

# *Platyceps karelini* a nonvenomous snake (Ophidia: Colubridae) from Kashan county (Isfahan–Iran)



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## Abstract

**Objective:** Snakes are among the predators of any ecosystem and have been seen in different parts of Iran. The report on their distribution in Isfahan province was taken into consideration because of the importance of regional knowledge of these animals.

**Case report:** During this survey, a sample of snakes was collected from north of Isfahan province, Kashan city, the University site of Medical Sciences and the sample was studied. The snake was identified by morphological and habitat characteristics and compared to other photos and data. The specimen belonged to the *Colubridae* family and non-venomous snakes. This species is distributed in the tropical climatic zone of the province. The species of the tropical region of Kashan city was identified as *Platyceps karelini*, or spotted snake

**Conclusion:** We identified the habitat of this animal in Kashan city in Isfahan province. By identifying the species of Spotted Desert Racer from the *Colubridae* family, the number of non-venomous snakes in Kashan reached eight species.

**Keywords:** Kashan, Non venomous snake, Spotted desert racer, *Platyceps karelini*, Snake bite

## Introduction

Fear of various biting animals has always been associated with humans. Humans fear snakes and other venomous animals, but this fear is not always justified, because the threat posed by various animal species varies (1). Snakes have always been considered dangerous by humans but not all of them are venomous and their bites do not cause harm to humans but they may cause other complications. This group includes non-venomous snakes which account for about 90% of all venomous and non-venomous snakes. About 3700 species of snakes have been identified in the world that live in different habitats. In these habitats, it is always possible for humans to encounter snakes and get bitten. The frequency of snake bites varies due to the distribution of their species in the world (2). Geographically, most deaths due to snake bites occur in South and Southeast Asia and sub-Saharan Africa (3). Like other tropical, subtropical and temperate countries in the world, a large number of venomous and non-venomous snakes live in Iran and their distribution is reported throughout Iran, from the southern islands in the Persian Gulf and its waters to the northernmost regions of the country (4). Eighty-three species of snakes have been identified. In this regard, 27 of which are

poisonous, 11 are semi-venomous, and 45 of them are non-venomous. Non-venomous snakes or Aglypha have teeth with a simple structure that are not connected to the venom gland. The pupil of the eye is often round and the tail of the snake is usually round and long. Non-venomous snakes generally move very fast and are agile (5-7).

Venomous and non-venomous snakes bite are for self-defense. In addition, the bite causes envenomation symptoms. People may experience pain and discomfort, local or advanced bacterial and fungal infections. People with compromised immune systems are more likely prone to infection after animal biting and envenomation. Type of bacteria in the mouth of snakes is a determining factor in wound infection (8). Apart from their medical importance, snakes are the most important animals in the environment, which play an essential role in ecological balance: For this reason, it should also be considered from this perspective. Unaware behavior of humans with snakes and killing them in different societies and regions of the world has increased the risk of their extinction (9,10). Accurate information about the distribution and habitats of any venomous and non-venomous snakes increases awareness of the types of venomous snakes and the potential dangers of their bites and helps



maintain these animals and ecosystem balance: Accurate knowledge of any alive creatures, including these animals, their importance and role in nature will increase the level of public awareness. This will make the ecosystem of each region less damaged and will preserve biological resources for future generations.

### Case Presentation

Kashan city study area is one of the northern cities of Isfahan province and is located in the center of Iran. The University of Medical Sciences is located between Kashan and Ravand, located at an altitude of 900 meters above the sea. This university is located next to Aran and Bidgol deserts and next to Kashan-Qom road (Figures 1 and 2).

This survey is a case report on a snake sample that was studied at the Kashan University of Medical Sciences' research laboratory. The snake was caught alive. A large and open space surrounds this laboratory, stretching all the way to the olive and pistachio growing area around the university. The sample was transferred live to the School of Health laboratory where the species *Platyceps karelini* was identified. After recording the features and identifying and taking photos of it, the living sample was

dropped in the habitat at a distance of about 500 meters from the capturing site. The snake sample was 97 cm long (Figure 3). Sample specifications include prominent and distinct snout, scales between the nose and the forehead that are equal in size. It had one scale in front of the eyes and one sub ophthalmic scale below the eyes, two retro ophthalmic scales, and one large sub ophthalmic scale below them, the upper lip had nine scales and the fifth scale was attached to the eye, the lower lip also had nine scales. The body color was light gray with incomplete dark blackish color ring-shaped spots that do not reach the snake's ventral surface. On the lateral surface, there was alternating black strips and dots. The dots and rings on the anterior surface of body were marked, while the dots and rings on the posterior surface were not as distinct, and the ventral surface was light and free of spots. The tail area had no spots and rings, but there were black spots under the eyes and on the temporal area (see Figures 4 and 5)

### Discussion

*Platyceps karelini* is commonly known as "Spotted Desert



Figure 1. The position of Isfahan province in Iran.

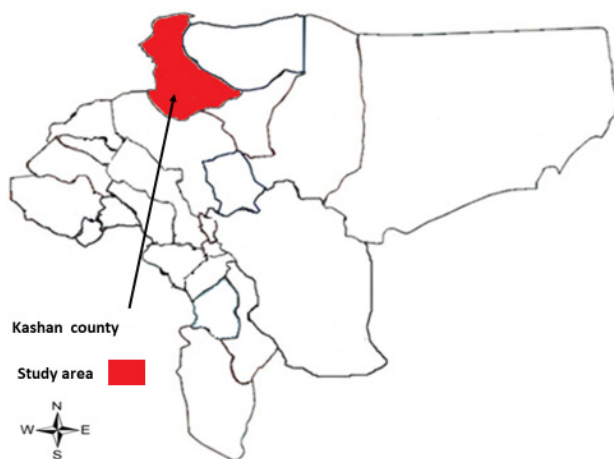


Figure 2. Kashan city, study area in Isfahan province.



Figure 3. *Platyceps karelini* spotted dorsal surface.



Figure 4. The dorsal surface of the head and neck of the spotted *Platyceps karelini*.



Figure 5. Ventral surface of *Platyceps karelini* spotted snake head and neck.

Racer “and has the synonym name as *Coluber karelini* Brandt. Iran, Pakistan, Afghanistan, Uzbekistan, Central Asian countries, and Kazakhstan have all reported snake sightings. The color of this animal may vary depending on where it is found. The body of this snake is yellow or light gray or light brown with incomplete dark blackish color ring-shaped spots that do not reach the abdominal surface. On the lateral surface, there are alternating black stripes and dots, the spots and rings are marked on the anterior surface of the snake’s body and are not visible on the posterior surface. The tail area has no spots and rings, there are some black spots under the eyes and the temporal area, and the light abdominal surface has no spots (11-14).

The provinces of Khorasan (15,16), Semnan (17,18), Qom (19), Golestan, Sistan and Baluchestan, Markazi, Mazandaran, Isfahan, Tehran, Khuzestan, Yazd, Kerman, and East Azerbaijan have all reported this snake. . The habitat of this snake is mountainous areas, plains, and deserts. But it is mostly caught in desert areas. In the summer, they lay eggs and the neonates hatch. They feed mostly on mice and small lizards. This snake has a very calm demeanor and its samples can be easily collected (20,21). This snake is not dangerous and hunts insects and arthropods in its habitat (22). The number of non-venomous snake species in Kashan, Aran and Bidgol has increased due to the identification of this *Platyceps karelini* or Spotted Desert Racer, bringing the total number of non-venomous snake species to eight.

### Conclusion

Although the distribution of desert spotted racer or *Platyceps karelini* has been reported from different provinces of Iran, its exact habitat has been unknown so far, so this report confirmed the presence of this animal in Kashan city in the north of Isfahan province. The identification of this non-venomous snake brings the total number of reported species to eight.

### Author’s contributions

Designed the study (RD); Write the manuscript, Revision and correct it (RD, NRP,MV); Collected data, analysis and interpretation of results, and manuscript preparation (ST, MV). All authors read, discussed, commented and approved the final manuscript.

### Ethical issues

This study was approved by the clinical research development unit, Afzalipour hospital, Kerman university of medical sciences and the ethical code number is IR.KMU.AH.REC.1400.202.

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