

# Goitered Gazelle, *Gazella subgutturosa*: its habitat preference and conservation needs in Miandasht Wildlife Refuge, north-eastern Iran

(Mammalia: Artiodactyla)

**Mohammad S. Farhadinia, Bahman Shams Esfandabad, Mahmoud Karami,  
Fatemeh Hosseini-Zavarei, Hossein Absalan, Bagher Nezami**

**Abstract.** The present paper discusses the habitat preference of the Goitered Gazelle (*Gazella subgutturosa* Gldenstdt, 1780) using a combination of Geographical Information System (GIS) and statistical analysis of its spatial distribution in Miandasht Wildlife Refuge, north-eastern Iran. The critical habitat for gazelles in the Wildlife Refuge is composed of hilly terrain near flat plains where they prefer to feed; the nearby hilly escape terrain decreases their susceptibility to poachers. However, the gazelles' "catchability" increases among hilly areas where their limited eyesight increases the chances for cheetahs to approach them. However, given the low density of the cheetahs, it seems that predators do not greatly affect gazelle spatial distribution in Miandasht. Marginal cultivated lands attract the gazelles from early summer until early winter which increases the frequency of gazelle sightings in tamarisk plains leading to farmlands. Poaching records indicate that a majority of gazelles have been taken on the open plains, usually en route to cultivated lands where suitable escape terrain is not available. The area is well-known for its large gazelle population in the past as well as its small cheetah population at present; therefore, immediate law enforcement is necessary to control the present decline in gazelle numbers, particularly in marginal habitats.

**Key words.** Goitered gazelle, *Gazella subgutturosa*, Jacob's selectivity index, habitat, Miandasht Wildlife Refuge, Iran, Middle East.

## Introduction

Probably one of the most intensively investigated mammals of Iran, the Goitered Gazelle (*Gazella subgutturosa* Gldenstdt, 1780), has long attracted the constant attention of zoologists, and research has progressed over the past quarter-century on various aspects such as taxonomy (ETEMAD 1985, GROVES 1993, KARAMI & GROVES 1993, HEMAMI 1994, KARAMI et al. 2002), habitat selection (HEMAMI 1994, FARAMAND 2001, FAKHERAN 2002, KARAMI et al. 2002, AKBARI 2002, HAZERI 2007), population status and viability (HEMAMI 1994, HEMAMI & GROVES 2001, SHAMS 2004) and food preference (AJAMI 2001). These studies have been mainly conducted in central Iran.

A vulnerable species globally (IUCN 2008), the species roams throughout Iran except in the far northwest, along the Caspian Sea, and in the southeast (KARAMI et al. 2002). In spite of the fact that Miandasht Wildlife Refuge (MWR) has been known to be one of the main habitats for the species in the north-eastern part of the country (JAMSHID 1976), with a population of 3600 before the 1980s (BAYAT 1984), no investigation has been carried out on the