



Collection of reptiles and amphibians from various habitat types in Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan

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Corresponding Author: Muhammad Ehsan main reptilian species caught from crude land. Human homes gave natural Elahi, Email: niazidk@hotmail.com. Arid surroundings to a solitary land and water proficient species Bufo stomaticus, while Zone Research Centre, Pakistan Agricultural the reptiles included Bungarus caeruleus, Varanus bengalensis, Hemidactylus Research Council, Dera Ismail Khan, Khyber flaviviridis, Ablepharus grayanus, Lycodon aulicus, Typhlops ductuliformes, Eryx johnii, Lissemys punctata andersoni, Ablepharus grayanus, Eutropis macularia, Amphiesma stolatum, Lycodon aulicus, Eryx Johnii and Typhlops ductuliformes. Three land and water proficient species Bufo stomaticus, Hoplobatrachus tigerinus and Euphlyctis cyanophlyctis and four reptilian species were caught from water catchment regions viz. Lissemy spuntata andersoni, Varanus bengalensis, Xenochrophis piscator and Kachuga smithii.

ABSTRACT

The ongoing review reached out from January, 2023 to December, 2023 was directed in all the five tehsils of Dera Ismail Khan. A sum of 60 land and water proficient examples addressing 3 species, 3 genera and 2 families while 71 reptilian examples addressing 15 species, 14 genera and 10 families were caught from the review region. Land and water proficient species caught from developed land included Bufo stomaticus, Hoplobatrachu stigerinus and Euphlyctis cyanophlyctis, while reptiles included Varanus bengalensis, Amphiesma stolatum, Ptyas mucosus, Echis carinatus, Calotes versicolor, Bungarus caeruleus. Lycodon aulicus was the

INTRODUCTION

Creatures of land and water and reptiles are significant bio-marks of environmental change and are tracked down in various territories all through the world aside from a few disconnected islands. Their variety and overflow is likewise connected for certain avian and mammalian species. Be that as it may, in the same way as other different species endurance of herpetiles is under nonstop danger because of deforestation, territory misfortune, fracture, urbanization and contamination (Petrov, 2004).

Herpetiles have significant situation in food pyramids, they control populace of numerous bugs and nuisances, and themselves are wellspring of nourishment for some hunters. Both, the creatures of land and water and reptiles assume critical part in moving supplements from sea-going to earthly environments and their nonattendance from any biological system might influence green growth networks, invertebrate populaces, hunter elements, leaf litter disintegrations and supplement cycling (Christie et al., 2008).

In Pakistan, dry to semi-parched climatic circumstances win that make it, a land and water proficient unfortunate nation nonetheless, damp riparian circumstances in the Indus valley, streams in the northern Himalayan sub-precipitous district and water directs in the western Baluchistan high

countries are home to exactly 24 land and water proficient species that have a place with four families viz. Bufonidae, Megophryidae, Microhylidae and Ranidae (Khan, 2011). The reptilian fauna of the nation is addressed by 195 species having a place with 23 families viz. Cheloniidae, Dermochelyidae, Emydidae, Testudinidae, Trionychidae, Crocodylidae, Gavialidae, Agamidae, Chameleonidae, Eublepharidae, Gekkonidae, Lacertidae, Scincidae, Uromastycidae, Varanidae, Leptotyphlopidae, Typhlopidae, Boidae, Colubridae, Elapidae, Hydrophiidae, Viperidae and Crotalidae (Khan, 2004, 2006). Nine land and water proficient and 13 reptilian species are endemic to Pakistan (Khan, 2004).

The herpetiles got less consideration of academic local area consequently stayed neglected in many pieces of Pakistan. A large portion of the investigations completed so far are restricted to Sind and Baluchistan regions (Minton, 1966; Mertens, 1969; Khan, 2006). Daniel (2002) and Khan (2006) are the main real wellsprings of data on herpetiles of Pakistan. There is scarcity of information on variety and dissemination of creatures of land and water and reptiles of Punjab, which is most thickly populated region of the country. The current review was consequently wanted to investigate the herpetofauna variety of area Dera Ismail Khan.

Materials and Methods

through December, 2023 was directed in five tehsils of Dera Ismail Khan comprises of Dera Ismail Khan itself and Paharpur, Prova, Kulachi and Daraban. The locale lies 150 to 200 m above ocean level and encounters outrageous blistering climate during summer (April - September) to serious virus in winter (November - February). Normal yearly precipitation is 500 mm. Water logging and saltiness has impacted enormous region of the locale making underground water harsh. Locale Dera Ismail Khan is situated between two waterways of the Punjab region, in particular stream Ravi and Sutlej and is limited by India from east (Anwar, 2012). The tanneries, Changa Manga estates, plant/blossom nurseries and head Baloki made area Dera Ismail Khan more unmistakable in the country. Complete region of the locale is 981702 sections of land, out of which 807711 sections of land are developed while 173991 sections of land are crude land. Significant vegetation of the area incorporate simbal (*Bombax ceiba*), sukhechain (*Pongamia pinnata*), neem (*Azadirachta indica*), bakiain (*Melia azedarach*), desi kikar (*Acacia nilotica*), bohr (*Ficus benghalensis*), peepal (*Ficus*

This one-year study reaching out from January

religiosa), tutsiah (*Morus nigrz*), safaida (*Eucalyptus citriodora*), bairi (*Ziziphus mauritiana*) and sheesham (*Dalbergia sissoo*) and so forth. (Zereen and Khan, 2012). For assortment of different land and water proficient and reptilian species the review region was separated into four territory types:

(I) Developed land, regions where water is accessible and regular yields like rice, wheat, cotton, sugarcane and gardening crops particularly gladiolus are developed. The water source might tube well or trench water (ii) Crude land, regions where inland water is saline or these grounds are not cultivable, (iii) Human residences, the houses, structures, ruins, processing plants, schools and the road parks including the close by trash materials and (iv) Water bodies, catchments areas of streams, channels, garbage removal lakes, water system water channels and fisheries lakes.

Field overviews were directed during first light and sunset hours and the examples were gathered with the assistance of hand nets, drag nets and snake sticks. Pit falls with float walls were likewise utilized for assortment of creatures of land and water and reptiles of the review region (Baig et al., 2008; Masroor, 2011). The gathered examples were euthanized, protected in 10% formalin (Bora et al., 2009). Every example was estimated and distinguished utilizing recognizable proof keys of Smith (1943), Minton (1962) and Khan (2006).

Each caught example was weighed utilizing computerized weighing balance SF-400. The outer body estimations nose to vent length (SVL), nose length (SL), eye measurement (ED), even tympanum breadth (HTYD), vertical tympanum width (VTYD), head length (HL), hand length (HAL) and foot length (FL) were taken by utilizing vernier caliper and scale for creatures of land and water as indicated by Chanda (1994).

For snakes SVL, tail length (TAL), HL, head width (HW), body width (BW), trunk length (T) and all out length (TL) were taken utilizing designer's estimating tape as per Dowling (1951), Vitt (1987) and Oliveira (2003). For reptiles SVL, TAL, HL, HW, BW, bury appendage length (IIL), front paw length (FC), rear hook length (HC), rear appendage range (HLS), front appendage range (FLS), rear appendage longest finger (HLF), forelimb longest finger (FLF) and TL was taken utilizing estimation tape following Velasco and Herrel (2007). For turtles carapace length (CL), plastron length (PL), shell level (SH) and

carapace width (CW) were taken utilizing estimation tape as per Sledge (1968) and Ernst et al. (1994).

Results and Discussions

During present review, 60 land and water proficient examples addressing 3 species, 3 genera and 2 families while 71 reptilian examples addressing 15 species, 14 genera and 10 families were caught from the review region. Table-I shows the creatures of land and water and reptiles with the favored natural surroundings. The morphometric estimations of different land and water proficient and reptilian species caught during present review are referenced in strengthening Tables I-IV.

Bufo stomaticus is appropriated all through the Indian subcontinent (Daniel, 1963a). *Euphylyctis cyanophlyctis* is appropriated from Thailand to Nepal, all through India, Sri Lanka and nearly all through Pakistan under 1800 m (Khan, 1999). *Hoplobatrachus tigerinus* is broadly appropriated with circulation goes from Afghanistan, Bangladesh, India, Myanmar, Nepal, Pakistan and Sri Lanka to Madagascar and Maldives. *Typhlops ductuliformes* is accounted for from Lahore, Hyderabad and Karachi. *Eryx johnii* is disseminated all through focal India, Eastern Afghanistan, Iran and in Pakistan it is tracked down in fields of Punjab, Sind and Baluchistan. *Amphiesma stolatatum* is broadly appropriated snake of Southeast Asia (Khan, 2006). *Lycodon aulicus* has been accounted for from Sind, Lahore and region Jhang (Khan, 1993d). *Ptyas mucosus* is accounted for from all through India, Sri Lanka, Afghanistan, Iran, Pakistan and Adaman islands (Khan, 2006). *Xenochrophis piscator* is normal in seepage frameworks in upper and lower Indus valley (Minton, 1966; Auffenberg, 1980b). *Bungarus caeruleus* is accounted for from all through Punjab, KPK, Azad Kashmir, Sind and Southern Baluchistan (Khan, 1993d). *Echis carinatus* is conveyed all through Center East, Russia, Iran, Afghanistan, India, Sri Lanka and Pakistan. *Calotes versicolor* is conveyed all through India, Sri Lanka and Pakistan and from Sumatra to southern China. *Hemidactylus flaviviridis* in Pakistan is accounted for from human homes. *Ablepharus grayanus* is circulated all through Pakistan. *Eutropis macularia* is accounted for from amphibians and reptiles of District Dera Ismail Khan.

Table-I. The details of amphibians and reptiles captured from different habitat types of the study area (n = number of specimens).

Species	Specimens captured from cultivated land	Specimens captured from uncultivated land	Specimens captured from human habitations	Specimens captured from water bodies	Total number of specimens (n)
	(n)	(n)	(n)	(n)	
Amphibians					
<i>Bufo stomaticus</i>	4	-	5	11	20
<i>Hoplobatrachus tigerinus</i>	5	-	-	15	20
<i>Euphlyctis cyanophlyctis</i>	7	-	-	13	20
Reptiles					
Snakes					
<i>Bungarus caeruleus</i>	6	-	8	-	14
<i>Amphiesma stolatum</i>	4	-	4	-	8
<i>Lycodon aulicus</i>	-	1	3	-	4
<i>Ptyas mucosus</i>	3	-	-	-	3
<i>Typhlops ductuliformes</i>	-	-	2	-	2
<i>Eryx johnii</i>	-	-	2	-	2
<i>Xenochrophis piscator</i>	-	-	-	4	4
<i>Echis carinatus</i>	1	-	-	-	1
Lizards					
<i>Calotes versicolor</i>	2	-	-	-	2
<i>Varanus bengalensis</i>	4	-	4	1	9
<i>Hemidactylus flaviviridis</i>	-	-	5	-	5
<i>Ablepharus grayanus</i>	-	-	4	-	4
<i>Eutropis macularia</i>	-	-	1	-	1
Turtles					
<i>Kachuga smithii</i>	-	-	-	5	5
<i>Lissemys spuntata andersoni</i>	-	-	2	5	7

Good countries of salt reach, fields, around Karachi and Lasbela (Khan, 2006). *E. macularia* was not recorded from region Dera Ismail Khan before present study and just a single example of the species was caught from human residences. *Varanus bengalensis* involves assortment of environments for example dry deserts, developed regions, desolate terrains and human homes (Kumar, 1992). *Kachuga smithii* turtle is hard shell types of new water and tracked down in lower Sind and Indus delta. *Lissemys punctata andersoni* is a delicate shell types of freshwater and generally disseminated in

Bangladesh, Nepal, India and Pakistan (Khan, 2006).

Conclusion

It very well may be finished up from the current review that utilization of hand nets and snake sticks are the most proficient ways of examining creatures of land and water and reptiles. During present review, 3 land and water proficient and 15 reptilian species were recorded from the review region.

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