

**Project Update: August 2016.**

Field data were collected for the summer season (first two weeks of July and first two weeks of August 2016) in the south eastern part of the park within the altitude range of 610 to 1608 m asl in warm broadleaf forest. Various food resources of rufous-necked hornbill (RNH), their foraging behaviour and habitat use were studied.

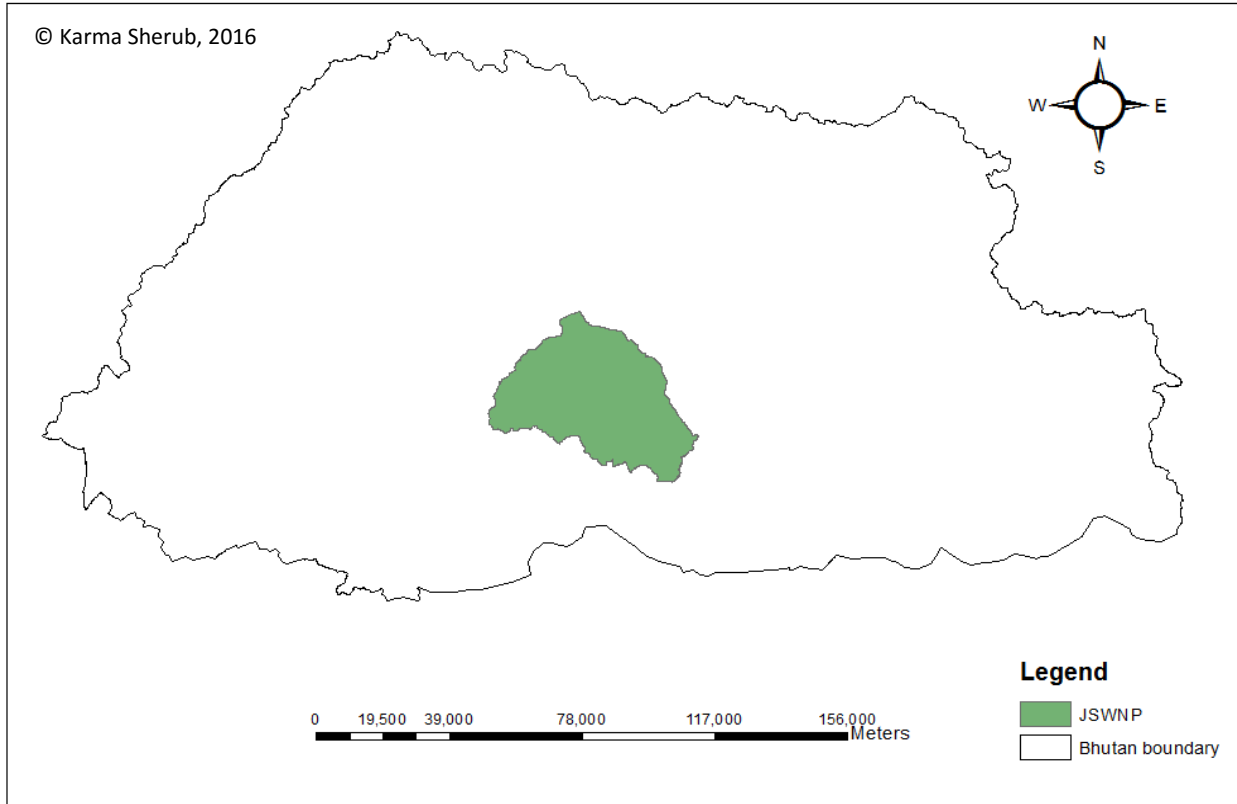


Figure 1: Map showing the overview study area of Jigme Singye Wangchuck National Park (JSWNP), Bhutan

For the first and second week of July 2016, data were collected from Zhemgang (Trong Village Block) and Sarpang (Jigmecholing Village Block) district respectively, from an area that falls in the park (Figure 2). The frequent sightings of RNH during this time were only the male as it was an active breeding period. A few male RNHs were followed to locate the nest, and the regurgitated food items were collected for identification (Table 2). During the first two weeks of August 2016, data were collected from Trongsa (Korphu Village Block) District (Figure 2). During this time, RNHs were found in pairs or in flocks. The juveniles were also seen.

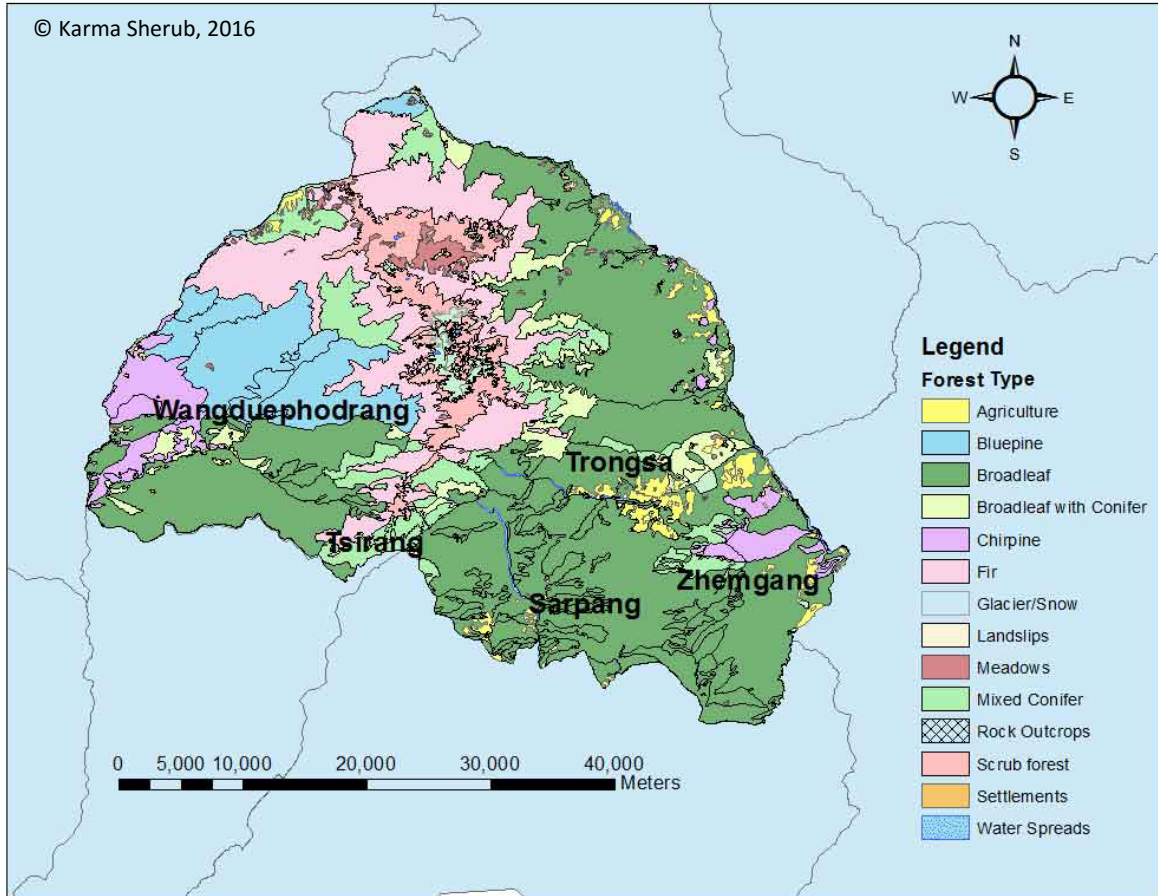


Figure 2: Map showing the study area, its forest types and parts of the five districts (Trongsa, Zhemgang, Sarpang, Tshirang and Wangduephodrang) that fall under the Park.

TABLE 1: FOOD RESOURCES USED BY RUFOUS-NECKED HORNBILL DURING THE SUMMER SEASON (TRANSECT WALK).

SI No.	Food resources	Food type	Gewog (Village Block)		
			Trong	Jigmechoelling	Korphu
1	<i>Arthocarpus lakoocha</i>	Fruit	✓	-	-
2	<i>Aphanamixis polystachya</i>	Fruit	-	-	✓
3	<i>Beilschmiedia sp.</i>	Fruit	✓	-	✓
4	<i>Casearia glomerata</i>	Fruit	✓	-	-
5	Caterpillar	Invertebrate	-	-	✓
6	<i>Choerospondias axillaris</i>	Fruit	✓	-	-
7	<i>Cryptocarya amygdalina</i>	Fruit	✓	-	-
8	<i>Elaeocarpus lanceifolius</i>	Fruit	✓	-	-
9	<i>Ficus benjamina</i>	Fruit	-	-	-
10	<i>Ficus elastica</i>	Fruit	-	-	✓
11	<i>Ficus roxburghii</i>	Fruit	✓	-	-
12	<i>Ficus semicordata</i>	Fruit	✓	-	-

13	<i>Ficus</i> sp.	Fruit	✓	-	✓
14	<i>Neocinnamomum caudutum</i>	Fruit	-	-	✓
15	<i>Persea</i> sp.	Fruit	✓	-	-
16	<i>Phoebe lanceolata</i>	Fruit	✓	-	-
17	<i>Prunus cormuta</i>	Fruit	-	-	✓
18	<i>Talauma hodgsonii</i>	Fruit	✓	-	-
19	Unidentified species 1	Fruit	✓	-	-
20	Unidentified species 2	Fruit	-	-	✓
21	Unidentified species 4	Fruit	✓	-	-
22	Unidentified species 5	Fruit	✓	-	-
23	Unknown 1	Invertebrate	✓	-	-



Figure 3: (A, B, C & D): unidentified fruit tree species used by the RNH for feeding; (E): Male RNH feeding on caterpillar; (F) Female RNH with the male juvenile.



TABLE 2: REGURGITATED FOOD ITEMS COLLECTED UNDER THE NEST TREE AND THROUGH OBSERVATIONS WHILE THE MALE RNH WAS FEEDING THE FEMALE (TWO ACTIVE NEST TREES WERE LOCATED AT TRONG GEWOG).

SI No.	Food resources	Nest tree species I ( <i>Altingia excelsa</i> )	Nest tree species 2 (Unidentified species II)	Food types
1	Bark beetle	✓	✓	Invertebrate
2	<i>Beilchimedia sp.</i>	✓	-	Fruit
3	<i>Canarium sp.</i>	✓	-	Fruit
4	<i>Elaeocarpus lanceifolius</i>	✓	-	Fruit
5	<i>Ficus Roxburghii</i>	✓	✓	Fruit
6	<i>Ficus sp.</i>	✓	-	Fruit
7	Beehive	✓	-	Invertebrate
8	<i>Litsea sp.</i>	✓	-	Fruit
9	Crap	✓	-	Invertebrate
10	Unidentified species 3	-	✓	Fruit

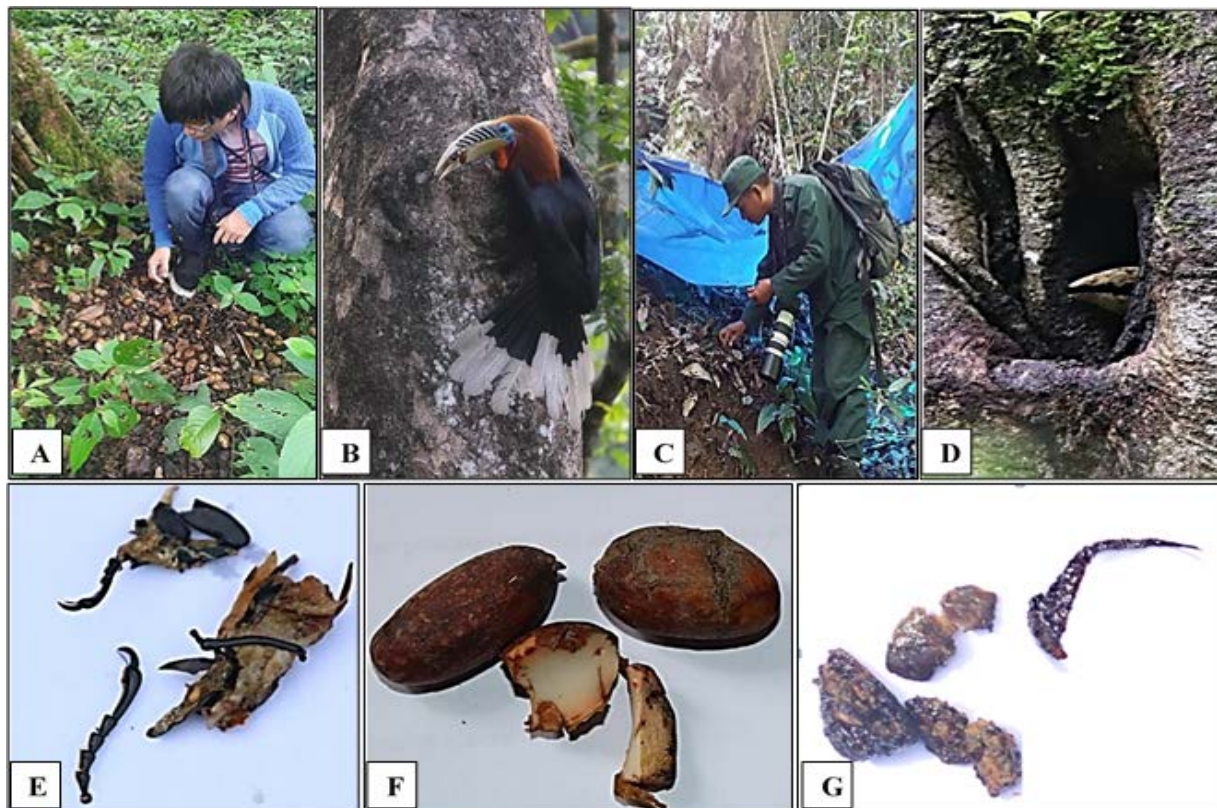


Figure 4: Observations under nest tree (A): unidentified fruit species '3'; (B) Nest I; (C) collecting regurgitated food items; (D) Nest II; (E) remnant of bark beetle from stool; (F) Seeds of *Beilchimedia sp.*; & (G) remnant of crab's body from stool.

### Habitat use, Foraging behaviour and Conservation threats.

The RNHs were found using the canopy tree (> 13m height) species for roosting and loafing, either dead or alive. When it comes to feeding, I have seen a male hornbill searching for crabs (or fish?) in a shallow water. However, they were rarely found on the ground. While perching or feeding, they were found using either large or small branches. The trunk and foliage were rarely used. However, the nests located were both on the trunk and the male feeds the female by landing on it.



Figure 5: Perch types. (A) Large branch; (B) Small branch; (C) Dead tree; & (D) Nest hole on the trunk of *Altingia excelsa*.

The most frequently observed threats to the species were logging, pole extraction, hydropower transmission lines, and firewood collection. Some traps for the jungle fowl can also be seen in some areas.



Figure 6: Conservation threats. Left: Trap set up for the Jungle Fowl; Right: Hydropower transmission lines.