

# "ONGULÉS / UNGULATES 91"

Proceedings of the International Symposium

"Ongulés / Ungulates 91"

Toulouse – France

September 2 – 6, 1991

Edited by

**François SPITZ**  
**Georges JANEAU**  
**Georges GONZALEZ**  
**Stéphane AULAGNIER**

Assistant Editors

**Jean JOACHIM**  
**Carole S. MANN**

**S.F.E.P.M. – I.R.G.M.**

Paris – Toulouse

(France)

1992

## Summary

Editors' foreword and acknowledgements .....	I
Introduction (V. Geist).....	III
Contents.....	VII
Opening session.....	1
Paleontology .....	13
Diversity in actual species.....	67
Feeding, nutrition and ecophysiology .....	137
Eco-ethology : Introduction.....	175
Eco-ethology : Tropics.....	199
Eco-ethology : Cervids.....	255
Eco-ethology : Cliff-dwelling Ungulates .....	295
Eco-ethology : Arid zones.....	335
Wild boar.....	383
Behaviour.....	447
Population : Modelling and management.....	483
Population : Pathology and mortality factors .....	535
Population : Natality and breeding success .....	551
Population : Conservation .....	575
Human impact on Ungulates.....	599
Closing session.....	643
Contributions not submitted to the editors.....	647
Participants without contribution .....	651
Author Index.....	653
Subject Index.....	657

## Wild Ungulates of Turkey

### I. Ogurlu

Black Sea Technical University, Forestry Faculty, 61080 Trabzon, Turkey

WILD GOAT  
RED DEER  
ROE DEER  
ANATOLIAN WILD SHEEP  
FALLOW DEER  
CHAMOIS  
ANTELOPE  
WOLF  
PROTECTED AREA  
CONSERVATION  
POPULATION SURVEY  
CONTROL OPERATION  
TURKEY

**ABSTRACT** – Within the past decades populations of ungulate have been subjected to increased hunting in Turkey. Today official strategy is to promote ungulate populations and also to suppress carnivores. Hunting is prohibited except in a few sites where the population size is suitable. However both carnivores and illegal hunting are still the limiting factors for the populations in many ranges.

There are 57 protected areas for wild ungulates in Turkey. Most of them contain free-ranging populations of one or more species of ungulates. Besides some of areas have been supported by introduced animals. So that conservation and reproduction of natural populations of deer, roe deer, fallow deer, wild goat, chamois and Anatolian wild sheep were realized.

Only few studies have been made on the certain localized populations of wild goat and wild sheep. More detailed investigations and population surveys on deer are underway.

Control is a need in the protected areas which attain their normal densities. In addition there is a management problem because of the absence of reliable data on populations. For this reason, monitoring programmes are need on species to estimate the population sizes and to determine acceptable levels of animals.

It seems likely that the exploitation or artificial control of ungulates will be an important part of the management of many protected areas.

Because of its geographic location, Turkey has various habitats which are suitable for wild ungulates. Although there were many wide-spread populations in the past, they were subjected to increasing hunting until 1960. Especially ungulates has long been threatened by illegal hunting. In view of this, some conservation areas have been established to prevent extinction of the species. Today official strategy is to conserve ungulate population. Hunting is prohibited except for a few sites where the population size is appropriate. Illegal hunting, however is still a standing problem in some of the localities.

Wild goat (*Capra aegagrus aegagrus*), red deer (*Cervus elaphus maral*), roe deer (*Capreolus capreolus*), Anatolian wild sheep (*Ovis orientalis anatolica*), fallow deer (*Dama dama*), chamois (*Rupicapra rupicapra*), and antelope (*Gazella subgutturosa*) are the wild ungulates living in Turkey. Among them, wild sheep, fallow deer and antelope which are on the verge of complete extinction, were taken under protection on the reservation areas owned by the General Directorate of Forestry.

There are 57 protected areas for ungulates in Turkey. Most of them contain free-ranging populations of one or more species of wild ungulates. Besides some of them were supported by introduced animals.

#### RED DEER (*Cervus elaphus maral*)

In prehistoric times red deer lived in most parts of Anatolia covered with natural oak and pine forests. As the forests been converted to steppes, deer retreated from central Anatolia to other forested ranges in Aegean and Black Sea regions. In whole Turkey red deer has long been hunted by native hunters for centuries. So it congregated in certain localized habitats to escape harassment and predation by humans. Today the extensive deer herds in Turkey live in the tringle consisting of Ankara-Eskisehir-Bolu. This area is rich in forest sources and wildlife habitats. Deer hunting is prohibited in all areas where deer lives in attempt to protect these herds and also the natural populations in some other sites. For conservation reasons, 24 protected areas covering about 400 000 hectares have been allocated for deer since 1967. In addition to, there are also 8 sites where introduced deer lives. There has been an important increase in the numbers of deers in the preservation areas of Ankara, Eskisehir, Bolu and Zonguldak. It is estimated that 2 500 deer live in whole protected areas and total 5 000 deer in whole Turkey. However it is reported that there are 5 million hectares which are suitable for deer.

Recently red deer populations in protected areas have apparently increased. Population

surveys have been conducted in certain areas by using pellet-count techniques since 1989.

Ogurlu (1991) investigated the population density of red deer in Catacik in 1990. In the study 2 350 pellet count plots were established on the 42 transects located throughout the survey area of 10 000 ha on a restricted random basis. Plots were spaced at 15 m intervals. Presence-absence method (Baddeley, 1985) and Batcheler's point-distance technique (1975) were used on the plots. Also disappearance rates of deer pellet groups were assessed on 8 belt transects of total 10 km established in May 1990. Along these transect 1 055 groups were marked in diverse habitats. All transects were reassessed 125 days after marking. Considering pellet count data from surveys were compared with direct counts. It can be said that Batcheler's method is actiable for Turkish populations.

To investigate the status of introduced deer, direct counts have been carried out since 1979. It has been reported, based on vantage point counts, that population of introduced deer increased about five times since 1980 (Tarhan, 1987). But there is not sufficient data of reproduction and mortality of population.

Main limiting factors for deer populations are predators especially wolves, severe winters and partly illegal hunting. However natality and mortality rates are not precisely known for the lack of extensive studies.

Wolves have greater impact on deer density than other factors especially in severe winters. While illegal hunting relatively lost its effect, it is possible that the large number of animals are killed in severe winters because of particularly favourable conditions for the wolves. In protected areas, predators have been controlling by shooting and poisoning in order to minimise the predator impact on ungulates. Also in severe winters, population in protected areas have been supported by feeding until time of crisis passes and the deer survive to feed on the flush of early summer grass.

#### WILD GOAT (*Capra aegagrus aegagrus*)

It occupies a broad geographic range extends from Toros mountains in South to higher mountains in eastern Anatolia. It mainly occurs in mountains in eastern Anatolia region and Mediterranean region. The most conspicuous growth has been recorded in a conservation area in Düzlerçami of Antalya. The area of 1 400 ha was allocated as a preserving purpose in 1967. Turan (1987) studied the population trends of the population in the area by comparing estimates from direct counts and hunting statistics between 1967 and 1986 years. Wild goat and also fallow deer in the area showed a rapid increasing because of lack of predator and domestic ungulate

competition and also favourable conditions such as availability of forage and cover. In the area, while there were a population of 150-200 goats in 1967, it reached to 4 188 in 1981.

As control operations went on, the exceeded population went out of the borders because of harassment. So conservation area was expanded three times until 1987. Killed goats between 1981 and 1986 are 456 and control operations are being continued to limit their numbers.

#### WILD SHEEP (*Ovis orientalis*)

The wild sheep in Anatolia occupies two main range, one is in central Anatolia and the other is in eastern Anatolia. It prefers habitats with terrain in open landscape. Although there are many favourable habitats in Turkey, it has survived in only two main sites at different altitudes, one is a low plain in Konya-Bozdag in Central Anatolia and the other is a plateau in East of Anatolia. The species in East, *Ovis orientalis gmelini* migrates between eastern Anatolia and W. Iran. When first snow falled it gets down to lower zones from ridges and pass to Iran along the valleys. It spends the winter period near the Lake Urmiye in Iran and comes back to Anatolia in March. Estimated size of population is 3 000 and a sufficient area including most of its range in the region has been allocated for the population.

The other population which living in Bozdag is the Anatolian wild sheep (*Ovis orientalis anatolica*) is a special kind of Anatolia. Upon the fixation of lessening numbers of this population, a protection and reproduction area arranged in Bozdag where a few population were living in 1966. The population, when discovered it had 50 individual, increased to 520 by taken effective preservation measures. Although hunting of wild sheep is prohibited, it is allowed to hunting oldest rams for hunting tourism in Bozdag.

A detailed investigation on the population in Bozdag has been made by Kaya (1991) between 1986 and 1989. He studied morphology, increase in weight, development of teeth and horn of *Ovis orientalis anatolica*. In his research morphological analysis have been made on 22 sample sheep. The monthly increase of weight of a newly-born lamb has been observed. The lamb which was 2.30 kg at birth increased into 22,30 kg in a year. It was found that adult females and males weighed 40-50 kg and 50-65 kg respectively. Development of permanent teeth of *Ovis orientalis anatolica* was found to be completed at 3.5 years old. And it was observed that the development of horns of male sheep began when they were four months old, reached a length of 70-75 cm in old rams.

**FALLOW DEER (*Dama dama*)**

Fallow deer is a rare ungulate of Turkey living in the conservation areas. The major area has a good population was allocated in Düzlerçami in 1974. For the preservation of the population, which came to brink of vanishing and left only seven in 1966, a protection and reproduction area was arranged in Düzlerçami. By effective measures, fallow deer was safed from extinction and their numbers have increased to 600 in the area since 1966. Other fallow deer populations in four different sites have been protected by fence. And total estimated 700 fallow deer are living in Turkey.

**ANTELOPE (*Gazella subgutturosa*)**

According to Turan (1987) there were about 3 000 antelope in steppes in south-eastern Anatolia in 1968. 10 years after population decreased to 300 and it faced danger of extinction. Therefore a preservation and breeding fields was established. Heavy impact of illegal hunting and increasing chemical uses in fields are the causes of excessive decreasing of natural population. Today it is estimated that a population of 300 antelope live in both protected area and its free-ranges.

**CHAMOIS (*Rupicapra rupicapra*)**

Chamois occurs in only alpin regions in Kaçkar mountain in the northeast and some mountains in the East of Anatolia. It is characterised by ranging in altitude from about 2 500 to 3 000 metres on valley floors upto major ridges. It feeds on open subalpine vegetation. It is in relatively low densities and under protection. Only few studies have been made on population as these are smaller and more scattered in their distribution. Some investigations have been made based on direct count. Population is increasing and few animals can be hunted.

**ROE DEER (*Capreolus capreolus*)**

Roe deer mainly lives in northern regions of Turkey. It prefers coniferous mixed deciduous forests especially in Black Sea and Marmara regions. Total estimated population are about 12 000 in 22 protection areas and its free ranges.

**AS A RESULT**

There is widely a management problem because of the absence of reliable data on ungulates in Turkey. Control operations are the need in especially protected area which attain their normal densities. For this reason extensive monitoring programmes are need on species to estimate the population sizes and to determine acceptable levels of animals. And it seems likely that the exploitation or artificial control of ungulates will be an important part of the management of many protected areas.

**REFERENCES**

- Anonymous, 1989 – *National parks and wildlife, the Turkish forestry in the 150th year of its establishment*. General Directorate of Forestry, Ankara, 93-104.
- Kaya, M.A., 1991 – The morphology, increase in weight, development of teeth and horn of Anatolian wild sheep (*Ovis orientalis anatolica* Valenciennes, 1956) living in Bozdag of Konya. *Doga-Tr. J. of Zoology*, 15 : 135-149.
- Ogurlu, I., 1989 – Türkiyede av ve yaban hayatının korunması düzenlenmesi ve geliştirilmesine dair bazı süsünce ve öneriler, orman mühendisligi dergisi. *Aralik*, 26(12) : 19-22.
- Tarhan, S., 1987 – The works of animal protection propagation and management of hunting, wildlife fauna in Turkey and Balkan countries, *International Symposium, Gen. Dir. of Forestry and CIC, 16-20 September, Istanbul* : 97-127.
- Turan, N., 1987 – Antalya-termessos yaban keçisi (*Capra aegagrus aegagrus*) populasyonunun gelismisi bugünkü durumu ve sorunlari. *Uluslararası sempozyum, Türkiye ve Balkan ülkelerinde yaban hayati*, OGM + CIC, Istanbul : 61-83.