

A noteworthy locality of the javelin sand boa (*Eryx jaculus* Linnaeus, 1758) in Southern Bulgaria

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Abstract. A noteworthy locality of the rare javelin sand boa (*Eryx jaculus* Linnaeus 1758) is described on the slope of the Rhodope Mountain south of Asenovgrad, with at least 28 individual specimens. As this rare species is sensitive to disturbance, conservation actions should be taken to preserve the site.

Key words: Asenovgrad, herpetology, snakes.

Introduction

The javelin sand boa (*Eryx jaculus* Linnaeus 1758) is a rare snake exhibiting a fragmented and sporadic distribution in Europe (Speybroeck *et al.* 2016). Within Bulgaria, the species predominantly inhabit the country's southeastern regions, displaying a similarly fragmented distribution that has warranted its legal protection (Beshkov 2015). Records of the species frequently consist of single individuals (Naumov 2006, Pulev *et al.* 2014, Stanchev *et al.* 2023).

There are very few reports on the presence of the javelin sand boa in the area around the town of Asenovgrad, which do not provide details about the state of the population (Petrov *et al.* 2007, Beshkov 2015). In this study, we present data concerning a large number of individuals in a highly restricted area, accompanied by notes on their habitat and biology.

Material and Methods

The study area is located south of the town of Asenovgrad (N 41.9°, E 24.8°, 370 - 330 m alt.) on a rocky slope of the Rhodope Mountain. The vegetation is represented by grasses and shrublands surrounded by deciduous forests, laying on cinnamon forest soil and metamorphic rocks. The area is a part of the Natura 2000 network Habitats directive BG0001031 "Rhodopi-Sredni." As this species is highly vulnerable and might be of interest to illegal collecting and disturbance, the exact coordinates of the locality will be made available upon request only for scientific research. The fieldwork took place between 01.04.2023 and 06.09.2023. We performed transects, searching for the snakes among suitable microhabitats such as rocks, sand, and dry wood. The specimens were measured and released in the place of observation. Individual specimens were identified by size, location, and the pattern of coloration.

Results

We observed a total of 31 individual specimens - 28 alive and three dead, located along an area of approximately 2.2 linear kilometers (Fig. 1). The majority of the specimens (n = 19) were juveniles, and 12 were adults, varying in size between 7 and 52 cm (Tab. 1). All live individuals were observed between 01.05.2023 and 08.08.2023. On several

occasions, we observed the snakes "half-basking" – only part of the body showed from under the rocks. The sand boas displayed peak activity in May, with no activity recorded after August.

Table 1. Individual sand boas.

No	Date	Time of day	Age	Length (cm)	Behavior
1	01.05.2023	Morning	Juv.	8	Under a rock
2	02.05.2023	Morning	Juv.	10	Under a rock
3	02.05.2023	Morning	Juv.	7	Under a rock
4	02.05.2023	Morning	Juv.	7	Under a rock
5	02.05.2023	Noon	Subad.	17	Under a rock
6	02.05.2023	Afternoon	Juv.	9	Under a rock
7	05.05.2023	Afternoon	Juv.	8	Under a rock
8	06.05.2023	Morning	Juv.	7	Under a rock
9	06.05.2023	Morning	Juv.	11	Under a rock
10	08.05.2023	Noon	Juv.	8	Under a rock
11	08.05.2023	Noon	Ad.	42	Under a rock
12	08.05.2023	Noon	Ad.	40	Dead
13	16.05.2023	Morning	Juv.	8	Under a rock
14	20.05.2023	Morning	Juv.	8	Under a rock
15	20.05.2023	Noon	Juv.	12	Under a rock
16	20.05.2023	Afternoon	Juv.	10	Under a rock
17	21.05.2023	Noon	Juv.	11	No data
18	22.05.2023	Morning	Ad.	43	Half basking
19	22.05.2023	Morning	Ad.	37	Half basking
20	22.05.2023	Afternoon	Ad.	46	Half basking
21	25.05.2023	Morning	Ad.	50	Basking on the trail
22	25.05.2023	Noon	Ad.	26	Under a rock
23	28.05.2023	Afternoon	Ad.	41	Under a rock
24	02.06.2023	Afternoon	Juv.	7	Basking on a rock
25	05.06.2023	Dusk	Ad.	38	Under a rock
26	05.06.2023	Dusk	Juv.	7	Under a rock
27	06.06.2023	Afternoon	Juv.	8	Under a rock
28	10.06.2023	Noon	Ad.	47	Under a rock
29	08.08.2023	Dusk	Ad.	52	Basking on the trail
30	17.08.2023	N/A	Juv.	8	Dead
31	21.08.2023	N/A	Juv.	9	Dead



Fig. 1. Javelin sand boas observed in the study area. 1, 8, and 10 - juveniles, 2 and 3 - half basking. 4 - the studied habitat, 5, 6, 7, and 9 - adult individuals.

Discussion

Our observations confirm the existence of a relatively well-preserved javelin sand boa population, representing the highest concentration of these snakes in a single site reported in Bulgaria to date (Beshkov 2015, Stanchev *et al.* 2023). This site is close to the species' altitude limit of the country – 400 m (Petrov 2007). The large number of observed individuals raises questions on the origin of this population, whether this is a result of current climate change events, or whether the increased sampling effort leads to more significant results than in previous studies, as is also hinted in the latest research on the species (Stanchev *et al.* 2023). The site falls within a Natura 2000 zone (MOEW 2023); however, the sand boa is not a target species for this zone. Therefore, to ensure the long-term survival of this population, we strongly recommend additional conservation actions and more detailed research targeting sand boas and other reptiles inhabiting the area.

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