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New record of *Daboia russelii* (Shawn and Nodder, 1797) from Azad Jammu and Kashmir, Pakistan

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ABSTRACT

People of Pakistan has fear against the snake due to lot of folklores are present among people. They are killed snake on sight. This study was done to examine new record of *Daboia russelii* from Azad Jammu and Kashmir, Pakistan. During the research noted that three specimens of *Daboia russelii* are recorded in village Dhall Qazian Bagh, district Bagh; out of total, one specimen was collected and 2 were seen by respondents from this village in November 2020. One specimen collected and one respondent was also seen this species near Arja, Bagh in November 2019. And single specimen was observed in village Naryolla, Bagh, Azad Jammu and Kashmir, Pakistan in September 2019. Photographs of the *Daboia russelii* are provided. The *Daboia russelii* is nocturnal and reported in along marginal growth of water bodies, salty scrubby landscape, grass fields with marginal trees, hedges and fences along gardens, corridor forests, slightly disturbed habitats and near agricultural landscapes.

Keywords: Bagh, Snake, Kashmir, Agricultural landscape

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INTRODUCTION

People have fear against the snake in Pakistan, because lots of folklores are present among people. They are killed snake on sight. In whole world 2,700 snakes species are reported, out of total approximately 400 species belong to families Elapidae, Crotalidae, and Viperidae are venomous (Durand, 2004; Khan, 2006; Vidal *et al.*, 2009; Khan, 2014).

Daboia russelii reported from Karachi district to Rawalpindi district, at low altitude it is reported from throughout India to Bangladesh and Sri-lanka (Khan, 2006). It is famous in numerous races throughout Southeast Asia to Taiwan (Khan and Ahmad, 2019; Adil *et al.*, 2020; Altaf *et al.*, 2020). Very few studies have been documented on the fauna of Azad Jammu and Kashmir, and lesser studies are related with the herptile fauna of the region. Approximately 50 terrestrial snakes species are reported from Pakistan (Khan, 2006).

MATERIALS AND METHODS

The data were collected during January 2019 to November 2020 from Bagh district, Azad Jammu and Kashmir.

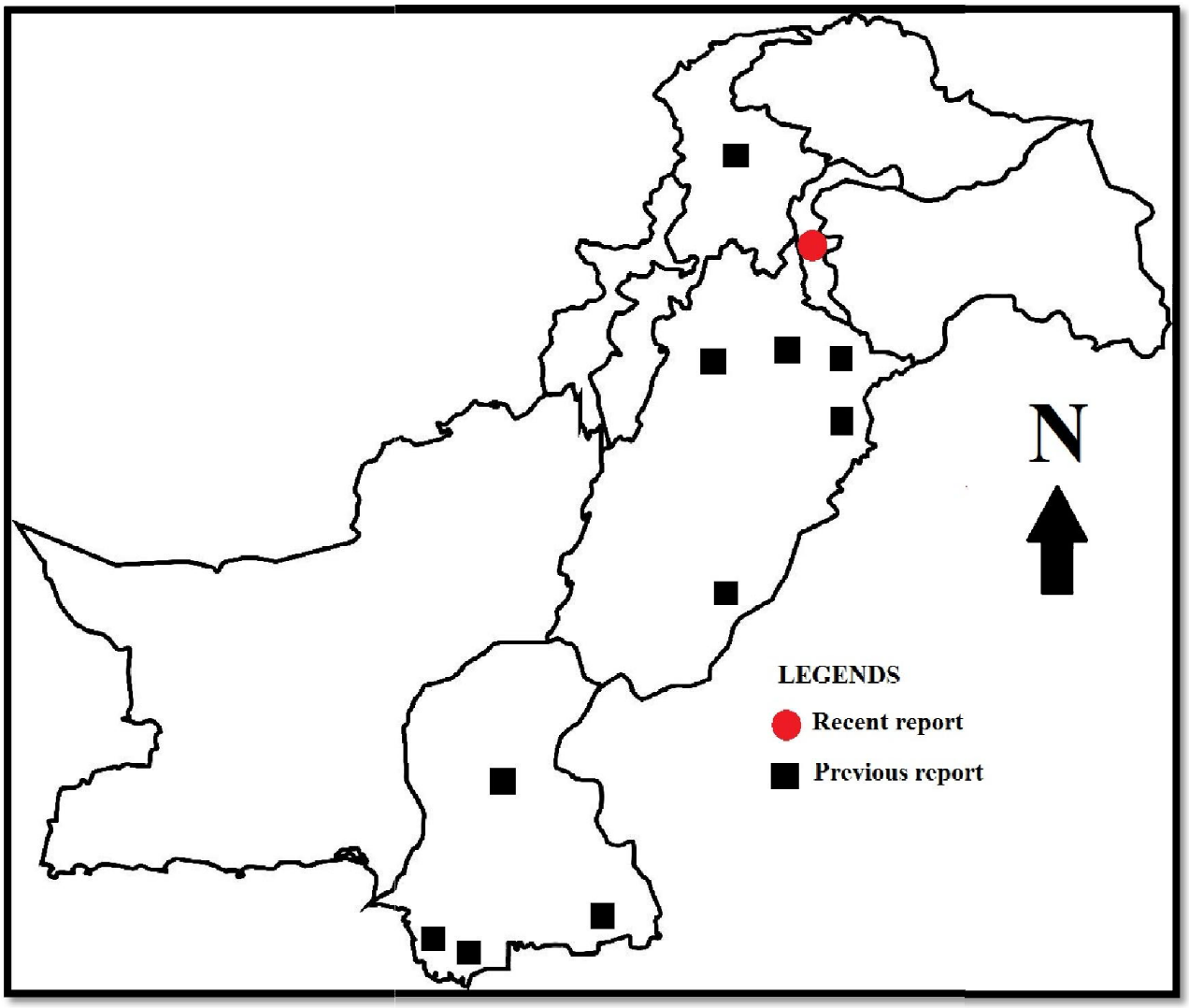

Figure 1: *Daboia russelii* present and previous reported sites in Pakistan.

STUDY AREAS

Bagh is present 80 km distance from the district Muzaffarabad, Azad Jammu and Kashmir; and 160 km from the district Islamabad. The district Bagh has mountainous landscape, has slope from northeast toward southwest. This region present in the lesser Himalayas (Figure 1). The elevation is from 1500 to 2500 m above sea level. The mountains are covered with coniferous forests. Nala Mahl and Betar Nala are two main streams. However, many other rivulets are present in this district (DRU, 2007).

METHODOLOGY

Data were collected with direct (i.e. physical count) and indirect (i.e. group questionnaire Survey) observation methods were used. *Daboia russelii* picture (15 x 10 cm) was utilized in questionnaire for accurate identification.

Table 1: Coordinates of study areas.

Study area	**Coordinates**		**Elevation (m)**
Dhall Qazian Bagh	34° 01'18"N	73° 46'28"E	1342
Naryolla, Bagh	33° 53'20"N	73° 48'21"E	1149
Arja, Bagh	33° 58'04"N	73° 39'01"E	782

RESULTS AND DISCUSSION

During the research noted that three specimens of *Daboia russelii* are recorded in village Dhall Qazian Bagh, district Bagh (Figure 2); one specimen was collected and 2 were seen by respondents from this village in November 2020. One specimen reported and one respondent was also seen this species near Arja, Bagh in November 2019. And single specimen was observed in village Naryolla, Bagh, Azad Jammu and Kashmir, Pakistan in September 2019 (Table 1 and 2). Khan and Ahmad (2019) documented the new distribution of *Daboia russelii* in Swat, Pakistan. Total 6 samples of *Daboia russelii* were collected, from January 2019 to November 2020.

Daboia russelii dorsum is light yellowish brown to sandy, with a median series of 22 to 32, large oblong chestnut blotches, bordered with dark brown or black, edged with cream, arranged lengthwise, mostly confluent with each other to from a mid-dorsal chain. A lateral series of similar however smaller spots are present on lower side are with scattered dark flecks with lighter edges. A pair of dark spot is present at base of head a light. Labials mottled with brown and cream, ventrum pinkish white with covered dark spot. *Daboia russelii* has throat white. *Daboia russelii* diagnostic characteristics are as; head is longer than broad distinctive from neck, nostril crescent shape, large in size. Body stout dorsoventrally flattened, tail 220 to 225mm, Snout-vent length 1080 to 1090 mm. Anterior genial is wide and short, posterior genial is not differentiated and supraocular scale undivided (Leviton *et al.*, 2003; Khan, 2006).

The *Daboia russelii* is nocturnal and reported in along marginal growth of water bodies, salty scrubby landscape, grass fields with marginal trees, hedges and fences along gardens, corridor forests, slightly disturbed habitats and near agricultural landscapes. *Daboia russelii* feeds on mammals and bird. It breeds in summer season, and 20 to 25 juveniles are born (Khan, 2002, 2006).

Table 2: Population of *Daboia russelii* reported from study areas.

Study area	Direct observation	Indirect observation	Total observation
Dhall Qazian Bagh	1	2	3
Naryolla, Bagh	0	1	1
Arja, Bagh	1	1	2

Figure 2: *Daboia russelii* collected from Bagh, Azad Jammu and Kashmir.

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Authors' contributions: Haider and Faiz has designed project, collected data and written this article.