

Project Update: August 2022

Activities:

1. Camera Trapping

Camera trapping has been completed under the leadership of Department of National Parks and Wildlife Conservation. But data analysis is still in progress.

2. Awareness Program

At the community level which includes marginalised and indigenous community, youth, school students, etc.

a) Youth and School students

Our project conducted clouded leopard conservation school programme at various schools in the Buffer Zone of Chitwan National Park. A total of 300 students of Grade 10 to 12 were provided introductory information about the clouded leopard directly or indirectly.



Figure 1: Clouded leopard information notebook for students and youths



Figure 2: Clouded leopard badge for the participants

b) Marginalized and indigenous community

Marginalised and indigenous community of Chitwan National Park were educated about clouded leopard conservation. They are made aware of clouded leopard, its habits and habitat. We conducted an awareness programme close to the clouded leopard habitat. People's knowledge on clouded leopard is collected with the help of open-ended questionnaire.



Figure: 3: Community awareness program on Clouded leopard conservation

c) Interaction programme between clouded leopard researcher and stakeholder

Interaction programme was conducted between clouded leopard conservation practitioners cum researchers and buffer zone stakeholders of Chitwan National Park. Clouded leopard conservation practitioners cum researchers included officials from National Trust for Nature-Biodiversity Conservation Center and freelancer from wildlife conservation-based organisation of Nepal. On the other side, buffer zone stakeholders included community forest user group members, user committee members, community based anti-poaching unit members, tourism entrepreneurs, local conservation leaders/intellectual and public representatives.

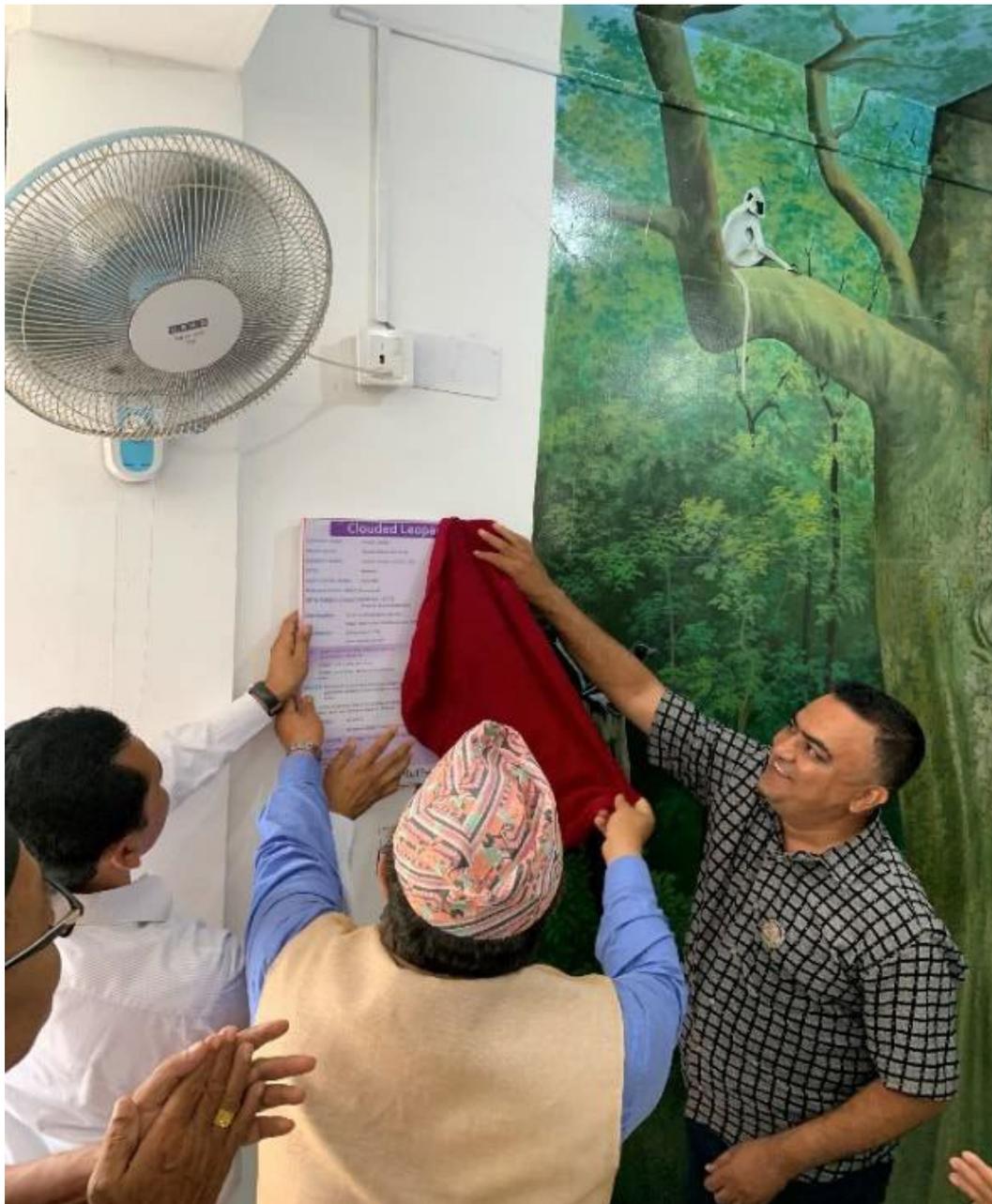


Figure: 4: Chitwan National Park, Buffer Zone Management Committee, Chairperson

unveiling the Clouded leopard statue and information board in Chitwan National Park.

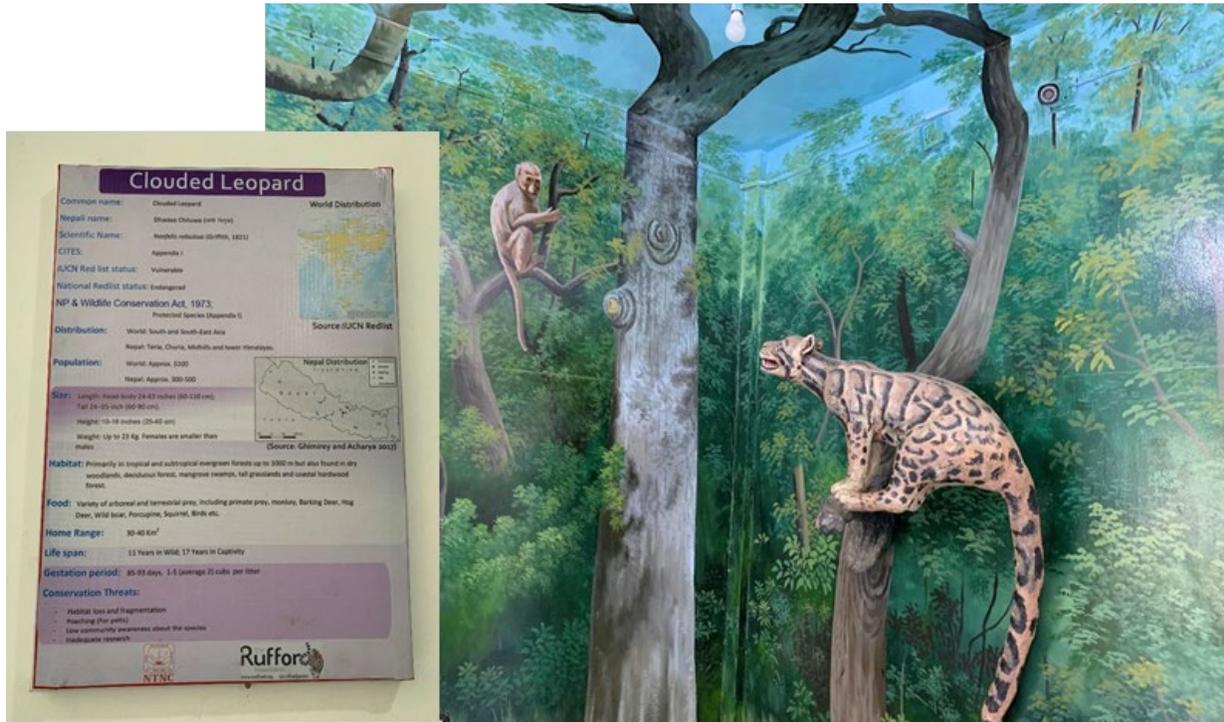


Figure 5: Clouded leopard statue and information board in Chitwan National Park for community awareness on Clouded leopard conservation.

4. Network formation to share information and knowledge on Clouded leopard

- a) Clouded leopard conservation network- Eastern Sector Administer: Abhinaya Pathak
- Member: Nirmal Kumar Shrestha, Lothar Buffer Zone User Committee
 - Member: Abhayan Pathak, Khagendramalli Buffer Zone User Committee (Phn: 9845864088)
 - Member: Hem Gurung, Budhirapti Buffer Zone User Committee (Phn: 9841224901)
 - Member: Bishnu Thapa, Mirgakunja Buffer Zone User Committee (Phn:)
 - Member: Bikash Pathak, Kerunga Buffer Zone User Committee (Phn: 9845520229)
 - f) Member: Ram Krishna Mahato, Bird education society (Phn: 9865087718)
 - g) Member: Yojana Bhusal, Forestry student (Phn:)
 - h) Member: Abhinash Devkota, Forestry Student (Phn: 9845924098)
 - i) Member: Surajan Shrestha, Student and Animal Rights Club (Phn: 9845770026)



Figure 6: Community interactive awareness program about Clouded leopard conservation

b) Clouded leopard conservation network- Madi Sector Administer: Abhinaya Pathak

- Member: Raj Kumar Pathak, Panch pandav Buffer Zone User Committee (Phn: 9845332156)
- Member: Balram Mahato, Baghauda Buffer Zone User Committee (Phn: 9845654059)
- Member: Min Bahadur Rai, Rewa Buffer Zone User Committee (Phn: 9865026840)
- Member: Kul Prasad Acharya, Ayodhyapuri Buffer Zone User Committee (Phn: 9845520849)
- Member: Sapika Magar, Nirmal-Thori Buffer Zone User Committee (Phn: 9865147062)
- Member: Surya Bahadur Adhikari, Gopal Nagar Buffer Zone Community Forest (Phn: 9845176537)
- Member: Jit Kumari Bhandari, Kalyanpur, Buffer Zone Community Forest (Phn:9806824290)
- Member: Netra Aale, Someshwor Buffer Zone Community Forest (Phn: 9855054414)
- Member: Ashok Nepali, Gardi Chure Buffer Zone Community Forest (Phn: 9864843104)
- Member: Keshav Khadka, Ram Buddha Buffer Zone Community Forest (Phn: 9865035523)
- Member: Jit Bahadur Chapagain, Kalyanpur, Buffer Zone Community Forest (Phn: 9845078505)



Figure 7: Clouded leopard conservation network formation

c) Clouded leopard conservation strategy development for Chitwan National Park and its buffer zone.

Clouded leopard conservation strategy for the Chitwan National Park and its buffer zone is the pioneer of its kind for the region. Till the date, there is no such strategy specially focusing on the clouded leopard and its habitat. This strategy is prepared with comprehensive consultation with the stakeholders of Chitwan National Park and its buffer zone. The strategy is in Appendix-I.



Figure 8: Interaction with stakeholder for Clouded leopard conservation strategy development

d) Participatory context analysis, monitoring and feedback

Assessment of stakeholder's knowledge on clouded leopard in Chitwan National Park of Nepal was made to understand the present context and the necessity for clouded leopard conservation in Chitwan National Park of Nepal. The open-ended questionnaire is listed in Appendix-II.

Stakeholders:

1.1. Community based Anti-poaching Unit (CBAPU)

Few respondents (40%, n=2) are aware about clouded leopard. They have not observed the species in Chitwan National Park. Of the two respondents who knows about clouded leopard, only one respondent believes that CNP possess the species.

S. N	Question	CBAPU respondent
1	Do you know about Clouded leopard?	Nocturnal, Cat family and carnivore
2	Do CNP has CL?	Madi, <i>Thori</i> and Nawalparasi
3	Do you see CL in CNP?	No
4	What is the main prey species of CL?	Small mammals and birds
5	What are the differences between CL and other leopard?	Small and pattern different
6	What is the population trend of CL in the last 10 years in CNP?	No idea

7	What are the challenges in CL conservation?	Poaching, Deforestation, Inadequate prey
8	Do you know the conservation status of CL?	Low attention
9	Do you observe any impacts in CL habitat?	Deforestation and forest fire
10	What should be done to conserve CL?	Awareness
11	Do you participate in CL conservation program before?	No

1.2 *Chitwan National Park (CNP) officials*

Few CNP officials (33.33%, n= 2) knows about the species. Both the respondents told that CNP has Clouded leopard but have not observe it till the date.

S. N	Question	CNP respondent
1	Do you know about Clouded leopard?	Vulnerable, elusive, Nocturnal
2	Do CNP has CL?	Chure could be its habitat
3	Do you see CL in CNP?	No
4	What is the main prey species of CL?	Small mammals and birds, Deer spp
5	What are the differences between CL and other leopard?	Small and Endangered, small, tail longer, distinct spot
6	What is the population trend of CL in the last 10 years in CNP?	Might have decrease
7	What are the challenges in CL conservation?	Deforestation, fragmentation, wildlife trade
8	Do you know the conservation status of CL?	Vulnerable
9	Do you observe any impacts in CL habitat?	All as listed: Deforestation, Forest fire, Unplanned infrastructure development, natural calamity
10	What should be done to conserve CL?	Awareness and habitat improvement, Research, Action plan
11	Do you participate in CL conservation program before?	No

1.3 *Students*

Majority of the students (87.5%, n=8) possess knowledge about clouded leopard. Of them, 75% believe that CNP has this species while none of them have observed the species in the CNP.

S. N	Question	Student respondent
1	Do you know about Clouded leopard?	

		Nocturnal, Long tail, patches, mammal, Chure and mid hills; Dense Forest; Near to extinct, Hilly region; Protected species and Endangered; Clouded patch, small, Chure and mid hills. Endangered; Vulnerable, elusive, cat family
2	Do CNP has CL?	Hilly area of CNP; Prefers to live in trees; Few in number; Dense Forest and Hilly region; Elusive and few in numbers
3	Do you see CL in CNP?	No
4	What is the main prey species of CL?	Small mammals and birds; Deer, Monkey
5	What are the differences between CL and other leopard?	Good arboreal; Long and fluffy Tail; Small and clouded pattern different and fluffy tail
6	What is the population trend of CL in the last 10 years in CNP?	3- Decrease, 3 No idea, 1 increase
7	What are the challenges in CL conservation?	Deforestation, fragmentation, wildlife trade; Poaching, Deforestation, Inadequate prey. Poaching and low attention; Inadequate awareness, budget, study
8	Do you know the conservation status of CL?	Protected and endangered; Vulnerable; few in numbers
9	Do you observe any impacts in CL habitat?	Forest Deforestation, Forest Fire, Infrastructures development and Natural calamity
10	What should be done to conserve CL?	Awareness; Control deforestation and poaching; Deforestation control, Trade control; Control deforestation and maintain prey species; Awareness and habitat improvement, Research, Action plan
11	Do you participate in CL conservation program before?	No

1.4 Non-government Organizations Officials

Few members of NGO (41.66%, n=5) are aware about the clouded leopard. All the respondents who know about clouded leopard understand that CNP has the species though none of them have observed it in CNP.

S. N	Question	NGO respondent
1	Do you know about Clouded leopard?	Distinct pattern and small and lives in tree; Carnivore and lives in dense forest of Mid hills; Cat family and carnivore, Endangered. Endangered, inadequate conservation, confined; Terai and Hill based leopard among 3 leopards
2	Do CNP has CL?	Chure could be its habitat; not studied; 2 No specific idea
3	Do you see CL in CNP?	No
4	What is the main prey species of CL?	Monkey, Birds, Squirrel; Small mammals and birds
5	What is the differences between CL and other leopard?	Small and lives in tree; Small and Endangered; Arboreal; Elusive, habitat specialist; Pattern in skin and body structure
6	What is the population trend of CL in the last 10 years in CNP?	2= No idea; 2= Increase; 1= Decrease
7	What are the challenges in CL conservation?	Habitat, Human disturbance, Prey inadequate; Difficult to observe; Habitat and prey. Low attention, less conservation & research; inadequate awareness, little knowledge
8	Do you know the conservation status of CL?	Low attention; Endangered; Few in numbers
9	Do you observe any impacts in CL habitat?	Forest Deforestation, Forest Fire, Infrastructures development and Natural calamity
10	What should be done to conserve CL?	Control poaching and forest protection; Awareness and habitat improvement; Habitat conservation, Prey species conservation; Financial source, awareness, low attention and study; Awareness, research, deforestation
11	Do you participate in CL conservation program before?	No

1.5 National trust for Nature Conservation-Biodiversity Conservation Center (NTNC-BCC) Official

Majority of the employee of NTNC (83.33%, n=5) possess knowledge about clouded leopard. Of them, 80% believe that CNP has this species while none of them have observed the species in the CNP.

S. N	Question	NTNC-BCC respondent
1	Do you know about Clouded leopard?	Carnivore and endangered; Nocturnal Long tail, Patches, Mammal, Chure and Mid hills; Vulnerable, elusive, Nocturnal; Near to extinct; Vulnerable, elusive, Nocturnal
2	Do CNP has CL?	Chure could be its habitat; Rarely observed in <i>Harda Khola</i> and <i>Kanamana</i> Area;
3	Do you see CL in CNP?	1 respondent (Pugmarks only)
4	What is the main prey species of CL?	Small mammals and birds, Deer spp
5	What are the differences between CL and other leopard?	Small, elusive, distinct spot; Small and Endangered, small, tail longer, distinct spot; Clouded pattern and long tail; Small and Endangered, small, tail longer, distinct spot
6	What is the population trend of CL in the last 10 years in CNP?	2 respondents decrease and 2 respondents no idea
7	What are the challenges in CL conservation?	Deforestation, fragmentation, wildlife trade; Habitat loss
8	Do you know the conservation status of CL?	Vulnerable
9	Do you observe any impacts in CL habitat?	Infrastructure; Deforestation and prey spp low; 2 respondents (All factors)
10	What should be done to conserve CL?	Awareness and habitat improvement, Research, Action plan; Patrolling and forest deforestation loss. Awareness and research
11	Do you participate in CL conservation program before?	Rescue and Treatment

1.6 Forest User Group (FUG)

Few members of FUG (25%, n=5) are aware about the clouded leopard. All the respondents who know about clouded leopard understand that CNP has the species though none of them have observed it in CNP.

S. N	Question	FUG respondent
1	Do you know about Clouded leopard?	Nocturnal; Endangered and Protected species;
2	Do CNP has CL?	Chure could be its habitat, Carnivore of CNP.
3	Do you see CL in CNP?	No
4	What is the main prey species of CL?	Small mammals and birds, Deer
5	What is the differences between CL and other leopard?	Elusive and Endangered; Small and lives in tree; Small, Clouded pattern
6	What is the population trend of CL in the last 10 years in CNP?	1 respondent Increase
7	What are the challenges in CL conservation?	No idea
8	Do you know the conservation status of CL?	No idea
9	Do you observe any impacts in CL habitat?	All=1 respondent, Natural calamities=1 respondent, other respondent = No
10	What should be done to conserve CL?	Habitat conservation, security; Research and habitat conservation
11	Do you participate in CL conservation program before?	No

1.7 Tourism entrepreneurs (TE)

Majority of the tourism entrepreneurs (80%, n=4) possess knowledge about clouded leopard. All of them believe that CNP has this species while none of them have observed the species in the CNP.

S. N	Question	TE respondent
1	Do you know about Clouded leopard?	Nocturnal, Cat family and carnivore; Vulnerable, elusive, cat family, hilly area dwellers; Hilly area dwellers (ACAP and Shaktikhor); Nocturnal
2	Do CNP has CL?	Chure could be its habitat, Report says
3	Do you see CL in CNP?	No
4	What is the main prey species of CL?	Small mammals and birds, Deer spp; Monkeys
5	What is the differences between CL and other leopard?	Small and Endangered, small, tail longer, distinct spot; Small, elusive, distinct spot

6	What is the population trend of CL in the last 10 years in CNP?	3 respondent decrease; 1 respondent Increase
7	What are the challenges in CL conservation?	Poaching, Deforestation, Inadequate prey; Deforestation, fragmentation, wildlife trade; Habitat loss and human disturbance, prey low
8	Do you know the conservation status of CL?	Low attention; Vulnerable
9	Do you observe any impacts in CL habitat?	Deforestation, Forest fire, Poaching; All as mentioned
10	What should be done to conserve CL?	Habitat conservation; Awareness and habitat improvement, Research, Action plan; Law enforcement strong; Special conservation zone declaration
11	Do you participate in CL conservation program before?	No

1.8 Buffer Zone User Committee (BUC)

Few members of UC (45%, n=9) are aware about the clouded leopard. Of them, only one respondent believes that CNP has the species while none of them have observed the species in the CNP.

S. N	Question	BUC respondent
1	Do you know about Clouded leopard?	Carnivore: Cats species, Protected species; Protected species and Endangered;
2	Do CNP has CL?	8 respondent No idea
3	Do you see CL in CNP?	<i>Thori</i> Area
4	What is the main prey species of CL?	Deer spp; Small mammals and birds; Carnivore; 1 respondent has no specific idea
5	What are the differences between CL and other leopard?	Arboreal; Clouded pattern and long tail; Like common leopard; 2 respondents have no specific idea
6	What is the population trend of CL in the last 10 years in CNP?	3 respondents "Decrease" and 6 respondents has no idea

7	What are the challenges in CL conservation?	1 respondent: Awareness, Habitat loss, Poaching; 8 respondents have no idea
8	Do you know the conservation status of CL?	Vulnerable, Protected areas, Few in numbers
9	Do you observe any impacts in CL habitat?	Forest fire and calamities; Infrastructure development; Deforestation, Forest fire, Natural calamity; 3 respondents All; 3 respondents have no idea.
10	What should be done to conserve CL?	Habitat conservation; Awareness and habitat conservation; conservation activities: 6 respondents have no idea
11	Do you participate in CL conservation program before?	No

Appendix-I:

Clouded leopard (*Neofelis nebulosa*) conservation strategy development for Chitwan National Park and its buffer Zone

Introduction:

Clouded leopard (*Neofelis nebulosa*) belongs to order Carnivora and family Felidae. The distribution range of this species comprises countries such as Bangladesh, Bhutan, Cambodia, China, India, Lao PDR, Malaysia, Myanmar, Thailand, Viet Nam, and Nepal (Gray et al, 2021). Protected areas of Nepal such as Annapurna Conservation Area, Chitwan National Park, Kanchanjunga Conservation Area, Langtang National Park, Makalu Barun, Rara National Park, Shivapuri Nagarjun National Park, and Ghodaghodi Lake Area and districts of Ilam, Kailali, Kaski. Geographically, Clouded Leopards are found in cold, arid, and semi-arid shrubland, alpine and subalpine areas, grasslands and open forests, favoring steep terrain characterized by cliffs, ridges, gullies and rocky outcrops at elevations of between 3,000 m and 5,500 m. The world population of this species is about 3200. While in Nepal, this species is restricted to 300-500. It is listed as vulnerable species by IUCN red list category while the National red list of mammals categorizes it as an endangered species. The legal status of this species in Nepal is Protected (Appendix I) under the National Parks and Wildlife Conservation Act 1973 and Appendix I in CITES law (DNPWC, 2021)

The Chitwan National Park (CNP) was established in 1973 as the first National Park of Nepal. The park is situated in the southern sub-tropical climatic region of central Nepal, covering 952 km² in the lowlands of the inner terai. An area of 729 km² peripheral to the park was declared as a Buffer Zone which consists of forests, human settlements, and private lands. It is world renowned for its unique diversity of flora and fauna and

outstanding natural features. CNP is meant for protecting the habitats of many endangered wildlife including the second-largest viable population of Greater One-horned Rhinoceros and prime habitat for Royal Bengal Tiger. The park comprises rich ecosystem diversity as different types of forest, wetland, and grassland ecosystems are situated across the park core area and Buffer Zone as well. It preserves fragile Churiya hill in the south and lowland inner Terai valley ecosystems. UNESCO designated CNP as a World Heritage Site in 1984 under the World Heritage Convention recognizing its unique biological resources (CNP, 2013).

Relevance and scope of Strategy:

In Chitwan National Park, during 2013, three clouded leopards were observed at two different locations while conducting camera trapping as a part of the National tiger and prey base survey in the Chitwan National Park. These two camera trapped locations are found in the core area of the park along with Chure hill range and the foothills having dense mixed hardwood forest. With the observation of the clouded leopard, Chitwan National Park possesses six species of felids i.e., tiger, common leopard, clouded leopard, fishing cat, leopard cat, and jungle cat (Lamichhane et al., 2014). So, it is very crucial to study clouded leopard status to understand the co-existence of these threatened species.

With dwindling population, Clouded leopard is protected by both National and International laws and regulation. Burgeoning anthropogenic pressure coupled with meager research and awareness on clouded leopard and its habitat has exacerbated the situation. In Chitwan National Park and its buffer zone, this pioneer strategy will mainstream the conservation program alongside facilitate conservation stakeholders to implement actions for the clouded leopard and its habitat.

Methods:

This strategy was prepared through broad consultation with stakeholders of Chitwan National Park and its buffer zone. We conducted consultation workshop, key informants' interview and focus group discussion. The stakeholders include Chitwan National Park officials, Buffer Zone Management Committee members, Buffer zone user committee, Community Forest user groups, National Trust for Nature Conservation, Bird education society, Nature guide association, Tourism entrepreneurs, researchers and students.

Vision:

To make Chitwan National Park and its buffer Zone a conserved and managed site for clouded leopard.

Goal:

To conserve clouded leopard and its habitat in Chitwan National Park and its buffer Zone.

Objectives:

- To protect clouded leopard and manage its habitat.
- To aware stakeholders about clouded leopard and its habitat.
- To strengthen the role of community and law enforcement agencies for clouded leopard conservation.

- To promote study and knowledge dissemination on Clouded leopard.

Strategy:

Awareness about Clouded leopard enhanced in CNP and its buffer zone. Activities:

- Community awareness through media, news articles, presentation, interaction program and displays.
- School teaching program by supporting schools with Clouded leopard conservation materials.

Clouded leopard conservation Zone establishment. Activities:

- Security arrangements and regulation in prime habitat of Clouded leopard.
- Habitat management works in identified habitat of Clouded leopard.

Strengthening Clouded leopard conservation network and law enforcement agencies. Activities:

- Training and facilitating to Clouded leopard conservation network members.
- Orientation and training to law enforcement agencies about clouded leopard.

Capacity building of Community based anti-poaching units (CBAPU) and user groups. Activities:

- Enhancing awareness and technical requirements for the conservation of Clouded leopard.
- Community-Clouded leopard information center

Research extension on Clouded leopard and its habitat Activities:

- Enhance knowledge base about Clouded leopard and its habitat
- Initiative for National Clouded leopard conservation action plan

Financial plan:

For the effective implementation of Clouded leopard conservation program, collective financial management should be made. This includes financial responsibility from Chitwan National Park, buffer zone management committee, conservation partners working in Nepal, Community based organization, local governments and community groups.

Implementing bodies:

Role of CNP:

- Regulating the conservation and management program
- Monitoring the implementation of the strategy
- Partnership with the stakeholder for the implementation of the strategy

Role of Conservation partner agencies:

- Exploring sources for the successful implementation of the strategy.
- Facilitating and providing technical expertise to stakeholders
- Supporting CNP to implement conservation actions for clouded leopard

Role of Community organization:

- Aware about clouded leopard and its habitat
- Support authority and conservation partners for the clouded leopard conservation

Role of Local Government:

- Support forest dependent marginalized communities
- Partnership for Clouded leopard and its habitat conservation

References:

CNP (2013) Management Plan of Chitwan National Park and Its Buffer Zone (2013-2017). DNPWC (2021) Annual report of Department of National Parks and Wildlife Conservation.

Gray, T., Borah, J., Coudrat, C.N.Z., Ghimirey, Y., Giordano, A., Greenspan, E., Petersen, W., Rostro-García, S., Shariff, M. & Wai-Ming, W. 2021. *Neofelis nebulosa*. *The IUCN Red List of Threatened Species* 2021: e.T14519A198843258. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T14519A198843258.en>. Accessed on 09 June 2022.

Lamichhane BR, Dhakal M, Subedi N, Pokheral CP (2014) Clouded leopard co-exist with other five felids in Chitwan National Park, Nepal. *Cat News* 61:34–37

Appendix-II:**Questionnaire for “Clouded leopard and its habitat conservation program”****Personal Information:**

Name:

Address:

Sex:

Age:

Affiliated Institution:

Position:

Please answer the following questions:

1. Do you know about Clouded leopard?
2. If yes (Question 1), what do you know about it?
3. Is there Clouded leopard in Chitwan National Park?
4. If there is clouded leopard in Chitwan National Park, please write about it?
5. Do you ever see Clouded leopard in Chitwan National Park?
6. If yes (Question 5), please write about it?

7. If you saw Clouded leopard, where do you saw it (Tree, Ground or other)
8. What are the main prey species of Clouded leopard?
9. What is the difference between Clouded leopard and other leopard species?
10. Do you know the conservation status of Clouded leopard?
11. If yes (Question 11), please write about it?
12. What is the status of Clouded leopard in Chitwan National Park in last 10 years?
 - Decrease
 - Increase
 - Stable
 - No idea
13. What are the challenges in Clouded leopard conservation?
14. Is there impact in Clouded leopard habitat? If yes, what are the factors?
 - Forest deforestation
 - Forest fire
 - Infrastructure development in forest area
 - Natural calamity
 - All
 - Others, if any.
15. What should be done to conserve Clouded leopard?
16. Have you ever been participated in Clouded leopard conservation program?
17. If yes (Question 16), please write about it?
18. If you have any information about Clouded leopard (except above question's answer), please write about it?

Transforming Knowledge into Action: Strengthening management intervention for Clouded leopard (*Neofelis nebulosa*) conservation in Chitwan National Park, Nepal

2022

“चितवन राष्ट्रिय निकुञ्जमा ध्वासे चितुवा र यसको बासस्थान संरक्षण कार्यक्रम”

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