Pied Thrush Report

on

Habitat and Sighting Areas

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Fig. 1: Pied Thrush (*Zoothera wardii*) (male) , Photo by Seejan Gyawali

Abstract:

A Pied thrush (*Zoothera wardii*) habitat survey was carried out in Ghandruk sector of Annapurna Conservation Area. The survey was conducted between the 20th of May 2014 and the 23th of June 2014 within the Ghandruk Unit Conservation Office (Ghandruk UCO) in the Annapurna Conservation Area, Nepal. The data collected creates a base for future studies and more detailed research on the Pied Thrush.

In addition to the identification of shrub and tree species in different plots around a fixed observation point, Projects Abroad identified general habitat indicators as well as physical parameters. In all habitat types we found primary forest dominated by alder trees and the secondary forest was mixed broad leaved trees, comprised mainly of rhododendron, prunus and mohua species. The altitude of the sites ranges from 1774 m to 1935m. The average ground coverge (leaf litter) of all survey sites was 7.5cm and the average canopy coverage was dense with 75%. There was no impact on the natural habitat in any of the sites by livestock.

The most common tree species, occuring in three of four sites, are *Engelhardtia spicata* and *Alnus nepalensis* with an average diameter (DBH) of 121cm and 130cm respectively. The average tree heights were 18m for *Engelhardtia spicata* and 13m for *Alnus nepalensis*. The most dominate shrub species, occurring in all four sites, are *Berberis asiatica* and *Thelyteris* with an average height of 156cm and 104cm respectively.

Introduction:

The uncommon Pied Thrush (*Zoothera wardii*) is widespread over a large area on the Indian subcontinent (Grimmett and Inskipp and Inskipp, 2009: 170). It is native in Bhutan, India, Nepal and Sri Lanka and a was seen as a summer visitor in an elevation range from mainly 1500m to 2400m (-3050m) in the lower Himalayas. With a decreasing population trend and an unknown population size it is categorized on the IUCN Red List currently as "Least Concern" (www.birdlife.org). Whilst the Pied Thrush is the focus of many studies and research it is still an enigma with very little known about it. The bird was sighted in the Annapurna Conservation Area (ACA), Nepal, frequently every year in April through to July so Projects Abroad decided to conduct a habitat survey of the areas the Pied Thrush was seen in.

Study Area:

The Annapurna Conservation Area (ACA) was established in 1986 by the King Mahendra Trust for Nature Conservation (KMTNC). ACA is located in the North West of Nepal and includes one of the most famous mountain trekking circuits in the world. It covers an area of 7,629 km2 (ACAP, 2006). The ACA is comprised of 55 Village Development Comittees (VDCs) that are divided into the Kaski, Lamjung and Manang districts of the Ghandruk zone as well as the Myagdi and Mustang districts of the Dhawalagiri zone. ACA lies between 28‘32’ Latitude and 84‘00‘ Longitude (Baral & Inskipp, 2005).

The elevation of the ACA ranges from 790m-8091m. The major peaks within the ACA include Annapurna I (8091m), one of the highest mountains in the world, and Dhaulagiri

(8167m), which is located in the west of the region (Baral & Inskipp, 2005). This region of the Himalayan range also includes the Marsyandi, Seti , Madi, Modi and Mardi rivers and the world's deepest gorge, Kali Gandaki.

The ACA is divided into two distinctive topographical regions. The trans-Himalayan region is located in the higher northern/central Nepal region of the Himalayas. The lower lying cis-Himalayan region is the second topographical division in ACA. The cis-Himalayan region encompasses the larger VDCs in ACA and has the most diverse range of climactic zones. There are 10 climactic zones in ACA, ranging from the upper tropical climate of upper Pokhara to the nival bioclimatic zone of the high Himal region. The Trans-Himalayan zones receive 25-500mm of annual precipitation whilst the cis-Himalayan areas have recorded annual rainfall levels of up to 3000mm. The sharp altitude rises found within ACA account for the distinct variances in temperature throughout the region. Over the span of 120km there is a rise in altitude from less than 1000m to over 8000m. There is an average 6 degrees Celsius drop in temperature for every 1000m rise in elevation. The seasonal climate is split into two distinct seasons between the months of December-February where the average daily temperature decreases and June-September, which is characterized by the southerly monsoon (NTNC, 2009).

There are twenty two types of vegetation recorded in ACA. In the tropical and sub-tropical climate region the recorded vegetation types are; Hill Sal Forest, Subtropical Deciduous Hill Forest, *Schima-castanopsis* forest, Subtropical Semi-evergreen Hill Forest and *Pinus Roxburghii* Forest. In the temperate and alpine broad leaved climate region the forest types are: *Quercus semicaprifolia* Forest, *Quercus lamllose* Forest, Lower Temperate Mixed Broadleaved Forest, Upper Temperate Mixed Broadleaved Forest, Rhododendron Forest and *Betula Utilis* Forest. The temperate and alpine conifers climate region has *Abies Spectabilis* Forest, *Tsuga Dumosa* Forest, *Pinus Excels* (*P. wallichiana*) Forest, *Picea Smithiana* Forest and *Cupressus torulosa* Forest. Lastly in the minor temperate and alpine association climate region there are *Alnus* Wood, *Populus ciliate* Wood, *Hippophae* scrub, Moist Alpine scrub and *Juniperus wallichiana* Forest (NTNC, 2012).

There are 102 species of mammals recorded as living in ACA, 488 species of birds, 40 species of reptiles, 23 species of amphibians, 20 species of fish and over 180 species of butterflies. Due to the diverse nature of the bio-climatic zones many of the types of fauna found in the ACA have rare and endangered species statuses (NTNC, 2012, ACAP Database, 2008).

The focus of this study is Ghandruk VDC in the Kaski District. The Ghandruk sector has an area of 807 km^2 and covers the Kaski and Myagdi Districts of the western development region of ACA.

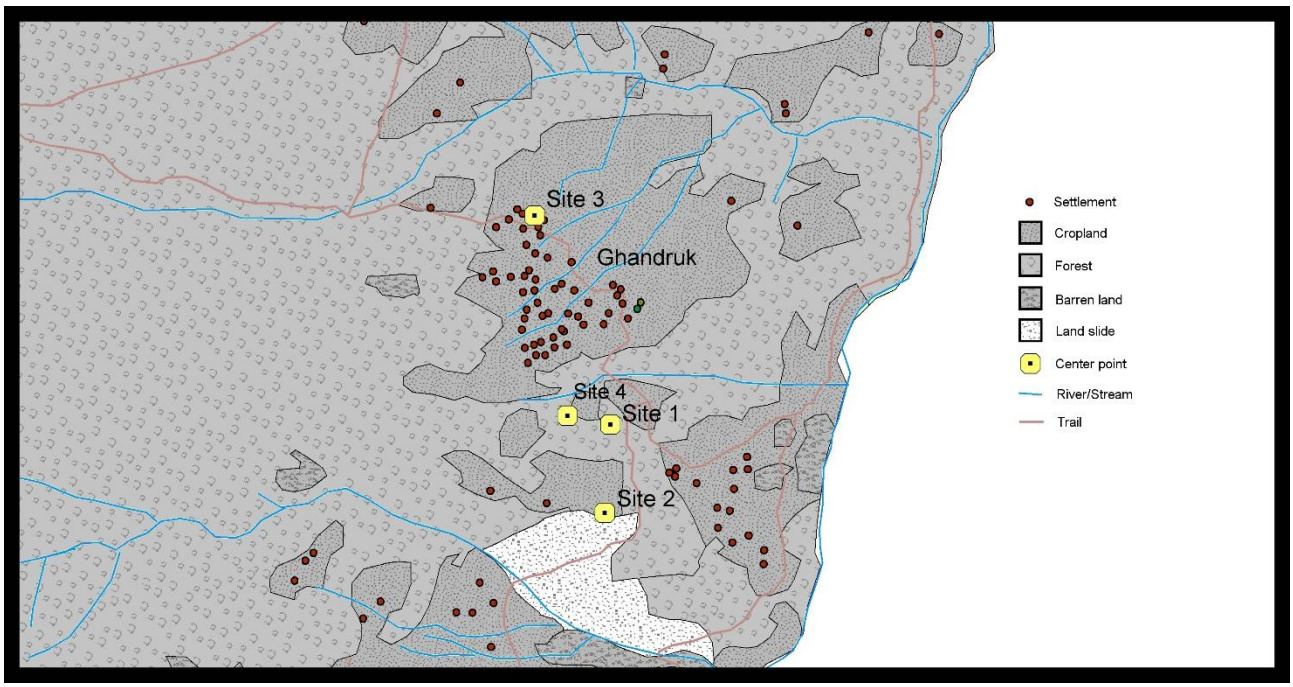


Fig. 2: Map of Ghandruk village

Aim:

Projects Abroad designed a habitat survey to identify the preferred environment of the Pied Thrush in the ACA. This would help to implement further studies on breeding behaviour and population dynamics within the Annapurna Conservation Area in future.

Methodology:

To begin the study we defined a central point at the four sites where the Pied Thrush was seen around Ghandruk village. We looked into general habitat indicators such as the canopy coverage and grazing intensity together with physical parameters such as the average slope angle. We analysed different plant species in the study areas using different sized plots- shrubs (plot size: 25 sq.m) and trees (plot size: 625 sq.m). In each plot we collected data on forest density, tree height and trunk diameter (DBH).

Results:

Site 1 (28.37137 N; 83.81087 E):

Date of investigation:	20.05.2014
Altitude:	1795m
Average slope angle:	47,29°
Undulated:	even
Rocky:	sporadically
Ground cover:	dense (full coverage)
Types of impact:	none
Grazing intensity:	none
Depth of litters:	10cm (average)
Canopy coverage:	dense (50-75)

A walking path that is in frequent use by local people is near by (20 meters) the center point.


Ground coverage


Canopy coverage


Slope


Shrub coverage

Site 2 (28.36718 N; 83.81059 E):

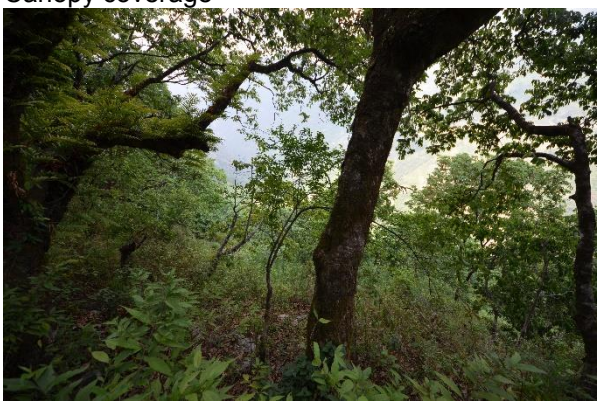
Date of investigation:	21.05.2014
Altitude:	1774m
Average slope angle:	47,72°
Undulated:	even
Rocky:	no
Ground cover:	dense (full coverage)
Types of impact:	none
Grazing intensity:	none
Depth of litters:	9cm (average)
Canopy coverage:	dense (50-75%)

A walking path that is in unfrequent use by local people is near by (30 meters) the centre point.

Ground coverage

Canopy coverage

Slope

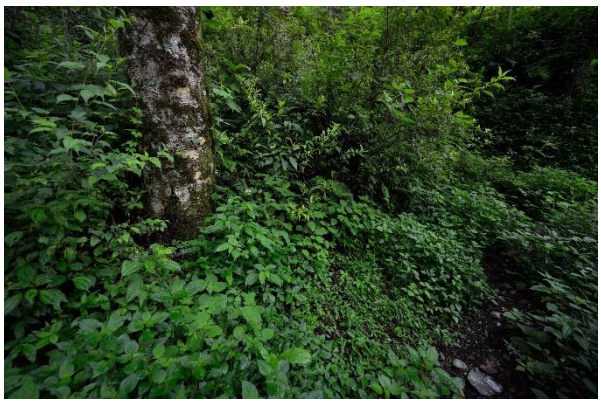


Shrub coverage

Site 3 (28.38126 N; 83.80727 E):

Date of investigation:	16.06.2014
Altitude:	1895m
Average slope angle:	45,24°
Undulated:	even
Rocky:	sporadically
Ground cover:	dense
Types of impact:	none
Grazing intensity:	none
Depth of litters:	10cm (average)
Canopy coverage:	dense (80%)

A walking path that is in frequent use by locals and occasioanlly tourists is very close (2 meters) to the defined center point.


Ground coverage


Canopy coverage


Walking path


Slope

Site 4 (28.37182 N; 83.80891 E):

Date of investigation:	23.06.2014
Altitude:	1935m
Average slope angle:	45,63°
Undulated:	even
Rocky:	sporadically
Ground cover:	dense
Types of impact:	none
Grazing intensity:	none
Depth of litters:	1cm (average)
Canopy coverage:	sparse (25%)

A walking and transportation path that is in frequent use of locals and mule caravans is very close (5 meters) to the center point.

Ground coverage

Canopy coverage

Slope

Walking path/shrubs

Species:

Trees:

We found in total five tree species in all four sighting area plots. Common tree species like *Engelhardtia spicata* and *Alnus nepalensis* as well as less common species like *Leucosceptrum canum* and *Rhododendron spp*. *Mauwa* was only found once in the plot of the fourth sighting plot.

Tree species	Site 1	Site 2	Site 3	Site 4
Leucosceptrum canum	X			
Engelhardtia spicata	X	x	x	
Alnus nepalensis	X		x	x
Rhododendron spp			x	x
Mauwa				x
Total number of trees per plot	23	28	34	10

Fig. 7: Tree species and total number of trees per plot and site

The DBH (Diameter) of the same species varied between the sites. The Diameter of *Engelhardtia spicata* ranges from 65,67cm (Site 1) to 173,33cm (Site 2) and *Alnus nepalensis* from 75cm (Site 4) to 163,33cm (Site 1).

Average DBH	Site 1	Site 2	Site 3	Site 4
Leucosceptrum canum	171cm	-	-	-
Engelhardtia spicata	65cm	173cm	124cm	-
Alnus nepalensis	163cm	-	151cm	75cm
Rhododendron spp	-	-	86cm	76cm
Mauwa	-	-	-	87cm

Fig. 8: Average DBH of tree species per site

The estimated height of every species in the different plots almost equal except the *Engelhardtia spicata* whose height from 11m (Site 2) to 25m (Site 3) ranges.

Estimated height	Site 1	Site 2	Site 3	Site 4
Leucosceptrum canum	10m	-	-	-
Engelhardtia spicata	18m	11m	25m	-
Alnus nepalensis	12m	-	16m	12m
Rhododendron spp	-	-	5m	6m
Mauwa	-	-	-	7m

Fig. 9: Estimated hieght of tree species per site

Shrubs:

We found in total nine shrub species in all four sighting area plots.The most common shurbs are the *Berberis asiatica* and the *Thelyteris* that were growing in every plot. We found *Drynaria*, *Fragaria nubicola* and *Rubus ellipticus* only in one site each.

Shrub species	Site 1	Site 2	Site 3	Site 4
Berberis asiatica	X	x	x	x
Urtica dioca	X		x	x
Drynaria	X			
Girardinia palmate	X		x	x
Arisaema tortuosa	X	x		
Fragaria nubicola	X			
Thelyteris	X	x	x	x
Drepanostachyum falcatum		x	x	x
Rubus ellipticus			x	
Total number of shrubs per plot	70	64	24	31

Fig. 10: Shrub species and total number of shrubs per plot and site

The estimated height varys drasticly between the sites. *Berberis asiatica's* height is ranging from 76cm (Site 1) to 300cm (Site 4) and *Urtica dioca's* height is ranging from 39cm (Site 1) to 150cm (Site 4). While for example *Drepanostachyum falcatum* stays almost at the same height (150cm (Site 2) to 200cm (Site 4)).

Estimated height	Site 1	Site 2	Site 3	Site 4
Berberis asiatica	76cm	80cm	167cm	300cm
Urtica dioca	39cm	-	57cm	150cm
Drynaria	76,33cm	-	-	-
Girardinia palmate	70,67cm	-	44cm	100cm
Arisaema tortuosa	84,33cm	130cm	-	-
Fragaria nubicola	60,33cm	-	-	-
Thelyteris	33,33cm	56cm	25cm	100cm

Drepanostachyum falcatum	-	150cm	190cm	200cm
Rubus ellipticus	-	-	62cm	-

Fig. 11: Estimated height fo shrub species per site

CONCLUSION

This study has provided us with a much better understanding of the behaviour and habitat preferences of the Pied thrush. Since publication we have since spotted a pair of birds in late August which is allegedly too late in the season to find the species. This could prove very interesting as maybe the Ghandruk area of the ACA reserve might actually host a resident population of these birds and we must conduct further research to investigate this.

References:

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