

Wild Goat (*Capra Aegagrus* Erxleben, 1777) Population Inventory In Turkey, Isparta Region Example (2008-2013)

Yasin Ünal^{1*}, Ahmet Koca², Mehmet Şirin Yelsiz³, Osman Kürşat Bal⁴

¹Suleyman Demirel University, Department of Wildlife Ecology and Management 32260, Isparta, Turkey.

²Suleyman Demirel University, Graduate School of Natural and Applied Sciences, 32260, Isparta, Turkey.

³Suleyman Demirel University, Graduate School of Social Sciences, 32260, Isparta, Turkey.

⁴ Suleyman Demirel University Faculty of Forestry, 32260, Isparta, Turkey.

* E-mail: yasinunal@sdu.edu.tr

Wild goat (*Capra aegagrus*) is one of the most significant wild animal and game species in Turkey. Wild goat is spreading in some parts of the Caucasus and the Middle East on Earth. Isparta which is one of those places where there are plenty of wild goats in Turkey with the wealth of natural resources. In this report, we are given the results of the wild goat populations inventory made in between the years of 2008 and 2013. Population status was assessed as a result of the inventory. We tried to withdraw attention to factors affecting the status of populations.

Keywords: Wild goat, *Capra aegagrus*, Inventory, Isparta, Turkey

INTRODUCTION

Turkey; is located at the junction of the three continents and Iran - Turan, Europe – Siberia and Mediterranean Biogeographies with the transition-zones of these geographies (Akgündüz, et al., 2012, Ocak, A., 2012). Turkey is the richest country in Europe with its diversity of plants and wildlife, its geographical structure and its habitat characteristics (Paşalı, 2014, Gündoğdu, 2011). Climate and topography play a very important role in the formation of Turkey's striking biological diversity. Turkey has a very rich fauna and flora; more than 11.000 plants, 162 mammals, 460 birds, 716 fish and 141 reptiles. While Turkey's surface area correspond to 0.1% of the world's surface area, 2.9% of the world's mammals are located in Turkey (Kiriş et al, 2013).

The wild goat, one of the most important rings of the biodiversity chain, is the most important game animal of Turkey (Gündoğdu, 2006; Kayaöz, 1999). *C. aegagrus* is one of nine species belonging to the genus *Capra* around the World (Gündoğdu, 2006, Weinberg, 2002; Luikart et al., 2000). It has been determined that there are 5 subspecies in the world belonging to wild goat (Paşalı, 2014, Shackleton, 1997).

Distribution in the World and in Turkey

Wild goat is spreading in some parts of the Caucasus and the Middle East on Earth. In Turkey, it is spreading starting from the Datça peninsula in the west to east wards in the mountains surrounding the Mediterranean, through Taurus and Anti-Taurus, 4000-4500 m. High step mountain our regions of eastern, northeast and south eastern Anatolia (Gündoğdu, 2006, Turan, 1987; Kence et al., 2002). Isparta region, which constitutes the study area, lies

in the south of Turkey and the foot hills of the Taurus Mountains (Ünal, 2011) (Figure 2).



Kingdom	: Animalia
Phylum	: Chordata
Class	: Mammalia
Order	: Artiodactyla
Suborder	: Ruminantia
Family	: Bovidae
Subfamily	: Caprinae
Genus	: Capra
Species	: aegagrus
Subspecies	: aegagrus
Author	: Erxleben, 1777

Figure 1. Wild goat (*Capra aegagrus*) (Photo Yasin Ünal) and systematic location

In Turkey, the Wild goat (*C. aegagrus*) is the hunting and wildlife species that has the highest inventory workings among the 81 wild life

development areas. It is given great importance to the inventory of the wild goats which is one of Turkey's most important hunting wild animals, these studies are carried out by the General Directorate of Nature Conservation and National Parks of the Ministry of Forestry and Water Affairs. In this census, the number of wild goats had detected in Turkey from 2008 to 2013 is presented in Table 1.

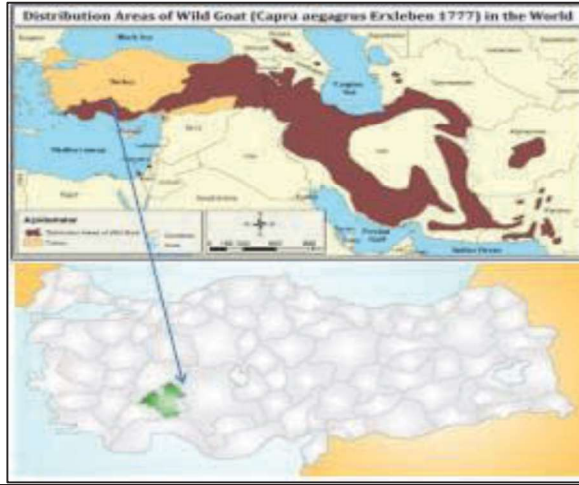


Figure 2. Wild goat spread in the World and in Turkey

Table 1. Number of spreading wild goats (*C. aegagrus*) during 2008-2013 in Turkey.

Year	2008	2009	2010	2011	2012	2013
Number of individuals	12072	14711	14835	13213	16293	16769

In this study, which is an example of inventory studies carried out in Turkey, gives detailed information about wild goat inventory studies and their result carried out between 2008-2013 in Isparta province. Inventory studies were carried out in cooperation with Suleyman Demirel University Forestry Faculty and the 6th Regional Directorate of Nature Conservation.

MATERIAL AND METHODS

In wild goat inventory, field workings were applied the "Point Count" method which applied in the study carried out in the same field in 2004-2006 by Gündoğdu (2006). Field studies were performed at 2-3 week intervals in December months of each year.

RESULTS

Recorded as a result of the wild goat inventory studies, which is regularly carried out in Isparta in 2008-2013, population size and density values and population structure are given in this section (Table 2).

Table 2. Population size and density values for 2008-2013 census periods

Year	2008	2009	2010	2011	2012	2013
Number	343	318	399	299	426	328
Number/100 ha	2,29	2,12	2,66	1,99	2,84	2,18
Increase- Decrease %	---	7,29	25,47	25,06	42,5	23,00

As can be seen in Table 2, the highest population size is seen in 2012 and the lowest in 2011. 299 wild goats were counted in 2011. The most important point in terms of the continuation of the population is the ratio of male to female and young, so these structure of the wild goat population is also emphasized. Figure 3 are shown the change and trend of population structure during 2008-2013.

As can be seen from Figure 3, it was found that female individuals were more abundant in all years compared to other males and kittens. In the 2009, 2010 and 2013 censuses, male individuals are found to be more determined than the kittens.

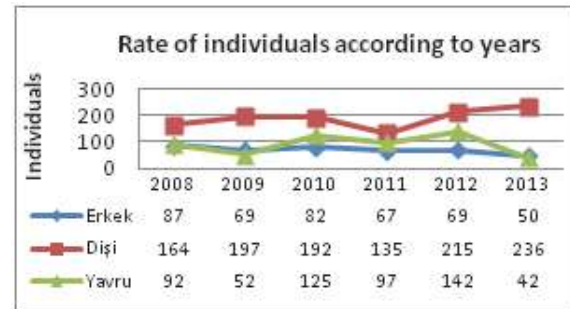


Figure 3. Male, female, and young rates

DISCUSSION AND CONCLUSION

According to the results of the census, it was revealed that wild goats had a population size of 299 (1.99 / 100 ha) to 426 (2.84 / 100 ha). There are two previous studies on this subject, one of them Korshunov (1994), other Gundogdu (2006 and 2011)'s studies. Korshunov (1994) determined that population density 1,33-10,54 individuals / 100 ha in Kopet Mountain in Turkmenistan; Gündoğdu (2006) determined that 1,49 individuals / 100 ha in Sütçüler region and Gündoğdu (2011) 2.5

individuals / 100 ha in Mersin region. It has been seen that density value calculated by us were found a paralel comparison with results of other studies. When the wild goat density value care taken into account as a result of the counts, the lowest density value is 1.99 individual / 100 ha in 2011. It was thought that the marble quarries, which started to be established in the field for the first time in 2009 and increased during the same year, caused negative effects due to noise and dust on wild goat populations and habitats.

According to the results of the study, it is considered that the steady situation or even the general decrease in males, is caused by illegal hunting activities; despite the increase in female individuals, there is no proportional increase in kittens, this situation is thought to be anxiety and stres that has occurred in female individuals, because of excessive hunting activities. Because, according to Gündoğdu (2006), it is necessary to see an approximate geometric increase in the wild goat populations that usually give birth to twin kittens at a birth, but the opposite situation is encountered.

Extreme and illegal hunting activity in the field has been proven both in our direct observations and in our surveys and interviews. Gundogdu (2006) in his work has drawn attention to this issue in this area. The illegal hunting has been voiced many times by locals, they said that these hunters came from out side the region. This situation is an indicator that populations are not protected against illegal hunting and that deterrent measures and legal sanctions are not implemented seriously. In this case, this issue should be taken seriously and the effectiveness of conservation activities should be increased.

REFERENCES

- Akgündüz E., Karauz S.E., Özüdoğru E., Çekiç A.O., Kamile K.** (2012) Monitoring of Biodiversity of Turkey with Geographical Information Systems: Noah's Ark Biological Diversity Database. *Biodiversity Symposium*, Turkey: Ankara.
- Gundogdu E.** (2011) Population Size, Structure and Behaviours of Wild Goat in Cehennemdere Wildlife Improvement Area. *Asian J. Anim. Vet. Adv.*, **6**: 555-563.
- Gündoğdu E.** (2006) Population Ecology of *Capra aegagrus* Erxleben 1777 in Isparta Region (Phd Thesis), SDU Institute of Science and

Technology, Department of Forest Engineering, Isparta.

- <http://www.donsmaps.com/images/gobustanscan/s/gazellebobustanstone7.jpg>** (2016) Azerbaijan, on the ancient shores of the highly expanded Caspian Sea. At that time, (10000-8000 years ago) the greatly expanded Caspian and Black Sea were joined by a wide strait.
- Kayaöz E.** (1999) Comparison of World Examples on the Functional Management of Hunting and Wildlife with Our Country. *Training Workshop on New Approach in Hunting and Wildlife Management*, Turkey: Izmir.
- Kence A., Kurtonur C., Özkan B., Albayrak I., Kıvanç E., Kefelioğlu H.** (1996) Turkey Vertebrate Species List (Mammals). Ankara: Nurol Printing Incorporate Company, 975-403-054-2.
- Kiriş S., Akcan C., Kantarlı M.** (2013) Hunting and Wildlife in Turkey (Book). Ministry of Forestry and Water Affairs General Directorate of Nature Conservation and National Parks, Design and Printing. Ankara: CTA Ltd., 40 p.
- Korshunov V.M.** (1994) Ecology of the Bearded Goat (*Capra aegagrus* Erxleben 1777) in Turkmenistan. *Biogeography and Ecology of Turkmenistan*, p. 231- 246.
- Luikart G., Pidancier N., Martin J, F., Taberlet P.** (2000) Molecular Genetics, Systematics and Conservation of *Capra* taxa. Workshop on Caprinae Taxonomy, 8-10 May, METU, Turkey.
- Ocak A.** (2012) Floristic Variety of Eskişehir, Afyon and Kütahya, Monitoring of Biodiversity of Turkey with Geographical Information Systems: Noah's Ark Biological Diversity Database. *Biodiversity Symposium*. Turkey: Ankara.
- Paşalı H.** (2014) Wild Goat (*Capra aegagrus*) in Turkey, *Animal Health Prod and Hyg*, 3 (1): 245 – 247, Ankara.
- Shackleton D.M.** (1997) Wild Sheep and Goats and their relatives: Status Survey and Conservation Action Plan For Caprinae. I.U.C.N., Gland, Switzerland.
- Turan N.** (1987) Turkey's Great Hunting Animals and Their Problems. *International Symposium, Wildlife in Turkey and Balkan Countries*. Turkey: Istanbul, p. 61-83.
- Ünal Y.** (2011) Hunt-Wildlife Inventory in Isparta – Yazılıkaya, SDU Institute of Natural and Applied Sciences, Department of Forest Engineering, Isparta.
- Weinberg P.L.** (2002) *Capra cylindricornis*, Mammalian Species, **No: 695**: 1-9.

Bezoar Keçisinin (*Capra Aegagrus* Erxleben, 1777) Türkiyədə Isparta Regionu misalında Populyasiyasının İnteraktivizasiyası (2008-2013)

Yasin Ünal^{1*}, Ahmet Koca², Mehmet Şirin Yelsiz³, Osman Kürşat Bal⁴

¹Süleyman Dəmirəl Universiteti, Vəhşi Təbiət Ekologiyası və Menecmenti Şöbəsi, Isparta, Türkiyə.

²Süleyman Dəmirəl Universiteti, Təbiət və Tətbiqi Elmlər Fakültəsi, Isparta, Türkiyə.

³Süleyman Dəmirəl Universiteti, Sosial Elmlər Fakültəsi, Isparta, Türkiyə.

⁴Süleyman Dəmirəl Universiteti, Meşəçilik Fakültəsi, Isparta, Türkiyə.

Bezoar keçisi (*Capra aegagrus*) Türkiyənin ən əhəmiyyətli vəhşi heyvanlarından biri olmaqla yanaşı, eyni zamanda əhəmiyyətli ov heyvanıdır. Bezoar keçisi Qafqazın və Orta Şərqi bəzi yerlərində yayılmışdır. Türkiyədə bu növün qeyd olunduğu təbii ərazilərdən biri də Ispartadır. Məqalədə 2008 – 2013-cü il ərzində aparılan bezoar keçisinin populyasiyasının interaktivləşdirmə nəticələri verilmişdir və bu nəticələr əsasında qiymətləndirmə aparılmışdır. Bununla da populyasiyaların vəziyyətinə təsir edən amillərə diqqət yetirilmişdir.

Keywords: Bezoar keçisi, *Capra aegagrus*, İnteraktivləşmə, Isparta, Türkiyə

Популяционная инвентаризация безоарового козла (*Capra Aegagrus* Erxleben, 1777) в Турции, на примере региона Ыспарта (2008-2013)

Ясин Унал^{1*}, Ахмет Коджа², Мехмет Ширин Елсиз³, Осман Кюршат Бал⁴

¹Университет Сулеймана Демиреля, Экология Дикой Природы и Менеджмент, Испарта, Турция.

²Университет Сулеймана Демиреля, Высшая Школа Естественных и Прикладных Наук, Испарта, Турция.

³Университет Сулеймана Демиреля, Высшая Школа Социальных Наук, Испарта, Турция.

⁴Университет Сулеймана Демиреля, Факультет Лесного Хозяйства, Испарта, Турция.

Безоаровый козел (*Capra aegagrus*) является одним из самых значительных видов диких животных и охотничьих видов в Турции. Безоаровый козел распространен в некоторых частях Кавказа и на Ближнем Востоке. В Турции Ыспарта является одним из мест распространения этого вида, с богатством природных ресурсов. В этом отчете нам даны результаты инвентаризации популяций диких коз, произведенных в период с 2008 по 2013 год, в результате чего оценивалось состояние популяций. Мы попытались привлечь внимание к факторам, влияющим на статус населения.

Ключевые слова: Безоаровый козел, *Capra aegagrus*, Инвентаризация, Ыспарта, Турция