

RESEARCH ARTICLE

Open access

A report on *Platyceps ventromaculatus* (Colubridae) from Fereydan County in Isfahan province-Iran

Rouhullah Dehghani¹, Behrooz Fathi H.^{2*}, Nasrullah Rastegar Pouyani,³ Nahid Chaharbaghi¹

¹ Social Determinants of Health (SDH) Research Center and Department of Environment Health and Kashan University of Medical Sciences, Kashan, Iran

² Department of Basic Sciences, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran

³ Department of Biology, Faculty of Science, Razi University, Kermanshah, Iran

(Received: 11 September 2021; Accepted: 06 September 2022)

Abstract

Snakes are among the predatory reptiles in the wild. Due to the importance of knowing the habitats of these reptiles and their distribution, this study has been done. During the study, the specimen snake was found in the garden of a house in the region of Afus, of Fereydan County, in the west of Isfahan province. The city of Afus is 2800 meters above the sea level, on the roof of Iran. Afus is located at 50°5', 646 East longitude, and at 33°1', 464 North Latitude. Afus is a mountainous region with a moderate climate, its winters are cold and snowy while its summers are mild and pleasant. The mountainous nature of Afus and the sudden changes in temperature cause seasonal winds to blow. Temperature changes in this city are such that in winter and especially in January reaches minus 30°C and in summer and on the hottest day of the year will be 31°C. This suitable climate and soil type cause the growth of varieties of herbaceous plants and medicinal herbs in this region. The presence of these plants causes Afus land to be green and fertile in the hot season. After initial identification of this species according to the available sources, its photos and videos were presented to a high expert herpetologist who confirmed the identity of the snake. On the basis of morphological characters, the specimen was *Platyceps ventromaculatus* belong to the Colubridae family and is considered as a non-venomous snake.

Key words: *Platyceps ventromaculatus*, Fereydan, Afus, Snake.

INTRODUCTION

Snakes are incredible creatures, they have extraordinary, mysterious, and scary appearances and inspire fear in a way that no other type of animal can. They bite for hunting the prey or self-defense, some of them are venomous and some are non-venomous. Non-venomous snakes are about 90% of all snake species. There are about 3700 species that have been identified throughout the world in a variety of different habitats (Dehghani, 2017; Trape et al., 2001). Based on their habitats and human interference it is possible that incidences of bites take place. Most deaths from snake bites have been reported from South and Southeast Asia and sub-Saharan Africa (Bawaskar & Bawaskar, 2002).

Iran is located in a region with a tropical and subtropical climate, and a variety of snakes are habitant in this climate than in colder climates. The distribution of snakes throughout Iran has been reported from the southern islands located in the Persian Gulf to the northernmost regions (Rezaie-Atagholipour et al., 2016). Iran has 83 different identified species of snakes of which about 27 species are





FIGURE 1. Location of Isfahan Province and Afus in this province in the central of Iran.

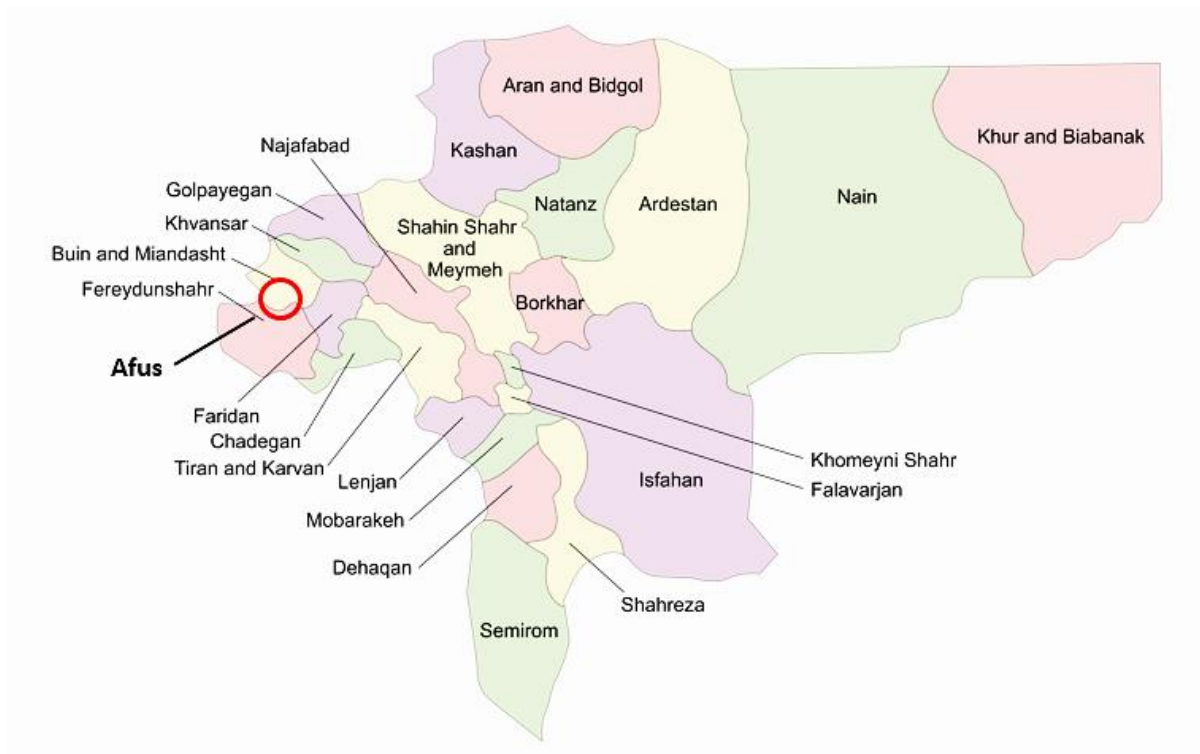


FIGURE 2. Isfahan Province and the location of Afus in the west of this province.

venomous and 11 species are semi-venomous. Non-venomous snakes or Aglypha have no venom gland and possess a series of simple teeth. Most of them have round pupils and their tail is usually round and long. They usually are active and very fast (Gholamifard, 2011; Dehghani et al., 2016a; Rastegar-Pouyani et al., 2008).

All venomous and non-venomous snakes bite for self-defense therefore, in addition to the possible envenomation, victims may experience mild to severe pain and discomfort. The snake oral bacterial flora contains a wide range of aerobic and anaerobic micro-organisms based on snake species and inhabitant geographical regions therefore, local or general bacterial and fungal infections, may also occur. People with immunodeficiency disorders are most likely to develop secondary infections (Dehghani et al., 2016b).

Snakes are the most important and valuable creatures in nature not only for their medical significance but also for their roles in ecosystem balance. They are Effective hunters and play a key role in the natural environment and food webs. As they are sign of a healthy ecosystem, their habitat, their population, and their proximity to humans should be given more attention.

Human possible misconceptions in different societies, ancient beliefs, common myths, fear, and hate about snakes, lead to an increase in their chance to be destroyed and kill. As a result, increase their risk of extinction (Reading et al., 2010; Jowkar et al., 2016). Therefore, investigation and collecting the exact information on their distribution, their habitat, and the risk of being bitten by them, can increase the level of awareness and knowledge of the people and change their perspective. These in turn can help to preserve these valuable animals for maintaining the balance of the ecosystem. On the other hand, accurate knowledge of living animals, their importance, and their role in nature will increase the level of public education and reduce people's unnecessary fear. This also will reduce the damage to their habitats and will preserve ecological values for future generations.

MATERIALS AND METHODS

The region of study

Afus City of Fereydan County is located in the west of Isfahan province and 5 km away from Isfahan, Lorestan, and Buin and Miandasht transit road. It is bordered to the north by Khansar city, to the south by Chaharmahal and Bakhtiari province, to the east by Najafabad city, and to the west by Aligudarz. The nearby cities to Afus are Barf Anbar, Buin and Miandasht, and Fereydunshar which are about eight kilometers distance. Afus is the highest city in Iran at an altitude of 2800 meters above sea level. The mountainous climate of this city is moderate in spring, rarely warm in summer, and very cold in winter. According to the studies from 1981 to 2001, the average annual rainfall is about 3,317.4 mm and the average annual temperature is about 10.4 °C, this average temperature causes pleasant weather on most days of spring and summer (Fig. 1, 2 and 3). The snake sample was first observed in a walnut garden of a house in Afus, and it took a long time for the animal to finally be captured.

Specimen morphometric character

The specimen of a snake was temporarily captured and examined live. Photos and videos were taken from the sample and its morphometric characteristics such as size, shape, color, and other characteristics were recorded (Table 1). It was an immature snake of 47 cm in length (Fig. 4). The head dorsal surface was black. The body is uniformly light olive green to grayish olive brown with different lines and patterns. The abdominal surface was clear with small dark spots on the lateral side. Two narrow and uniform olive-gray stripes were observed on its body back (Fig. 5) (Table 1). The dorsal surface had a transverse black zigzag band and was relatively regular. An ocular scale was attached to the forehead scale and below it, a small scale was located. It had two posterior ocular scales. The upper lip had nine scales, the fifth and sixth scales were attached to the eye. The scales on the back surface were smooth and arranged in 19 rows. The scales on the ventral surface were 205 and on the lower surface of the tail was 88. The scales of the anus were divided. All these characters were in accordance with Latifi and Mozaffari reports, (Latifi., 2000; Mozaffari et al., 2016). After primary identification and verification of the species according to reliable sources, the specimen photos and video were sent to a high expert herpetologist who finally

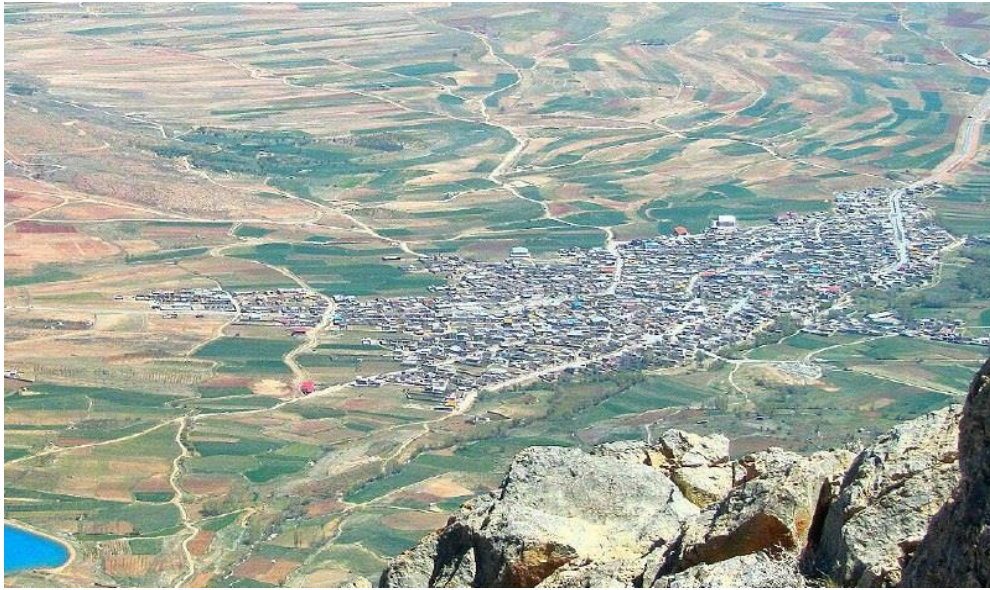


FIGURE 3. The location of Afus in the west of Isfahan province.



FIGURE 4. (Left & Right) Dorsal view of *Platyceps ventromaculatus*.



FIGURE 5. (Left) Lateral and (Right) dorsal view of *Platyceps ventromaculatus* head.

TABLE 1. Some metric (mm) and meristic characters of investigated specimen.

Variable	Measurement
Snout-vent length	470 mm
Tail length	110 mm
Supralabials	9
Dorsals	19 rows
Ventrals	205
Subcaudals	88

confirmed the exact identity of the snake. The Specimen was confirmed as *Platyceps ventromaculatus* snake. The snake then was released in the same habitat.

RESULTS AND DISCUSSION

The Colubridae family is one of the largest and the most diverse families of snakes. Their size varies and males and females often have a similar appearance but the female's tails are longer which gradually become narrower. The scales are symmetrical on the upper surface of the head. The scales on the dorsal surface of the body are smooth or keeled, the eyes are usually large and the pupils are round. The maxilla is fixed and located horizontally (Dehghani et al., 2016a; Rastegar-Pouyani, 2008). The Glossy Bellied Racer or *Platyceps ventromaculatus*, commonly known as Glossy Bellied Racer with synonym name as *Coluber ventromaculatus*, belongs to the Colubridae family. This species is widely distributed in the Southwest of Asia and it has been reported from India, Pakistan, Afghanistan, Turkey, Iraq, the former Soviet Union, Kuwait, Bahrain, and Saudi Arabia. These species feed on lizards, small mammals like mice and birds. As a hunter of insects and arthropods, they play an important role in their habitat. They are laying 3 to 7 relatively large eggs and newborns hatch in summer (Latifi, 2000). They are very calm in terms of behavior and are not dangerous or aggressive (Dehghani et al., 2016a; Safaei-Mahroo et al., 2015). They can easily be touched and picked up. Its habitats have been reported in desert areas, hillsides, and mountainous areas and in Iran, it has been reported in Tehran, Khorasan, Fars, Bushahr, Sistan and Baluchestan, Kerman, Khuzestan, Semnan, Kurdistan, Markazi, Qom, and Golestan provinces (Dehghani et al., 2016a; Latifi, 2000; Yousefkhani et al., 2014; Nasrabadi et al., 2016; Soleimanfallah et al., 2018; Hojati & Deymekar, 2020; Kazemi et al., 1015). Based on this study the snake's habitat is reporting in the mountainous region of Afus in the west of Isfahan province.

CONCLUSION

Although, distribution of *Platyceps ventromaculatus* has been reported from different provinces of Iran. But so far, its exact habitat in Isfahan province was unknown. Therefore, with this report, it is declared that its habitat is in the west of Isfahan province. A region that is characterized as a cold climate and at an altitude of 2800 meters above sea level.

LITERATURE CITED

- Bawaskar, H.S., & Bawaskar, P.H., 2002. Profile of snake envenoming in western Maharashtra, India. *Transactions of The Royal Society of Tropical Medicine Hygiene* 96(1), 79-84.
- Dehghani, R., 2017. Solpugidophobia in Iran: Real or Illusion. *Journal of Biology and Today's World* 6(3), 46-48.

- Dehghani, R., Dadpour, B., Keyler, D., Panjehshahi, M., Jazayeri, M., Mehrpour, O., et al., 2016a. A survey on non-venomous snakes in Kashan (Central Iran). *Journal of Biology and Today's World* 5(4), 65-75.
- Dehghani, R., Sharif, A., Assadi, M.A., Kashani, H.H., & Sharif, M.R., 2016b. Fungal flora in the mouth of venomous and non-venomous snakes. *Comparative Clinical Pathology* 25(6), 1-5.
- Firouz, E. 2000. *A Guide to the Fauna of Iran*. Iran University Press; Tehran. 491 pp. [In Persian].
- Gholamifard, A., 2011. Endemism in the reptile fauna of Iran. *Iranian Journal of Animal Biosystematics*, 7(1), 13-29.
- Google map., 2015: available at (<http://www.iranvisitor.com/index.php?CID=414&PID=1427>)
- Hojati, V. & Deymekar, M., 2020. The study of the snakes fauna of Taloo and Shirband hunting prohibited area in Semnan province. *Nova Biologica Reperta* 7 (3), 285-294. (In Persian).
- Jowkar, H., Ostrowski, S., Tahbaz, M., & Zahler, P., 2016. The conservation of biodiversity in Iran: threats, challenges and hopes. *Iranian Studies* 49(6), 1065-1077.
- Kazemi, S.M., Rastegar-Pouyani, E., Shafiei Darabi S.A., Tehrani, M.E., Hosseinzadeh, M.S., Mashayekhi, M., et al., 2015. Annotated checklist of amphibians and reptiles of Qom Province, central Iran. *Iranian Journal of Animal Biosystematics* 11(1), 23-31.
- Latifi, M., 2000. *The snakes of Iran*. 3rd ed. Environment Protection Organization publisher, Tehran Press.
- Mozaffari, O., Kamali, K., & Fahimi, H., 2016. *The atlas of reptiles of Iran*. Tehran: Department of the Environment. 251-252(364pp). (In Persian and English).
- Nasrabadi, R., Rastegar-Pouyani, E., Yousefkhani, S.S., & Khani, A., 2016. A checklist of herpetofauna from Sabzevar, Northeastern Iran. *Iranian Journal of Animal Biosystematics* 12(2), 255-259.
- Reading, C.J., Luiselli, L.M., Akani, G.C., Bonnet, X., Amori, G., Ballouard, J.M., et al., 2010. Are snake populations in widespread decline? *Biology Letters* 6(6), 777-780.
- Rezaie-Atagholipour, M., Ghezellou, P., Hesni, M.A., Dakhteh, S.M.H., Ahmadian, H., & Vidal, N., 2016. Sea snakes (Elapidae, Hydrophiinae) in their westernmost extent: an updated and illustrated checklist and key to the species in the Persian Gulf and Gulf of Oman. *ZooKeys* 622, 129-164.
- Rastegar-Pouyani, N., Kami, H.G., Rajabzadeh, M., Shafiei, S., & Anderson, S.C., 2008. Annotated Checklist of Amphibians and Reptiles of Iran. *Iranian Journal of Animal Biosystematics* 4(1), 43-66.
- Safaei-Mahroo, B., Ghaffari, H., Fahimi, H., Broomand, S., Yazdanian, M., Najafi-Majd, et al., 2015. The herpetofauna of Iran: checklist of taxonomy, distribution and conservation status. *Asian Herpetological Research* 6(4), 257-290.

Soleimanfallah, D., Hojati, V., Shajiee, H., Sharafi, S., Babaei Savasari, R., & Khani, S., 2018. The study of reptiles fauna in Sefid Kouh-Aresk no-hunting area in Semnan Province. *Journal of Animal Environment* 10(2), 97-106.

Trape, J.F., Pison, G., Guyavarch, E., & Mane, Y., 2001. High mortality from snakebite in south-eastern Senegal. *Transactions of the royal society of tropical medicine hygiene* 95, 420-423.

Yousefkhani, S.S., Yousefi, M., Khani, A., & Pouyani, E.R., 2014. Snake fauna of Shirahmad wildlife refuge and Parvand protected area, Khorasan Razavi province, Iran. *Hepetology Notes* 7(10), 75-82.
<https://www.researchgate.net/publication/260182693>