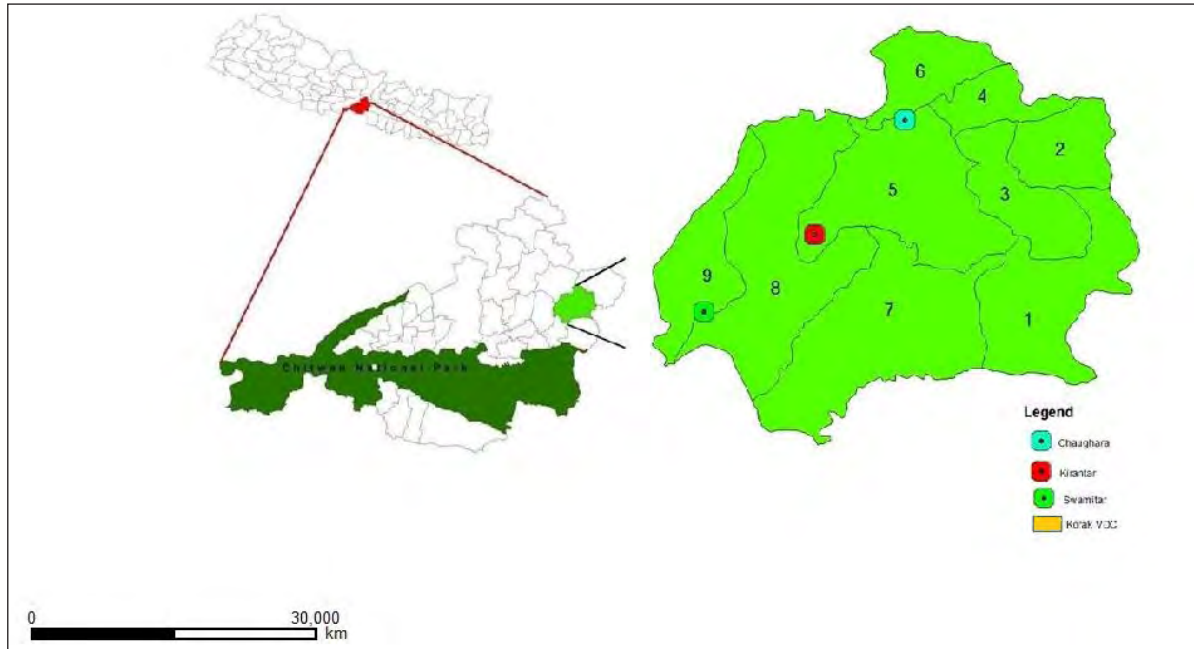


Herpetofauna Of Korak Village, Northern Chitwan, Nepal



Map of Korak VDC, Chitwan, District, Nepal

Nepal's unique geography from low flat lands in Terai (67-300m) to sharp rising crest Himalayas (>5000m) in the North have structured varied climatic conditions. Variations in microclimates have always given rise to favourable habitats that support variety of life forms, including herpetofauna (Swan & Leviton 1962). Nepal is home to 190 species of herpetofauna (Shah & Tiwari 2004). Herpetofaunal checklists are well-established only from the Protected Areas of Nepal when one-third of them are found outside as the Terai-Siwalik region (700-1500m) harbours highest number of species of herpetofauna (45%) and four endemic species (Bhujju et al. 2007). Chitwan National Park (CNP) considered as the first Protected Area in Nepal has a record of 56 species of amphibians and reptiles nevertheless, little attempt has been made to explore the status outside CNP. Twenty six snake species have been recorded in the vicinity of Chitwan National Park (Pandey 2012) while amphibian composition is comprised of 12 species in the northern and southern slopes of Siraichuli hill (Khatiwada 2011). The northern regime of Chitwan however, shares three physiographic divisions as Terai, Churia (Siwalik) and Mahabharat range that act as biodiversity rich region due to landscape, microclimatic conditions and vegetation.



Study Area

Korak Village Development Committee (VDC), situated in Churia (Siwalik) mountain range of north eastern Chitwan district in south Nepal covers an area of 4.669 ha from which over 20% of the area is agricultural land, while the remaining consists of forest with tropical hardwoods and a rich biodiversity Welthungerhilfe (2014). Korak has tropical Sal forest to lower temperate Rhododendron forest with high value medicinal herbs. Climatic condition is tropical at lower altitude to subtropical at higher elevation with average annual rainfall 141.66 mm to 166.66 mm. Annual temperature is 10°C minimum to 27°C maximum (Annon 2014). Communal use of the forest is divided into Leasehold, Community and Private use.

Korak VDC is biodiversity rich region as there has been documentation of 68 butterfly species that represent 10 families out of 11 different families found in Nepal (Baral 2015). Mammals recorded from the area include yellow-throated marten, jungle cat, masked palm civet, Blyth's horseshoe bat and Rhesus macaque (Aline Ale *pers. comm.* 2016). Prajapati (2015) has documented the presence of 80 species of bird from the region. The medicinal plants of Korak were enlisted as 44 species, used by ethnic minorities of Tamang and Chepang (Shrestha 2015). However, there's decreasing trend of forest cover (68.3%) in 1989 as compared to 2013 (60%) with annual rate of 0.54% (Regmi 2015). With this, there is no reporting of amphibians and reptiles from Korak VDC yet. The main objective of this study is to prepare checklist of herpetofauna found in Korak VDC.

Methods

Amphibian and reptile information were collected from Korak VDC, an administrative division, during a span of two years (October 2013 to September 2015). Most of the species were recorded opportunistically in the route Swamitar-Kirantar-Charkilla-Jimling.

Swamitar lies in ward-9 and is populated by majority of Tamangs, few Chepangs and Dalits (socially excluded minority). On the other hand, Kirantar and Charkilla are situated at ward-5 of Korak VDC. Species observations were carried out at the graveled vehicle route, trail inside the forest and Pampha River at Swamitar during our visit to the village in different occasions. Species were photographed, few handheld for identification and released back. Photographs of herpetofauna were also collected from people, who recorded them opportunistically. The checklist that we developed does not follow any standard methodology and this report is solely based on photographic evidence and visual confirmation.

Table: Herpetofauna recorded in Korak Village with conservation and population status

S. No.	Scientific Name	Family Name	Common Name	Nepali Name	Conservation Status (IUCN)
1	<i>Duttaphrynus melanostictus</i> Schneider, 1799	Bufonidae	Asian Common Toad	Khasre bhyaguto	Least Concern
2	<i>Duttaphrynus stomaticus</i> Lutken, 1862	Bufonidae	Marbled Toad	Matyangre khasre bhyaguto	Least Concern
3	<i>Microhyla ornata</i> (Dumeril & Bibron, 1841)	Microhylidae	Ornate Narrow Mouthed Frog	Thutune bhyaguto	Least Concern
4	<i>Euphlyctis cyanophlyctis</i> (Schneider, 1799)	Dicroglossidae	Skittering Frog	Tik-tike paha	Least Concern
5	<i>Hoplobatrachus tigerinus</i> (Daudin, 1802)	Dicroglossidae	Tiger Frog	Sirke paha	Least Concern
6	<i>Fejervarya teraiensis</i> (Dubois, 1984)	Dicroglossidae	Terai Cricket Frog	Madhese kithre bhyaguto	Least Concern
7	<i>Sphaerotheca maskeyi</i> (Schleich & Anders, 1998)	Dicroglossidae	Maskey's Burrowing Frog	Rani bhyaguto	Least Concern
8	<i>Polypedates maculatus</i> (Gray, 1834)	Rhacophoridae	Indian Tree Frog	Katkate paha	Least Concern
9	<i>Ichthyophis sikkimensis</i> Taylor, 1960	Ichthyophiidae	Sikkimese Caecilian	Ganeule sap	Data Deficient
10	<i>Indotestudo elongata</i> (Blyth, 1853)	Testudinidae	Yellow-headed Tortoise	Suun kachhuwa	Endangered
11	<i>Calotes versicolor</i> (Daudin, 1802)	Agamidae	Common Garden Lizard	Chheparo	-
12	<i>Eutropis carinata</i> (Schneider, 1801)	Scincidae	Keeled Indian Mabuya	Bhanemungro	Least Concern
13	<i>Sphenomorphus maculatus</i> (Blyth, 1853)	Scincidae	Spotted Litter Skink	Bhanemungro	-
14	<i>Amphisma stolatum</i> (Linnaeus, 1758)	Natricidae	Buff Striped Keelback	Bagale	-
15	<i>Boiga trigonata</i> (Schneider, 1802)	Colubridae	Common Cat Snake	Birale sap	Least Concern
16	<i>Chrysopelea ornata</i> (Shaw, 1802)	Colubridae	Golden Tree Snake	Sirishe	-
17	<i>Coelognathus helena</i> (Daudin, 1803)	Colubridae	Common Trinket Snake	Gahane sap	-
18	<i>Dendrelaphis tristis</i> (Daudin, 1803)	Colubridae	Common Bronze Back Tree Snake	Sirishe	-
19	<i>Oligodon arnensis</i> (Shaw, 1802)	Colubridae	Banded Kukri Snake	Khukri sap	-
20	<i>Pythas mucosa</i> (Linnaeus, 1758)	Colubridae	Oriental Rat Snake	Dhaaman	-

Results

Species Accounts

Order I: ANURA

Family: Bufonidae

1. *Duttaphrynus melanostictus* (Schneider, 1799).

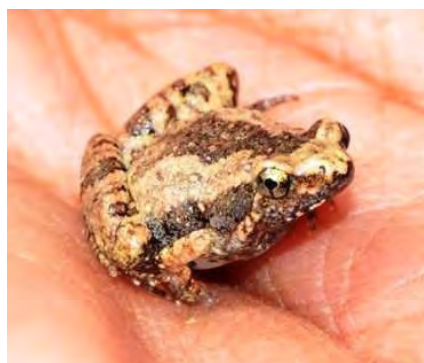
Commonly called asian common toad, were observed visually from all three wards of Korak VDC; ward-9 (Swamitar), ward-5 (Kirantar and Chaughara) and ward-4 (Jimling) mostly during night time while at day time found hiding under logs, holes in trees, litter, artificial refuge etc.

This toad has adapted itself well with human habitation and tolerant of pollution.



Duttaphrynus melanostictus

2. *Duttaphrynus stomaticus* (Lütken, 1864). Few individuals were sighted during evening time in Kirantar and Chaughara (ward-4) near settlement and at agricultural farmlands. This toad is relatively small in size compared to other toads found in Nepal.



Microhyla ornata

Family: Microhylidae

3. *Microhyla ornata* (Duméril & Bibron, 1841). A live specimen was collected near the stream of Kirantar (ward-5) in the month of December 2014. It was taking refuge under a rock partly covered with algae.

Family: Dicroglossidae

4. *Euphlyctis cyanophlyctis* (Schneider, 1799). Very common frogs, often individuals are sighted in shallow waters, temporary water holes and skitter away when they sense danger around. Lives

in closer proximity with humans and adapted to habitat modification. An adult specimen was recorded from the gravelly bank nearby the river of Kirantar.



Euphlyctis cyanophlyctis



Hoplobatrachus tigerinus

5. *Hoplobatrachus tigerinus* (Daudin, 1802). An adult live specimen was captured on the nearby stream that flows

backyard of Shree Rastriya Secondary School, Swamitar, ward-9 of Korak in the month of September 2014.

6. *Fejervarya teraiensis* (Dubois, 1984). Two individuals were recorded on the route to Chaughara, ward-5 ahead of Kirantar in September 2014. The occurrence location is forest trail having plants; *Schima wallichii*, *Shorea robusta*, *Melia azadarach*, *Bauhinia purpurea*, *Ficus semicordata* etc.



Fejervarya teraiensis



Sphaerotheca maskeyi

7. *Sphaerotheca*

maskeyi (Schleich & Anders, 1998). A live specimen was encountered on the same day when *F. teraiensis* was spotted and along the same forest trail. It was resting near the pile of leaf litter.

Family: Rhacophoridae

8. *Polypedates maculatus* (Gray, 1830). Specimens observed along human settlements, especially hanging on walls and windows in Swamitar, Kirantar and Chaughara.

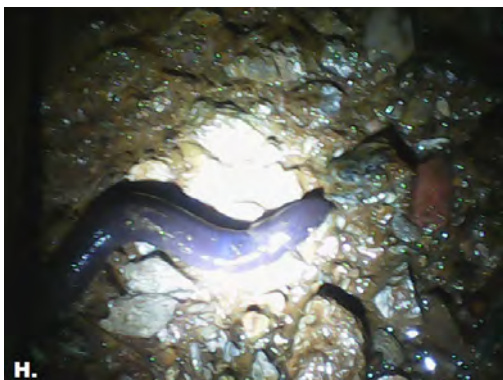


Polypedates maculatus

Order II: GYMNOPTIONA

Family: Ichthyophiidae

9. *Ichthyophis sikkimensis* Taylor, 1960. An individual was



Ichthyophis sikkimensis

observed on the premises of Shree Rastriya Primary School, Chaughara, ward-5 in September 2015. It was first discovered by the janitor of the school on the rainy night around 9:15 PM and later photographed by Udit Aryal. Commonly called 'Sikkimese Caecilian', it is listed 'Data Deficient' by the IUCN Red List of Threatened Species. This is the first record from Chitwan, earlier reported from Ilam District.

Order III: TESTUDINES

Family: Testudinidae

10. *Indotestudo elongata* (Blyth, 1853). A live specimen was caught by local villager in Korak and brought it at Shree Rastriya Secondary School in August 2015. It is listed Endangered by the IUCN Red List of Threatened Species.

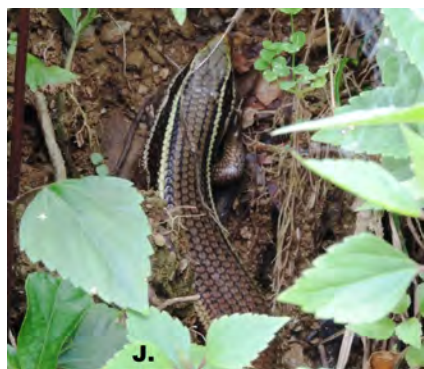


Indotestudo elongata

Order IV: SQUAMATA

Family: Agamidae

11. *Calotes versicolor* (Daudin, 1802). Many individuals were observed as one of the most common and widely distributed lizard across the country. Generally, found in closer proximity to human settlement and gardens.



Eutropis carinata

Family: Scincidae

12. *Eutropis carinata* (Schneider, 1801). A live specimen was observed at the small walking trail in between forest alongside and few settlements in Jimling, ward-4 of Korak.

13. *Sphenomorphus maculatus* (Blyth, 1853). One individual was observed in September 2014 at the pile of forest litter in Kalika Community Forest (KCF), ward-5, Swamitar, Korak.

Family: Natricidae

14. *Amphiesma stolatum* (Linnaeus, 1758). Many individuals were recorded opportunistically in Spring, Summer and early Fall in two years at Korak. Few observations were made of the snake devouring toads.



Amphiesma stolatum

Family: Colubridae

15. *Boiga trigonata* (Schneider, 1802). A group of Bachelor of Science (B.Sc.) Forestry students from Institute of Forestry (IOF), Hetauda took photograph of the individual under a decayed tree log at Kirantar, ward-5 of Korak.



16. *Chrysopelea ornata* (Shaw, 1802). A dead specimen was found in the month of March 2014 at ward-9, Korak.



Chrysopelea ornata



Coelognathus helena

17. *Coelognathus helena* (Daudin, 1803). An individual was observed in Kirantar, ward-5 at Korak in the month of August 2015.

18. *Dendrelaphis tristis* (Daudin, 1803). A beheaded juvenile was recorded in the walking trail at Kirantar on August 2015.

19. *Oligodon arnensis* (Shaw, 1802). An individual recorded from a house at Swamitar, ward-9 at Korak. It was found poking its head out of a crevice as it's a fossorial (burrowing mode of life) snake.



Oligodon arnensis



Pytas mucosa

20. *Pytas mucosa* (Linnaeus, 1758). A pair of male oriental rat snakes was seen combating at the scrub nearby of Shree Rastriya Secondary School, Swamitar, ward nine, Korak in July 2015. This is a trademark courtship behaviour in *P. mucosa* to mark their territories and ward off other males around.

Discussion

This is the preliminary record of amphibians and reptiles found in Korak VDC of Northern Chitwan, Nepal. Chitwan National Park is located at the southern zone of Chitwan district. *E. cyanophlyctis* and *H. tigerinus* were associated with high dependence of aquatic bodies while *S. maskeyi* and *F. teraiensis* were found in leaf litters. The forest floors are the suitable habitat for these fossorial amphibians. The first record from Chitwan valley was *I. sikkimensis*, previously recorded from Eastern Nepal, Ilam district. It has been listed 'Data Deficient' by the IUCN Red List of Threatened Species, thus necessitates further research on legless amphibians and conservation priority.

Indotestudo elongata is the only 'Endangered' herpetofauna species found in Korak. *S. maculatus* is another first record from the Chitwan valley belonging to the family



Scincidae. From the class of Reptilia, colubrid snakes are the most dominant from the family Colubridae. All of them were found in closer proximity to human settlements, at homes, kitchen gardens, nearby bush and forest. Few of the snakes were found killed intentionally due to fear, misconception and lack of conservation awareness.

Diversity of amphibians and reptiles in Korak can be considered good due to the record of 20 species from streams, temporary pools, forest litters, walking trails and kitchen gardens in Korak. However, adoption of standard universal methods and long-term survey will help to increase the detection of herpetofauna. Herpetological surveys are very good ways to assess the ecological health of any ecosystem as they are regarded as the biological indicators. The information generated from this publication will help to initiate conservation measures of these ecologically important species and help management of natural resources.

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