

## SHORT COMMUNICATIONS

### BIOLOGICAL AGGRESSION OF THE INTRODUCED RED-EARED SLIDER, *Trachemys scripta elegans* (WIED, 1939) (TESTUDINES: EMYDIDAE) IN IRAN

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The red-eared slider, *Trachemys scripta elegans* (Wied, 1939), a subspecies indigenous to the southern United States has been introduced to various countries including Iran. During fieldwork in June 2012, a population of red-eared sliders was observed in Shoormast Lake, Mazandaran Province. The red-eared slider competes for food and space with a native turtle (*Emys orbicularis persica* Eichwald, 1831). Detailed studies of potential impacts of this aggression on the environment are still lacking.

**Keywords:** Red-eared slider; *Trachemys scripta elegans*; Shoormast Lake; Iran.

#### INTRODUCTION

The red-eared slider, *Trachemys scripta elegans* (Wied, 1939), a subspecies indigenous to the southern United States (Iverson, 1992; Ernst et al., 1994), has been reported to be introduced to the wild outside its natural range, including various countries and regions in Asia, Europe, Australia, and Africa as a result of release of unwanted pets (Newberry, 1984; Uchida, 1989; Da Silva and Blasco, 1995; Ota, 1995; Luiselli et al., 1997; Chen and Lue, 1998; Cox et al., 1998; Liat and Das, 1999; Cadi et al., 2004). This turtle is well known as a successful invasive species and regarded as one of the world's worst invasive alien species (Lowe et al., 2000). Although it is generally argued that introductions of *T. s. elegans* may cause detrimental impacts on native turtles or fauna (HSUS, 1994; Da Silva and Blasco, 1995; Moll and Moll, 2000), little evidence is available to support this claim. In captivity, the introduced *T. s. elegans* is reported to compete for basking sites and detrimentally impact other sympatric turtles (Cadi and Jolly, 2003, 2004).

#### MATERIAL AND METHODS

Shoormast Lake (Fig. 1) is a natural lake located 5.5 km far from Pol-Sefid City in Mazandaran Province in northern Iran (36°5'16.03" N 53°2'48.36" E) at an elevation of 950 m. It has a maximum depth of 5 m and is 1.5 ha in surface area. Input to the lake is via underground springs and the lake is surrounded by *Alnus* sp. When approached, *Trachemys scripta elegans*, immedi-



**Fig. 1.** Shoormast Lake, Mazandaran Province, northern Iran.

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Fig. 2. *Trachemys scripta elegans*.



Fig. 3. *Emys orbicularis persica*.

ately dives into the water. This species has the ability to float well and can continue it about an hour. Because of this capability, specimens were captured by handle net.

## RESULTS

During fieldwork in June 2012, one population of red-eared sliders consisting of about 12 males and 8 females were observed basking on the shoreline at one time (Fig. 2). One male specimen was collected and deposited in the Zoological Museum, Razi University of Kermanshah. The sliders were identified on the basis of having a red stripe on each side of the head; snout elongate and pointed; no elongated, black-bordered yellow spot on chin at corner of mouth; plastron with either a dark blotch on each scute, with a dark, elongated, medial blotch; and skin is green (Ernst et al., 1994). The syntopic turtle spe-

cies is *Emys orbicularis persica* Eichwald, 1831 (Fig. 3). The Iranian populations of *E. orbicularis* occur in the southern part of its distribution range. Because of Iran is mostly uninhabitable for pond turtles, their populations are restricted to the coastal drainage area of the Caspian Sea, and they are found only along the coastal areas of the sea in Golestan, Mazandaran, Gilan, and Ardebil provinces of Iran. *Emys orbicularis* were identified on the basis of the color of the carapace that is dark olive with yellow spots. Also, the bridges between the carapace and plastron are cartilaginous and the interabdominal suture is shorter than the interanal suture (Kami et al., 2006). During fieldwork, only three specimens were observed basking at one time.

## DISCUSSION

Introduced species occupy ecological niches of endemic species; as a consequence, the exotic species may replace the endemic species and cause its extinction (Jarvis, 2000). Just about 7 years ago, the endemic *Emys orbicularis* had a dense population in Shoormast Lake. The red-eared slider (*T. s. elegans*) population is likely to have been established in Shoormast Lake due to human interventions; since the area has been intensively disturbed by human activities, resulting in serious impact on the native turtle population (*E. orbicularis*). Because of invasion of *T. s. elegans* to this lake, the population of *Emys orbicularis* regressed, now just a few counts of *E. orbicularis* were observed on destroyed shoreline. *Emys orbicularis* have no site for laying and have been forced to move to other habitats.

Vacant niches in disturbed habitats might have been occupied by introduced turtles (Chen, 2006). Due to its aggressive behavior, the red-eared slider competes for food and space with native semiaquatic turtles like *Emys orbicularis persica* and *Mauremys caspica*. Detailed studies of potential impacts of this invasion on the environment are lacking. Because of buying and selling this species throughout Iran to be kept in aquaria, Shoormast Lake is not the only ecological niche for it and *T. s. elegans* has been introduced to other aquatic habitats in Iran. So, we cannot prevent this invasion by collecting the specimens. Therefore, we recommend that governmental organizations, such as the Department of Environment (DOE), prevent the importing and selling of this species, and prosecute wrongdoers. People must also be aware of potential impacts of this invasion and should know that releasing this species in lakes and rivers, most likely can lead to the extinction of endemic turtles.

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