

# Additional records of the Long-eared Hedgehog, *Hemiechinus auritus* (Gmelin, 1770) (Erinaceomorpha: Erinaceidae) from Fars Province, southern Iran

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## Abstract

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Iran is home to three genera and four species of hedgehogs in the family Erinaceidae. One of these, *Paraechinus hypomelas*, is known to occur in Fars Province. In the present study, we report two new distribution records of the Long-eared Hedgehog, *Hemiechinus auritus* from the southwestern region of Fars Province (Varavi Mountain in Mohr and Lamerd Townships in the southern Zagros Mountains), marking a range extension for this species in southern Iran.

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**Key words:** Hedgehogs, *Hemiechinus auritus*, Zagros Mountains, Fars Province, Iran

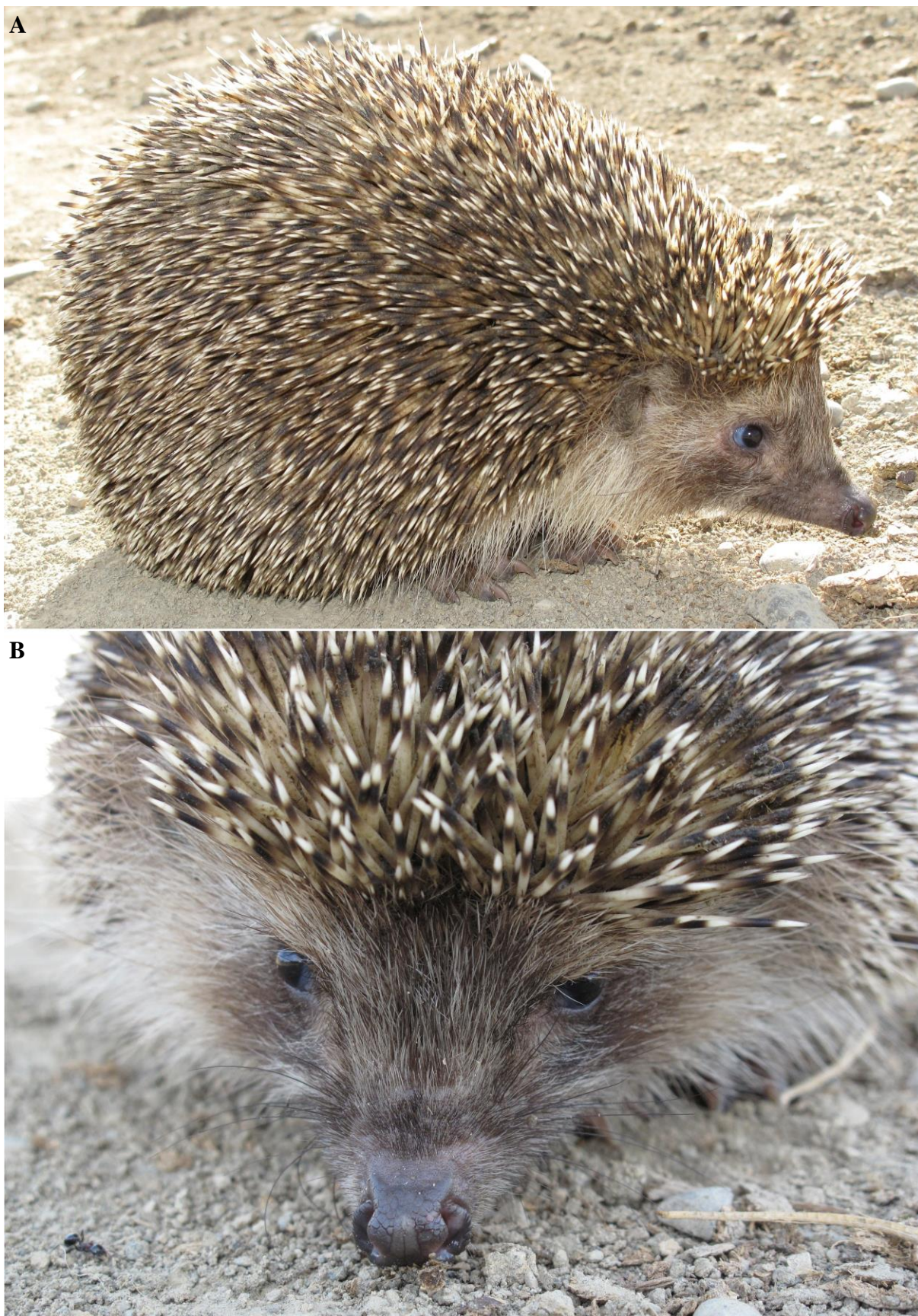
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## Introduction

Knowledge concerning the mammal fauna of Iran continues to grow. It was thought to include 191 species belonging to 93 genera and 10 orders (Karami et al., 2008), but has subsequently grown to 194 species (Ziaie, 2008), and 199 species (Karami et al., 2016), respectively. The small order of Erinaceomorpha Gregory has 10 genera and 26 species distributed in Africa, Asia and Europe (Karami et al., 2016; Best, 2019).

In Iran, the order Erinaceomorpha is represented by four species belonging to three genera in one family (Erinaceidae). These include the Eastern European Hedgehog, *Erinaceus concolor* Martin from Golestan, Mazandaran, Guilan, West Azarbaijan, Kordestan and highlands of Tehran and Qazvin Provinces (Fig. 1A, B); Long-eared Hedgehog, *Hemiechinus auritus* (Gmelin) from Khorasan Razavi, Golestan, Semnan, Tehran, Qazvin, Esfahan, Markazi, Kordestan, Lorestan, Khuzestan, Kerman, and Sistan and Baluchestan Provinces; Desert Hedgehog, *Paraechinus aethiopicus* (Ehrenberg), only recorded from the Tonb-e Bozorg (Greater Tonb) Island in the Persian Gulf, Hormozgan Province; and Brandt's Hedgehog, *Paraechinus hypomelas* (Brandt) from throughout Iran, with the exception of northern forested areas and northwestern parts of the country, as well as the Iranian islands of the Persian Gulf such as Qeshm, Hengam, Hormoz, Larak, Khark, and Greater Tonb (Hormozgan and Bushehr Provinces) (Karami et al., 2008; 2016).

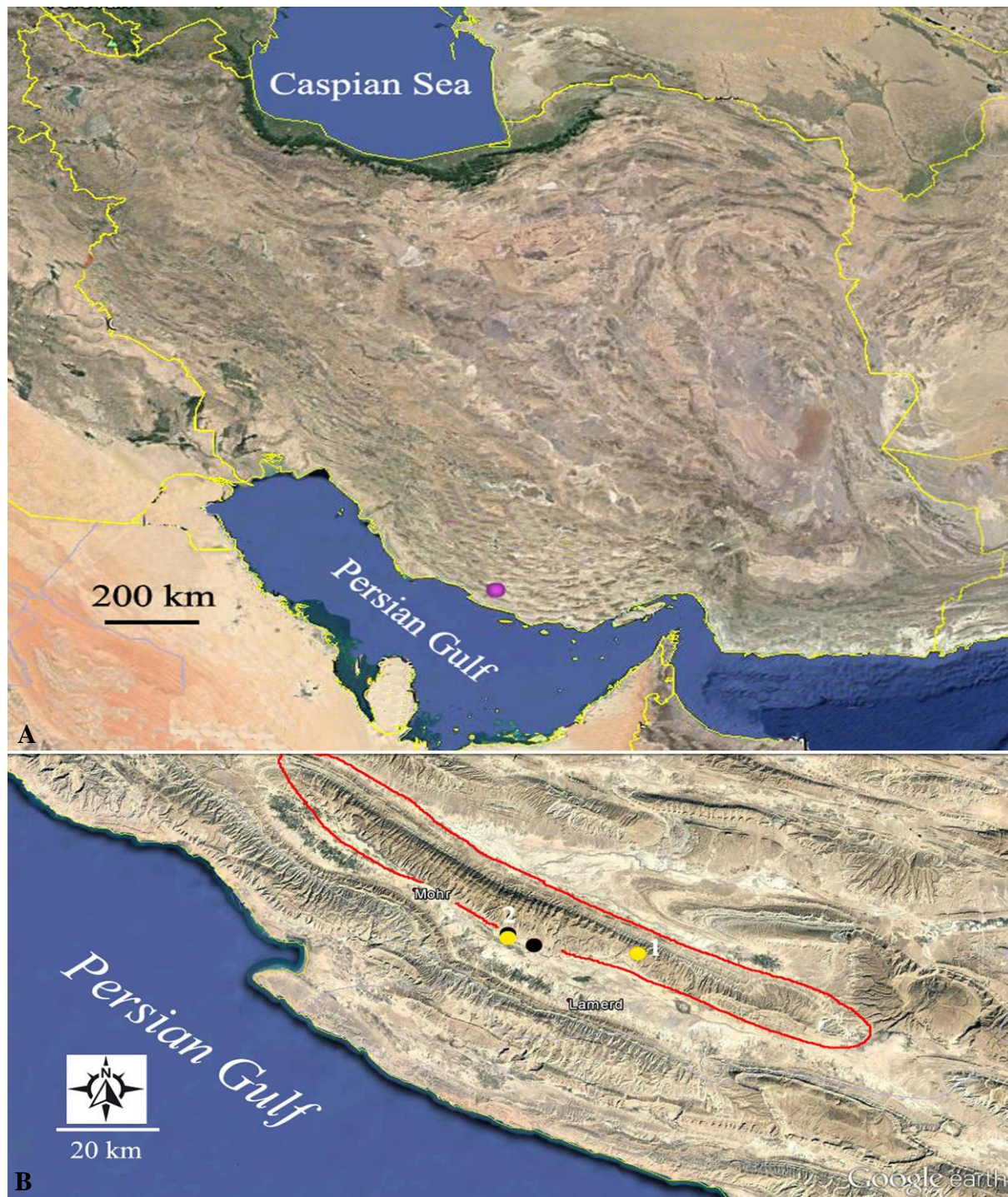
In this study, we record the first occurrence of *H. auritus* in Fars Province, in southern Iran, and thus add another species of mammals to the fauna of Fars Province.



**Figure 1:** *Erinaceus concolor* (A), and its anterior region (B) from Koredestan Province. Photos by Ali Gholamifard.

### Material and Methods

The results of this study are based on several scattered field observations in southern and western Iran. Figure 2 shows the localities of new records in Mohr and Lamerd Counties in the southwest of Fars Province, southern Iran.



**Figure 2:** Map of Iran (A) showing the location of *Hemiechinus auritus* (pink circle) at Varavi District in Fars Province; selected section of Iran map along the Persian Gulf (B) showing Varavi Mountain with red line, and new localities of *H. auritus* (yellow circles 1 and 2) and *Paraechinus hypomelas* (black circles), respectively. Map from Google Earth ([www.earth.google.com](http://www.earth.google.com)).

## Results

The earliest memory of the first author concerning hedgehogs harkens back to childhood, about 32 years ago, when his grandfather kept two hedgehogs in his wheat mill in southwestern Fars Province for controlling pests and snakes. One of the specimens was black and the other was wheat colored.

The local name of hedgehog in the south of Fars Province is “ZooZoo”, while in Lorestan Province in western Iran it is “ZhooZhoo.” In the Lorish dialect in the west and south of Iran, the name refers to having an unkempt or disheveled appearance.

Subsequently, the first author as a zoologist has had a more scientific focus on the mammals of Fars Province, noting where hedgehog specimens were found at the night in desert areas or were killed on the roads by motor vehicles (Fig. 3). Most of the observed specimens were blackish (Fig. 4) but in rare cases they were yellowish. One *H. auritus* individual (Fig. 3) was found dead on 25 March 2008 in the “Chah Shour Pass” (27°25'56.38"N; 53°18'30.41"E), a mountain pass in the southern Zagros Mountains, about 15 km from the city Lamerd, capital of Lamerd County in southwest of Fars Province (Fig. 2). Its habitat, part of Varavi Mountain, grows on calcareous soils with scattered bushes and trees. The second *H. auritus* (Fig. 5) was found during the night on 22 July 2018 in Varavi City (27°27'51"N; 53°3'44"E), Mohr County in southwest of Fars Province. The northeast end of the city is near the foothills of Varavi Mountain and close to palm gardens (Fig. 6).



**Figure 3:** A *Hemiechinus auritus* on the road surface killed by motor vehicle, in Lamerd region, southwestern Fars Province. Photo by Ali Gholamifard.



**Figure 4:** *Paraechinus hypomelas* from Varavi District, southwest of Fars Province. Entering residential areas for drinking water during summer (A), hiding behavior in the bush (B). Photos by Ali Gholamifard, 13 August 2015.



**Figure 5:** *Hemiechinus auritus*, in very brief captivity, from Varavi District, southwest of Fars Province. Photo by Ali Gholamifard.



**Figure 6:** New locality record of *Hemiechinus auritus*, in hillside of the Varavi Mountain, northeast of Varavi city, southwest of Fars Province in March 2016 (A) and the same habitat in April 2019 (B), respectively. Photos by Ali Gholamifard.

The specimen of Long-eared Hedgehog was released in the same habitat after being photographed. In these habitats of Fars Province, *Hemiechinus auritus* is sympatric with *Paraechinus hypomelas* (Fig. 2B).

Varavi Mountain in the southern part of the Zagros Mountains is a massif 124 km long and 4–8 km wide about 45 km from the Persian Gulf (Fig. 2). It extends from the western border of the Mohr Township to the eastern border of Lamerd Township, both in the southwest of Fars Province. The vegetation of Varavi Mountain consists of different species of thorny bushes (*Astragalus*), seasonal herbaceous cover, scattered wild *Ziziphus* trees, and sparse wild pistachio *Pistacia atlantica* Desfontaines (common name in Persian is Baneh), wild almond trees *Amygdalus scoparia* Spach, and wild fig *Ficus* sp. (Gholamifard et al., 2019).

## Discussion

The type locality of *H. auritus* is the “Astrakan Oblast; Astrakhan” in Russia (Lay, 1967), and the species is distributed in Palaearctic Asia and northern Africa (Ziaie, 2008; Best, 2019). Two species of long-eared hedgehogs from Iran were distinguished by Lay (1967): *H. auritus* from Khorasan, Golestan, and Qazvin Provinces (in northern Iran), and Kordestan and Khuzestan Provinces (in western Iran), and *H. megalotis* (Blyth) from Kerman, Sistan, and Baluchestan Provinces in southeastern Iran. The type locality of *H. megalotis* is “Candahar” (= Kandahar or Qandahar) in Afghanistan (Lay, 1967), while *H. a. megalotis* has been recorded from Zabol, Sistan and Baluchestan Province, in southeastern Iran (Morshed and Patton, 2002).

Based on the small genetic distance of the mitochondrial cytochrome *b* gene (0.3% Kimura 2-parameter distance) between populations of *H. auritus* and *H. megalotis* from Kerman and Sistan and Baluchestan Provinces, respectively, *H. a. megalotis* is now considered as a subspecies of *H. auritus* (Morshed and Patton, 2002).

According to Lay (1967), *Hemiechinus auritus* is not an abundant species in Iran, as the specimens collected by Morshed and Patton (2002) were few (two specimens). In their checklist of mammals of Fars Province, Zarei et al. (2019) only recorded Brandt’s Hedgehog, *Paraechinus hypomelas*, without giving details of its distribution in the province. In the southwest of Fars Province, *H. auritus* is sympatric with *P. hypomelas* and the latter species is more common.

Finally, molecular studies are needed to clarify the taxonomy and phylogeny of these lovely creatures in Iran, especially in the Zagros Mountains.

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