

Final Report

**Migratory Wetland Bird Conservation Program in Chitwan -
Annapurna Landscape, Nepal**

Submitted to Rufford Foundation

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Paras B. Singh

Acronyms

AACD: Alumni Association for Conservation and Development

ACA: Annapurna Conservation Area

ACAP: Annapurna Conservation Area Project

BBC: British Broadband Corporation

BCN: Bird Conservation Nepal

BI: Birdlife International

BZ: Buffer Zone

BZMC: Buffer Zone Management Committee

CAMC: Conservation Area Management Committee

ChAL: Chitwan-Annapurna Landscape

CNP: Chitwan National Park

DDC: District Development Office

DFO: District Forest Office

DSCO: District Soil Conservation Office

DNPWC: Department of National park and Wildlife Conservation

FM: Frequency Medium

HSS: Higher Secondary School

IOF: Institute of Forestry

IUCN: International Union for Conservation of Nature

MSL: Mean Sea Level

NMA: Nepal Mountaineering Association

NTB: Nepal Tourism Board

NTNC: National Trust for Nature Conservation

PA: Protected Area

VDC: Village Development Committee

UCO: Unit Conservation Office

UK: United Kingdom

USA: United States America

WMBD: World Migratory Bird Day

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Chapter I

Background

1. Introduction

Migration remains one of the most essential activities of the avian world. Twice a year, billions of birds migrate vast distance across the globe. There are eight flyways identified around the world i.e. Pacific Americas, central Americas, Atlantic Americas, East Atlantic, Black Sea/Mediterranean, East Asia/East Africa, Central Asia and East Asia/ Australia (Birdlife International 2017)

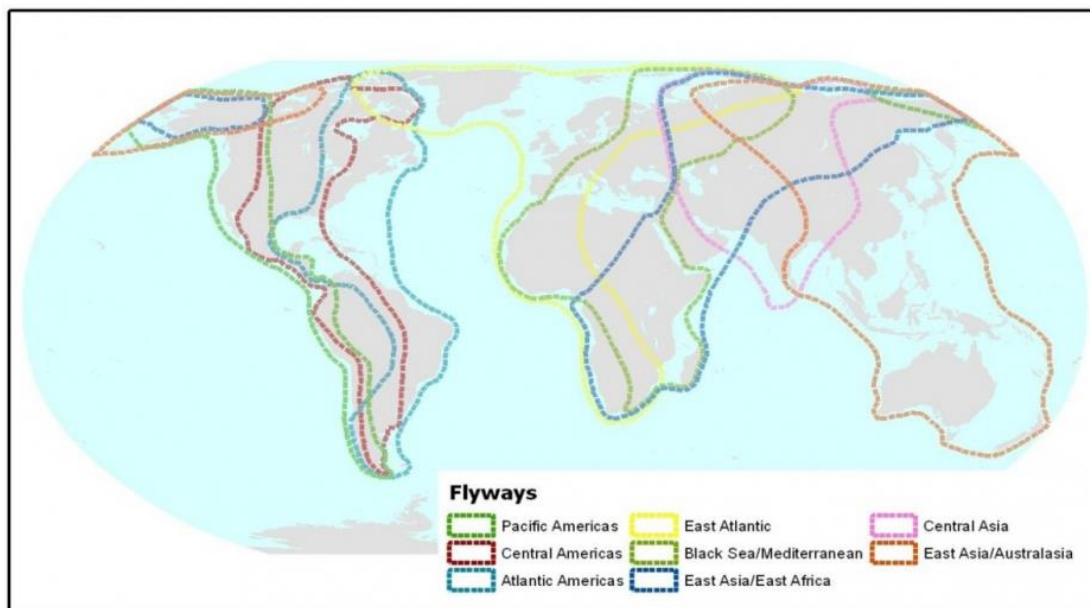


Figure 1: Eight Flyways around the world (Source: Birdlife International 2017)

The Central Asian flyway, the shortest flyway in the world connects the Palaearctic region with the Indian Subcontinent. Many threatened birds including wetland birds such as Baer's Pochard *Aythya baeri*, Falcated Duck *Anas falcate* breed in the Palaearctic Region and fly south towards Indian subcontinent to avoid harsh cold winter and vice versa. During this migration, they use various areas as stopover habitats to energize themselves to complete their journey of migration and most of them are not protected. The route through the Kaligandaki valley, Pokhara valley and Chitwan is one of the major migratory routes in Nepal, which is located within Chitwan-Annapurna Landscape. In this migratory route, only Annapurna Conservation Area and Chitwan National Park are protected and all other areas are not protected. Last year on the occasion of World Wetland Day, nine lakes in Pokhara valley has been listed as Ramsar sites (Ramsar 2016) because they are significantly valuable for globally and nationally threatened wetland birds. Declaration of these lakes as Ramsar Sites will definitely help to conserve wetland and birds. However, these habitats are degrading for various reasons, including urbanization, hunting, poisoning. Most of the local people may not know the

significance of wetlands and the presence of migratory birds nearby.

Therefore, this project was implemented to support the conservation of wetland birds in their potential habitats in the Chitwan- Annapuran Landscape (ChAL) from high (4000m) to low (300m) altitudes. First of all, the awareness of local residents was raised on ecology and conservation of migratory wetland birds around wetland habitats at different altitudes. Birds have been utilizing the route for different propose. For example, wetland birds like Ruddy Shelduck *Tadorna ferruginea*, Ibisbill *Ibidorhyncha struthersii* have been found breeding regularly in Mustang in Annapurna Conservation Area. Demoiselle Crane *Grus virgo* often stops in Kagbeni and Jomsom to feed (and so refuel) because of the extreme weather condition during its migration. Similarly, flocks of other wetlands birds such as Great Cormorant *Phalacrocorax carbo*, Common Merganser *Mergus merganser*, Northern Pintail *Anas acuta*, Ferruginous Pochard *Aythya nyroca* have been observed in various wetlands during the course of their winter and summer migrations.

Secondly, Pokhara, Chitwan and Kaligandaki valley are not recognized by local residents as important habitats of bids. Urbanization in both lower valleys is growing tremendously and posing huge threats to wetland birds and their habitats. Therefore, this project brought planners, politicians and administrators in one table to motivate them for eco-friendly urban planning. Finally, bird watching tourism is growing around the world. For example; in the United States America (USA), 20% of adults participate in bird watching annually and more than 6 million United Kingdom (UK) residents are regularly involved in bird watching. Hence, there is a high possibility of promoting bird-watching tourism in Nepal. This project identified tourism flagship species and bird watching hot spots within and around Pokhara Valley

2. Objectives

- Generate awareness among local people and students on migratory birds and significance of migration.
- Aware influential people in reference to eco-urban planning
- Aware mass of people towards wetland bird conservation through FM radio program and local television.
- Identify tourism flagship species and list out the bird watching hot spot

3. Project Areas

Project was implemented in Chitwan Annapurna Landscape (ChAL). Pokhara Valley, Annapurna Conservation Area and Chitwan National Park were the major sites to implement project activities.

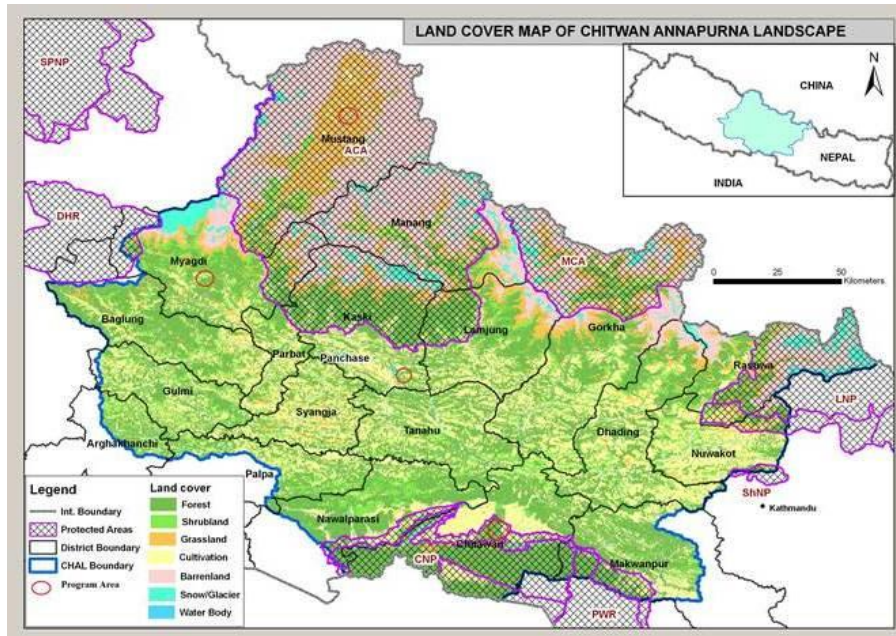


Figure 2: Chitwan Annapurna Landscape and program area (Modified WWF Nepal)

In Annapurna Conservation Area; the awareness program was conducted in Upper Mustang (Chusang VDC-Village Development Committee), Lower Mustang (Kagbeni, Jomsom, Titi Lake area), Ghandruk VDC, Narchyang VDC, Chame VDC, Bhimtang Valley (Thoche VDC), Neyshyang Valley. In Pokhara valley, the program was conducted Begnas and Rupa Lakes. In Chitwan, the program was conducted in Bhimnagar VDC in the buffer zone of Chitwan National Park.

Chapter II

Project Activities

2.1. Preliminary visit and local co-ordination

The major sites of the project were visited from Chitwan (300m msl) to Lomanthang (3800 msl) within ChAL and project inception meeting with concerned organizations, such as Buffer Zone Management Committee (BZMC), Conservation Area Management Committees (CAMC), Unit Conservation Offices (UCO) of Annapurna Conservation Area Project (ACAP) were conducted to prepare schedule for project implementation.

2.2. Awareness Program

2.2.1. Material preparation

2.2.1. 1. Poster

Before implementing project, the 500 posters of migratory wetland birds were reprinted from the poster designed to implement Rufford Small Grant II and I. These posters were later distributed among participants while executing different activities of this project. Remaining 500 hundreds poster were reprinted again on occasion of the world migratory bird day on May 10, 2016.

2.2.1. 2. Short courses:

A short course was designed to aware local people and students of local schools. The course was designed to cover following themes on birds, migratory bird and wetland habitat.

1. Birds of Nepal
2. Migratory Birds
3. Causes of Migration
4. Types of habitats during migration (Winter Habitat, Summer Habitat and Stop over habitat)
5. Some local examples of migratory birds
6. Practical actions; listing of birds seen throughout the year and not seen throughout the year

All these materials have been prepared on Microsoft PowerPoint in Nepalese language and presented in each program using overhead projector.

2.3. School and School Awareness

2.3.1. Design of Local curriculum

A handout in Nepali language was written, printed and distributed among the teachers representing five resource center participating in a workshop of eco teachers

organized in coordination with National Trust for Nature Conservation (NTNC) The propose of the workshop was to guide them to design real time and local nature based course for their students. Total 65 books were printed as demo version of local curriculum. During the workshop, teacher were guided “how to design the local curriculum?” it is hope that this book will be highly supportive to design and implement local curriculum in future.



Figure 3: Curriculum and distribution

2.3.2. School awareness

Every year, people from far North Nepal migrate southwards for three months to escape extreme winter. During winter, air temperature drop below -30 degree centigrade. Upper Mustang is one of the remotest areas of Nepal. Even schools must be shifted down to Pokhara and Chitwan Valley during three months in winter. Consequently, Choser Higher Secondary School (HSS) of Upper Mustang has been shifted to Pokhara valley during the winter of 2016. We visited the shifted school in Ranipauwa, Pokhara and conducted a daylong conservation program. The awareness program was conducted based on the short course designed in section

PowerPoint Slides, overhead projector and other kind of audio-visual methods were used to execute the program. Besides short course, a movie on bird migration called Earth Flight made by BBC Earth was shown. At the end of course, the student were asked to list out the birds they have seen and distinguish the list into two group's resident and migratory birds. They were asked to write why bird migrates and how they can help to save migratory birds. Similar kinds of programs were conducted in Shree Pritivi Rupa Higher Secondary School in Lekhanath Municipality in Pokhara Valley, Mesharam Bara Higher Secondary School, Ghandruk, Kaski, Bhim Nagar

Higher Secondary School in Chitwan, Shree Janta Higher Secondary School, Kagbeni, Mustang.



Figure 4. School programs (a Awareness program in a school, Kagbeni, Mustang. b Awareness program in a school, Pokhara Valley)

2.4. Community Awareness

A daylong conservation awareness program was organized for the members of forest user community in Rupa Lake, youth clubs and women groups were presented in the program. The course contents were similar to the short course. However, teaching methods followed were participatory. Group discussion was conducted to list out the birds that local people are observing in different seasons and habitat. Total 28 participants attended the program. Similarly, two presentations on migratory birds were done in leadership workshop program organized by Annapurna Conservation Area Project for the participants of conservation area management committee, tourism management committee, youth clubs and forest management committee of 6 VDCs in Ghndruk region. VDCs (Village Development Committee) are a local level administration unit and areas in Nepal. During this presentation, total 32 participants were presented representing different local organization. Similar, awareness program was conducted for the conservation farmer group of Shikha VDC within Annapurna Conservation Area (ACA).

In Mustang, awareness program regarding migratory wetland birds was conducted in Flake village, Kagbeni VDC. Kagbeni is famous place in Nepal for Hindu Pilgrims. The cultivated fields in the village are used by Demoiselle Crane during migration, mostly when weather becomes obstacle to cross Himalaya. Therefore, this village was in focus of this project. Members of Youth Club, Members of Conservation Area Management Committee, member of women group, member of anti-poaching sub-committee were participated in the program. Total 51 participants were participated in the program. Program activities were conducted following short course using audiovisual methods.

Additionally, awareness campaign was conducted in Thoche VDC of Manang district, which was not planned. However, the Ponkar Lake in the VDC located at

elevation of 4200m, which is important for wetland bird migration when they migrate back. On May 15 -16, 2016 total 39 birds of 13 species were recorded. Therefore, an awareness campaign was conducted for women group of Bhimtang valley.



Figure 5: Community Awareness program (a. Community awareness in Kagbeni & b. Community awareness in Ghandruk).

2.5. Bird Watching Training

Begnas and Rupa Lake are important lakes within seven lakes complex in Pokhara Valley. This complex has been enlisted as Ramsar Site in Feb 2016. That's why this project has recognized the area as bird watching hot spot and conducted bird watching training to youths of Rupa Lake area. Total 16 participants were presented in training. During the training, following matters were covered.

1. What are birds?
2. Types of birds
3. Bird Identification Techniques
4. Identification of Wetland birds
5. Bird Watching Tourism in the world
6. Migration of birds
7. Field Visit
8. During the field visit, 35 species of birds were recorded



Figure 6: Bird Watching Program

2.6. Radio and TV Program

A short message was designed to broadcast from Radio and TV. The program contains message of wetland ecosystem. How does migratory birds survive and how they are important?



Figure 7: Screenshot of TV program

The fertility of wetland is maintained by the combination of water and nutrients from surrounding watershed. These all information were contained within the message. Ultimate goal of this program was to encourage local people to save wetland birds. This message was broadcasted for a year from Big FM, Pokhara Valley and Gandaki Television, Pokhara Valley. The coverage range of the FM includes most of the part in ChAL.

2.7. Eco-friendly Urban Planning

2.7.1. Workshop I

A workshop was conducted in Beni, Mayagdi in co-ordination with Annapurna Conservation Area Project. Participants from different sectors such as District Development Committee, Metropolitan Planning and Development Office, District Forest Office, District Soil Conservation Office, Parliament Members were presented in the program. During this program, expert presented important of eco-friendly development and tourism in Nepal the most green cities in the world, birds habitat in human settlement, why and how? Nature as refresher, and Bird friendly ornamental plants.

At the end of the program, areas that can be developed as green areas and eco-park. Some of decisions are being made to save rivers, wetland from non-degradable wastage and proposing new conservation area within the Chitwan Annapurna Landscape. Total 23 participants are presented in the workshop.



Figure 8: Workshop in Beni

2.7.2. Workshop II

Before planning a workshop, all seven lakes of Pokhara valley and major settlement around the lakes were visited to collect real ground scenarios of the lakes. After field visit, a meeting was organized to select the theme of the program so that current issues related to environment would be discussed and way outs for eco-urban planning can be highlighted. The theme of the program was selected as "Wetland with Green City, Basis for Tourism and Biodiversity". Moreover, related scientific papers from around the world were reviewed and PowerPoint slides were prepared. A daylong workshop was organized in Institute of Forestry, Pokhara. Total 40 participants from Nepal Mountaineering Association, Trekking Agencies, Nepal tourism board, Association Nepal, Pokhara tourism council, District Forest Office, District Soil Conservation Office, Pokhara Metropolitan office, Boat Management Association, Pokhara Chamber of Commerce, Annapurna Conservation Area Project and Institute of forestry were invited. Among them, 31 participants were presented in the program. The workshop was organized in four different sessions; registration, presentation, discussion and conclusion.

First of all, participants were sensitized on the aim of the program. In the second session, Ecotourism and Development, Environment and Tourism Development, Wetland Conservation in Pokhara valley; Biodiversity Conservation and Tourism Promotion. Professor and Assistant Professors of the institute of forestry deliberated presentations. After presentation, a discussion session was held and following notes were concluded.

1. Private and Public Land Demarcation
2. Educating the resident of Pokhara valley in reference to Eco-urban planning
3. Control of Erosion
4. RAMSAR Site Conservation Plan should be prepared and implemented.
5. Multi Stakeholder co-ordination regarding urban forestry development and management
6. Existing Green Park should be protected
7. Forest around the valley should be protected.
8. Waste disposal in or nearby lake should be restricted.
9. Law enforcement
10. Use of locally available fund
11. Implementation of existing plan
12. A landscape level watershed conservation plan



Figure 9: Workshop in Pokhara

After the workshop, local FM radio and newspapers published different articles related to eco friendly urban planning, Important of Ramsar Sites and biodiversity conservation. Most of the participants evaluated the workshop at the end of program and agreed that the workshop has created a huge sensitization among multi-stakeholders of Pokhara valley to protect lakes as well as development of urban forest.

2.8. Tourism Flagship Species and Bird Watching Hot Spot

A study was conducted for the bird species found in Annapurna Conservation Area and Chitwan Valley to list out the tourism flagship bird species and identify hot spot. Questionnaires were prepared to understand the choice of respondent (birders, bird guide and bird photographer) to select attractive bird species.

For identifying the most charismatic birds, bird guides and birds experts of Nepal were contacted with pre-designed questionnaires. View of respondents was obtained by sending questionnaires on email. The use of internet for collecting data is gaining wider acceptance in the scientific research (Couper, Kapteyn, Schonlau, & Winter, 2007; Couper et al. 2007). Total 60 respondents were contacted with questionnaires

and 42 people replied email with their perception.

First of all, 20-20 attractive birds were finalized with consultation of bird guides and bird experts of Pokhara and Chitwan Valley. Then, these 20-20 birds' colored photos (See figure 2 and 3) were mailed to bird guides and bird experts of Nepal. Using a scale of 0 (low attractiveness) to 10 (high attractiveness) respondent provided score to individual species of birds.

This research is aimed to find out attractive species of birds, flagship species of bird, and map out flagship hotspots. Both primary and secondary data were collected by using online mailing process and discussion with local birders, library search etc. Domestic bird experts and bird guides (n=42) and international Oriental Bird Club (OBC) members and nature photographers (n=91) responded to the questionnaire. Social data were analyzed in tabular form and analyzed with descriptive statistics, weighted score and modified choice experiment method. The study shows that most attractive birds on the basis of physical attributes were found to be Himalayan monal (*Lophophorus impejanus*) with weighted score 2.25 and Satyr tragopan (*Tragopan satyra*) with 2.21. The study showed that international avitourist have willingness to conserve Himalayan monal (*Lophophorus impejanus*) {\$738.89} and Satyr tragopan (*Tragopan satyra*) {\$650.91} respectively. Flagship species of bird is Satyr tragopan (*Tragopan satyra*). Flagship species hotspots were found to be the forest between Tolka and Landruk as well as Chhomrong. In a case of Chitwan National Park, most of the tourist were found interested to watch especially Bengal florican and Giant hornbill. Weighted score of Bengal Florican was equal to 2.36 whereas for the Giant hornbill was 1.60 and the willingness to pay to conserve of Bengal Florican and Giant hornbill were found respectively \$752 and \$603. By observing the nature of bird watcher, it is found that they like to watch either colorful birds like pheasants or rare birds.





Fig 10: Potential list of tourism flagship species

2.9. World Migratory Bird Day Celebration

May -10 is recognized World Migratory Bird Day (WMBD). Every year, the day has been marked by organizing different programs to generate awareness among local people. The world migratory bird day was marked by conducting following program in co-ordination with Alumni Association for Conservation and Development (AACD).

1. First day: Rally followed by flash mob, documentary show.

Around 100 participants including Jib Nath Pandey (Asst. Dean of IOF), students of IOF, local people took part in the rally. Rally was started from IOF compound at 7:30 am and it travelled through ACAP Office-Ghale Chowk-Rambazar and finally returned to IOF. A slogan for this world migratory bird day 2016 was "...and when the skies fall silent?" Participants hold play cards, animal masks etc. in order to create public awareness. After arrival in Rambazar, students of IOF performed flash mob, which was observed enthusiastically by the local people of Rambazar. Then, by 3 pm documentary was shown in auditorium of IOF.

2. Second day: Bird watching program

On the day, AACD in collaboration with BCN IOF Pokhara branch and Tiger mountain lodge, Pokhara, conducted wetland migratory bird watching program at Pame, Pokhara, Kaski. The program was specially focused to B.Sc. 1st year students of IOF Pokhara. Almost all 42 students participated and they were divided into three groups and each group was provided binoculars, reference books "Birds of Nepal". At the end of program, students prepared a checklist of birds.

2.10: Hoarding Board Display

Three hoarding boards were displayed in different regions of Annapurna Conservation Area. The message in the boards was to display conservation of migratory birds



Figure 11: Hoarding board nearby Jomsom Airport, Mustang (more than 30000 international tourists visit this area)

CHAPTER III

Discussion and conclusion

Chitwan Annapurna Landscape covers area of 32,057 sq.km in central Nepal. Four protected areas; Annapurna Conservation Area, Langtang National Park and Chitwan National Park and other forests outside protected areas. This project was particularly targeted to Kaligandaki river corridor (Annapurna Conservation Area), Pokhara Valley and Chitwan National Park. Before commencement of the project, project inception workshop was organized and materials were prepared. Total 1000 posters were prepared in two stages and a short course was designed for the awareness programs for students and community. Total 5 schools in ACA, one-one schools in Pokhara valley and Chitwan. Additionally, local community could be the real actors for the conservation and flora and fauna if they would be aware on the value of natural resource such birds, wetlands, forest. Therefore, this project was focused local community as major part of the program activities. Total 4 awareness activities in ACA; one in Pokhara and One in Chitwan were organized for the community. Conservation area management committees, buffer zone management committees, youth clubs, women groups and forest user groups were major target of the program.

To target mass of people residing within the landscape, short message emphasizing conservation of migratory wetland birds were broadcasted through FM radio and local television during the breaks in major news broadcasts. Bird watching is one of the major tourism products around the world. Promotion of avi tourism could be one of the best ways to save birds. Therefore, this project sensitized local youths about bird watching tourism. Moreover, a research was conducted in and around Pokhara valley and Chitwan to list out the tourism flagship species and bird watching hotspot. A survey among bird watcher was conducted for this proposes. Satyr Tragopan, Himalayan Monal were listed as tourism flagship birds in Annapurna Conservation Area where as Bengal Florican is in Chitwan National Park. To sensitize people about migratory wetland birds, world wetland day of 2016 was celebrated by organizing rally, bird watching and flash mob in Pokhara valley. Overall, all the propose activities were implemented as per the propose. Following are major three outputs were achieved by this project

1. Curriculum design and awareness among local community, students among different part of Annapurna Conservation Area, Pokhara valley (A Ramsar site) and Chitwan National Park within Chitwan-Annapurna Landscape
2. Bring planner, politicians, institutes and tourism entrepreneurs at a desk for eco-friendly urban planning
3. Identification of tourism flagship species of birds and bird watching hot spot