

Habitat Changes and its Impacts on the Caspian Pond Turtle (*Mauremys caspica*) Population in the Golestan and Mazandaran Provinces of Iran

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The *Mauremys caspica* (Gmelin 1774) belongs to the Geoemydidae is a medium-sized freshwater turtle that is widespread throughout the Middle East [1]. In Iran the Caspian Pond Turtle, is widely distributed in the north, west and south-west of country [2-4]. While the species is still common in many parts of its range, landscape alteration, pollution and intensification of water management in Turkey, Syria, Iraq and Iran are increasingly threatening the survival of many populations [1]. In this study, 118 specimens were collected from 23 stations (Figure 1) including lakes, rivers, ponds, pools and fish farms in Golestan (72 specimens) and Mazandaran (46 specimens) provinces during 2011-2012. At different stations, depending on environmental conditions, various tools such as long-handled net gillnet by small mesh, a number of small fish for bait was used for sampling and sometimes turtles were captured by hand. Habitat of this species is often covered by canebrake and bed is marshy and muddy. Sex was determined by visual observation of morphological characteristics. Of 118 specimens of *Mauremys caspica*, 62 specimens were males and 56 specimens were females. In males and females, maximum straight carapace length frequency was between 96.93–119.80 and 174.53–199.41 respectively. In over than 30% of specimens, necrosis and tissue destruction were observed in carapace and plastron (Figure 2). Also, the turtle leech,

Placobdella costata of the family Glossiphoniidae was identified from 3 specimens. Sexual ratio (male/female) did not significantly differ from 1:1 (K-squared test: $K2=XX$; $P=0.58$). By comparing the sex ratio with previous reports (1:3) in this area [4] and also according to population histogram (Figures 3 and 4), there is a change in the population which could be due to a drought in the lakes and rivers of area, in recent years and the loss a part of the population [5]. Also, factors such as increasing agricultural pesticides, heavy metals [6], acidity of the substrate and effects of fungi can be the main causes for necrosis and tissue damages that these damages have been reported on *Emys orbicularis* [7]. Increased consumption of turtle eggs and also use as pet can be another threat for population of this species. Local peoples believe that turtle eggs of this species have therapeutic effects.

Turtle species are indispensable for the sustenance of different ecosystems, in as much as, it works as a scavenger in different ecosystem, aquatic and terrestrial habitat in particular; thereby keep the water quality pollution free [8]. Finally, due to role and importance of turtles in nature and also reducing the population of this species in recent years because of various factors, it is necessary to take appropriate decisions to protect of this species. Use of bio-fertilizers instead of chemical

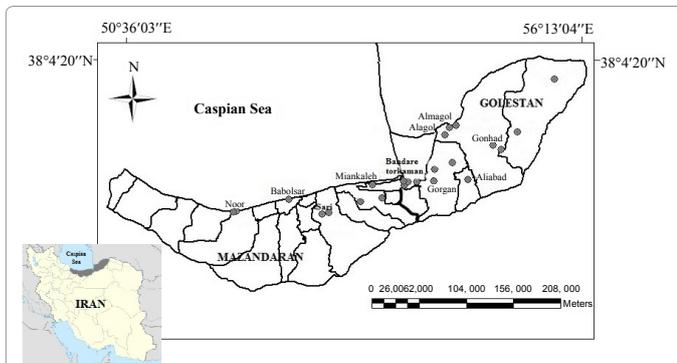


Figure 1: Map of sampling location of the Caspian Pond Turtle in the Golestan and Mazandaran provinces, Iran.

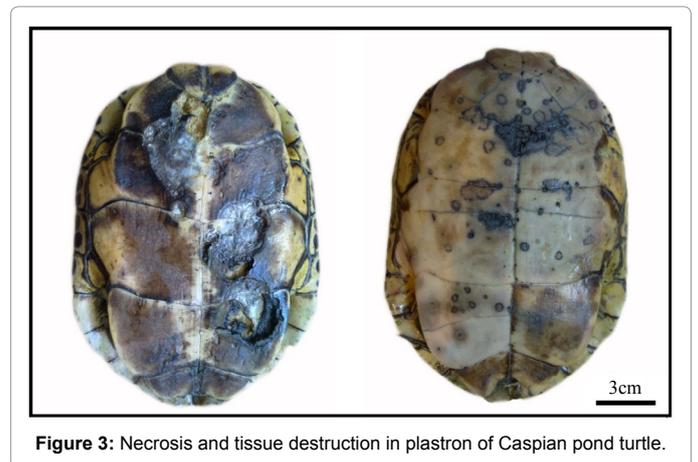


Figure 3: Necrosis and tissue destruction in plastron of Caspian pond turtle.

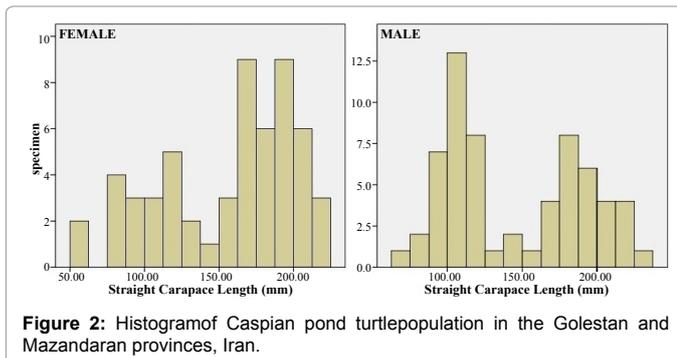


Figure 2: Histogram of Caspian pond turtle population in the Golestan and Mazandaran provinces, Iran.

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Figure 4: Caspian pond turtle habitat, Garasu river, Golestan, Iran.

fertilizers, legislation prohibiting the use of turtle eggs, and to prevent the discharge of waste water from factories and manufacturing centers in water resources, are the most useful items to protect the population of these species and other aquatic fauna in this area.

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