relations in the three physio-geographic regions - Study the impact of climate change on various ecological aspects of owls such as shift and modification in habitats, food and breeding habits, etc. - Impact assessment of artificial nests on local agriculture production - Success rate/occupancy assessment of artificial nests - Use satellite tagging to monitor owls (endangered and critically endangered)			
Objective 3: Reduce illegal hunting and trade			
Output 3.1. Illegal hunting and trade reduced	Number of seized cases increase and trade intensity reduce	Illegal hunting and trade dynamics report	Enforcement agencies focus on controlling the owls hunting and trade too

Actions				
• Develop information sharing system to support enforcement agencies • Develop mobile apps for enforcement agencies to identify owl species • Ban the use of catapults at local level • Discourage the use of insecticides/pesticides • Provide training and orientation to enforcement agencies on illegal hunting and trade of Owls • Investigate cyber-crime and share with enforcement agencies				
Objective 4: Sensitize stakeholders and build their capacity for long term conservation of owls and their habitat				
Output 4.1. Conservation stakeholders widely sensitized on owl conservation issues	Stakeholders initiate owl conservation efforts	Media coverage on participatory conservation works	Conservation stakeholders respond positively to sensitization efforts	
Output 4.2. Owl conservation issues incorporated in management/work /operational plans of all conservation agencies	Management/work/operational plan of conservation agencies prioritize owl conservation issues	Revised management /work/ operational plans of conservation agencies	Conservation agencies adopt the owl conservation issues with priority	
Output 4.3. Trained stakeholders in owl monitoring and habitat management	Stakeholders initiate monitoring and habitat improved	Filled survey form	Experts properly monitor the monitoring and management activities	
Actions				
• Organize owl conservation camps in major trade routes • Initiate 'National Owl Conservation Day' and continue of 'Nepal Owl Festival' • Produce and disseminate owl conservation awareness materials for wider audience (print, audio and video) • Organise local and national information sharing workshops • Collaborate with conservation agencies to streamline owl conservation issues in their respective work/operation plans • Disseminate sanction provision in case local people found guilty in illegal hunting and trade of owls • Conduct training on owl rescue, handling and release • Organize forest fire control training for PA staffs, CF, BZCF and CBAPU members				

• Train people involved in rescue or rehabilitation of wildlife including owls • Initiate a pilot project on community based owl monitoring system • Sensitize and engage non-conventional conservation partners such as media houses, corporate and private sector in owl conservation • Initiate community outreach program for farmers from Lumbini, Pokhara, Koshi and Bhaktapur. • Conduct workshops targeting University students to encourage them in owl research and conservation • Display owl conservation materials at existing museum • Establish owl conservation museum in and around Chitwan National Park • Establish and promote owl conservation park/center • Initiate digital campaign for the owl conservation issues • Establish National Owl Conservation Award • Declare owl conservation ambassadors at various levels • Support existing rescue and rehabilitation centers for owls technically and financially • Support province/local based mini zoos technically • Provide expertise and the equipment required for rescue				
Objective 5: Build partnership at local, national and international level				
Output 5.1. Network and coordination with local, national and international conservation organizations increased	Number of local, province, national and International networks established	Annual report, Signed MOU, Coordination meeting report	Positive coordination with other stakeholders and development agencies	
Output 5.2. Performance of enforcement agencies enhanced	Decreased owl hunting incidents Increased cases of seizures of live owls	Seizure report, Media news	Stakeholders report hunting and trading incidents	
Actions				
• Form new and strengthen existing eco-clubs, women's groups, CBOs for more collaboration at local level for anti-poaching activities • Advocate existing CBAPUs to incorporate illegal owl hunting and trade issues in their agenda • Discuss owl conservation issues in regular coordination meetings between stakeholders (Federal, Provincial and Local) • Highlight and share owl conservation issues at periodic trans-boundary coordination meetings • Coordinate with government enforcement agencies to deter poaching and illegal owl trade				



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NEIL BOWMAN

APPENDIX 3

TEN YEAR BUDGET FOR OWL CONSERVATION ACTION PLAN

Budget based on the outputs:

Objectives/Outputs	Budget (NPR)
1. Enhance the quality of habitat	19,100,000
2. Promote scientific research to enhance knowledge	28,900,000
3. Reduce illegal hunting and trade	7,200,000
4. Sensitize stakeholders and build their capacity for long term conservation of owls	45,850,000
5. Build partnership at local, national and international level	9,100,000
Total Budget	110,150,000

Appendix 4: Detail Activities and Budget

SN	Activities	Year 1	2	3	4	5	6	7	8	9	10	Total (NPR)
Objective 1: Enhance the Quality of Habitat												
1.1	Manage the quality of degraded grasslands			500,000			700,000			800,000		2,000,000
1.2	Control forest and grassland fires		300,000		400,000		500,000		500,000		500,000	2,200,000
1.3	Regulate the overgrazing activities in western Terai		500,000		500,000		500,000		500,000		500,000	2,500,000
1.4	Reduce eutrophication in wetlands	200,000	300,000	500,000		600,000		700,000		800,000	800,000	3,900,000
1.5	Conserve old trees in community forests and protected areas	200,000		300,000		400,000			700,000		400,000	2,000,000
1.6	Plantation in degraded areas		300,000		300,000		400,000			500,000		1,500,000
1.7	Advocate the implementation of Environmental Impact Assessment reports in mega projects/infrastructures	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000
1.8	Promote artificial nests in semi urban areas and farmlands (Lumbini, Pokhara, Koshi and Bhaktapur)	200,000		200,000		200,000		200,000		200,000		1,000,000
1.9	Promote and coordinate for establishing owl conservation areas at provincial and local level			500,000			700,000			800,000		2,000,000
Objective 2: Promote Scientific Research to Enhance Knowledge												
2.1	Identify research priority sites for all owl species		1,000,000									1,000,000
2.2	Develop monitoring protocol/manual for all owl species		1,200,000									1,200,000
2.3	Carry out species distribution modelling of all owl species			1,500,000								1,500,000
2.4	Assess habitat preference and overlap		250,000		250,000		250,000		250,000		250,000	1,250,000

2.5	Study the land use change and its impact on owl species diversity		200,000						200,000				200,000				600,000
2.6	Assess population status of critically endangered and endangered owl species		1,500,000					1,500,000						1,500,000			4,500,000
2.7	Assess the magnitude, intensity of hunting and trade of owls in Nepal	300,000				300,000						300,000				300,000	1,200,000
2.8	Establish an owl related centralized online database management system.							550,000	100,000		100,000		100,000			100,000	1,050,000
2.9	Study the long term impact of pesticides on Barn Owls/Spotted Owlets in semi urban areas and Terai		300,000						300,000							300,000	1,800,000
2.10	Conduct diet composition and food preferences of Barn Owl and Spotted Owllet		300,000					300,000								300,000	1,200,000
2.11	Establish new long-term monitoring stations both inside and outside PAs in three physiographic regions (Terai, mid-hill and high mountain)	1,800,000										2,000,000					3,800,000
2.12	Conduct regular monitoring at established monitoring stations every five years		600,000										600,000			600,000	1,800,000
2.13	Document ethno-owl relations in the three physio-geographic regions			500,000	500,000	500,000		500,000									1,500,000
2.14	Study the impact of climate change on various ecological aspects of owls such as shift and modification in habitats, food and breeding habits etc.		1,000,000													1,000,000	2,000,000

2.15	Impact assessment of artificial nests on local agricultural production		300,000						300,000							300,000	900,000
2.16	Success rate/occupancy assessment of artificial nests		200,000					200,000						200,000			600,000
2.17	Use satellite tagging to monitor owls (endangered and critically endangered)	1,000,000							1,000,000								3,000,000
Objective 3: Reduce Illegal Hunting and Trade																	
3.1	Develop information sharing system to support enforcement agencies	500,000												500,000			1,000,000
3.2	Develop mobile apps for enforcement agencies to identify owl species					700,000											700,000
3.3	Ban the use of catapults at local level		50,000						50,000							50,000	200,000
3.4	Discourage the use of insecticides/pesticides		100,000		100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000				800,000
3.5	Provide training and orientation to enforcement agencies on controlling illegal hunting and trade of owls	500,000						500,000						500,000			1,500,000
3.6	Investigate cyber-crime and share with enforcement agencies	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000			300,000	3,000,000
Objective 4: Sensitize Stakeholders and Build their Capacity for Long Term Conservation of Owls																	
4.1	Organise owl conservation camps in major trade routes	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000
4.2	Initiate 'National Owl Conservation Day' and continue 'Nepal Owl festival'	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	5,500,000
4.3	Produce and disseminate owl conservation awareness materials for wider audience (print, audio and video)	150,000							150,000							150,000	450,000
4.4	Organise local and national information sharing workshops		500,000							800,000						800,000	2,100,000

4.5	Collaborate with conservation agencies to streamline owl conservation issues in their respective work/operation plans		400,000			400,000		400,000			400,000			400,000		400,000	2,000,000
4.6	Disseminate sanction provision in case local people found guilty in illegal hunting and trade of owls	200,000									200,000					200,000	600,000
4.7	Conduct training on owl rescue, handling and release		100,000						150,000					150,000			400,000
4.8	Organise forest fire control training for PA staffs, CF, BZCF and CBAPU members	500,000		500,000					500,000					500,000		500,000	2,500,000
4.9	Train people involved in rescue or rehabilitation of wildlife including owls			400,000							400,000				400,000		1,200,000
4.10	Initiate a pilot project on community based owl monitoring system	500,000							500,000							500,000	1,500,000
4.11	Sensitize and engage non-conventional conservation partners such as media houses, corporate and private sector in owl conservation	700,000							700,000						800,000		2,200,000
4.12	Initiate community outreach program for farmers from Lumbini, Pokhara, Koshi and Bhaktapur.	200,000							200,000					200,000			600,000
4.13	Conduct workshops targeting University students to encourage them in owl research and conservation	1,000,000	1,000,000	1,000,000		1,000,000			1,000,000				1,000,000			1,000,000	7,000,000
4.14	Display owl conservation materials at existing museum			1,000,000					1,000,000				1,000,000	250,000	250,000	250,000	4,250,000
4.15	Establish owl conservation museum in and around Chitwan National Park		200,000	200,000					200,000				300,000	300,000	300,000	300,000	2,200,000



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PHOTO :
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PHOTO :
ROHIT GIRI



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Owl Conservation Action Plan for Nepal (2020-2029) has been prepared in collaboration with:

Friends of Nature (FON)



Rufford Small Grants for Nature Conservation (RSGs)



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