

# **LIVESTOCK VALUES AND BIODIVERSITY CONSERVATION IN THE PNP IN ALBANIA**

## **- CASE STUDY ON CATTLE POPULATION AND GENETIC DIVERSITY**

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# PNP

- The Prespa region is located in the Balkan Peninsula in south-eastern Europe. The total area surface of the combined surface drainage basins and lakes is 2 519 km<sup>2</sup>. The Greater Prespa Lake has a total surface area of 261.8 km<sup>2</sup>, Lesser Prespa is 47.8 km<sup>2</sup> and the.
- The Prespa Lakes are situated at approximately 850 m a.s.l. and surrounded by high mountains reaching more than 2,000 m.
- The Prespa National Park is part of Korca region and is one of national parks of Albania under the governmental protection because of its biodiversity and endemic species. As a transboundary park, it is shared between Greece, [Albania](#) and [fYR of Macedonia](#)

# Livestock carrying capacity of the park

- Taking in consideration this fact the total surface of pastures and grazing areas used by livestock is:  $(3933 \text{ ha} + 250 \text{ ha} = 4183 \text{ ha})$ . Making the new calculation the carrying capacity of the park is:  $(3697 \text{ LSU} / 4183 \text{ ha} = 0.8 \text{ LSU/ha})$ .
- As is reported by Management Plan of the PNP in 2014 should be considered as maximum 0.5 LSU per hectare under the poor soil conditions of the calcareous grasslands. It means that that grazing areas around the existing villages are overused.
- The current number of livestock needs to be under control and future initiatives for reducing of livestock in the park are necessary. On the other hand the locals are using additional fodder during the winter season, which will be lopped down from the trees.

# Cattle kept by household in NPN

- On this context a stimulation of increasing of hay production in areas around villages and use of hay collected from pastures will reduce using of trees as feeding way for animals.
- Some action plans should be elaborated to reduce overgrazing in the forest areas and abandoned pastures should be used as source of hay production or for direct feeding of animals.
- According to statistics of Commune of Pustec and Management Plan of PNP there are 1,516 households keeping **3,697 livestock units (LSU)** or **2.41** livestock units per household in total. The average number of cattle per household is **1.5 cattle**.

## Carrying capacities of grassland in sub-alpine are in PNP (Management Plan of PNP, 2014)

<b>Zone</b>	<b>Carrying Capacities of Sheep/LSU / ha</b>	<b>Grassland Size in ha</b>	<b>Carrying Capacities (incl. 50% rock cover taken into account)</b>
<b>Core Zone old</b>	<b>4,3/0,6</b>	<b>1420</b>	<b>3800 sheep</b>
<b>Development zone old</b>	<b>4,3/0,6</b>	<b>2063</b>	<b>5500 sheep</b>
<b>Overall</b>	<b>4,3/0,6</b>	<b>3483</b>	<b>9300 sheep</b>
<b>Core Zone New</b>	<b>4,3/0,6</b>	<b>1995</b>	<b>5300 sheep</b>
<b>Development zone new</b>	<b>4,3/0,6</b>	<b>1488</b>	<b>4000 sheep</b>
<b>Overall</b>	<b>4,3/0,6</b>	<b>3483</b>	<b>9300 sheep</b>

# Water resources for livestock use in the National Park of Prespa

**Table 2. Estimation of possible resources of livestock drinking water in the National Park of Prespa**

No. of wells	No. of pumps in the lake	No. of Long line drinking water for livestock	Water holes in alpine and subalpine pastures
<b>540</b>	<b>230</b>	<b>5</b>	<b>30</b>

# Water for livestock in PNP

- Animals need a considerable amount of the water for drinking and welfare. Except the use of water for drinking, it is used in several processes in breeding system of cattle, sheep, goat ect (washing, cleaning and processing of animal products).
- Population of domestic animals is cause of water pollution discharging animal waste in ground water running into the lake areas.
- Processing of animal products in villages is made in traditional conditions and there is not treatment of discharged wastes in conformity with environmental EU-legislation. There are cases of pollution caused by discharging of home processing of animal products.
- The water quality used by animal population is not always in acceptable parameters. The farmers don't take too much care about drinking water quality used for livestock.
- A surveillance program for protection of Prespa Lake from livestock contamination is not in place. The establishment of public monitoring system run by an appropriate management body will improve the water quality.
- Control and management of animal wastes and establishment of bio-processing units are appropriate ways of pollution reduction in the area of the park

**TABLE 3. ESTIMATED WATER REQUIREMENT OF DOMESTIC ANIMAL SPECIES IN NATIONAL PARK OF PRESPA**

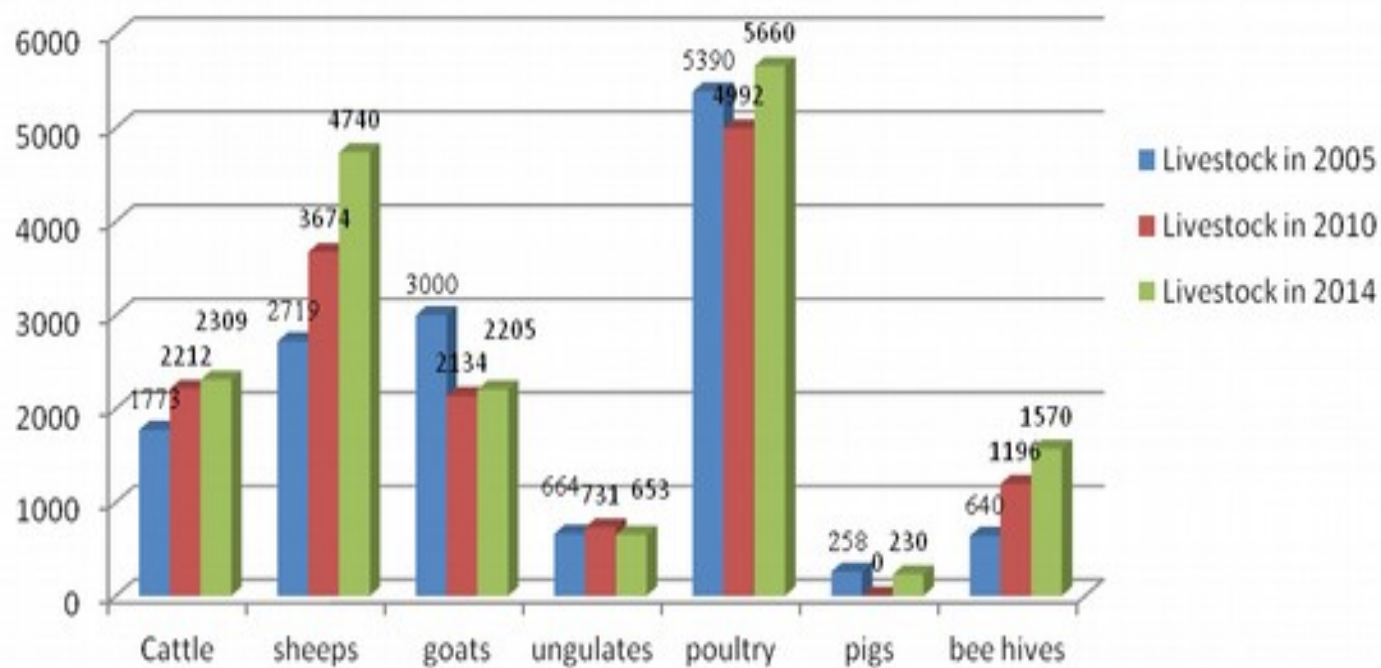
<b>Species</b>	<b>Water l/day for each animal</b>	<b>No. of animals</b>	<b>Water in liters per day for animal population</b>
<b>Beef cows</b>	45	455	20, 475
<b>Dairy cows</b>	60	1854	111, 240
<b>Horses</b>	45	94	4,230
<b>Swine</b>	18	230	4,140
<b>Sheep and goats</b>	16	6940	111.640
<b>Chickens (100 birds)</b>	37	56,6	2, 094
<b>Donkeys</b>	20	538	10, 760
<b>Total</b>			264,579
<b>Total/day in cubic meter</b>			264.5 cubic meter/day
<b>Total/year in cubic meter</b>			<b>93, 897.5 cubic meter/year</b>



# The typical features of livestock farming system in the NPP

- In the National Park o Prespa there is extensive breeding system of domestic animals.
- 80% of farms are performing livestock activities breeding different species of domestic animals.
- There are established uncial livestock farming system breeding only one species of domestic animal, usually, sheep with herds from 150 to 400 ewes on average 300 sheep or goat but there are some farms breeding until 10 heads of cattle.
- There are farms with some 10-30 ewes or goats. The breeding system is extensive (natural) or semi-extensive in winter time.
- Sheep, goats and cattle in the PNP are not seasonally kept by transhumance to the mountains in the summer time.
- The “Prespa Goat” is keeping the race characteristics in 60-70% of individuals seen in folks in different sites of the park.
- Poultry is evaluated to be a part of domestic biodiversity in whole villages located in the Prespa Park. The farmers are keeping laying hens and rarely broilers. The crossing breeds are characteristic of poultry population in the PNP. The extensive and semi-extensive breeding system of poultry is applied.
- There is small population of ungulates; horses, donkeys, mules used for different operations in agriculture and livestock practices.
- There is very small population of pigs. The pigs are breeding seasonally, in winter time they are slaughtered and pork is used for family consumption or rarely for traditional ham production.

**Fig. 10. Livestock Population in the National Park of Prespa in last 10 years**



## Milk production from livestock in the National Park of Prespa in 2014

Animals	Production capacity milk/year	Number of animals	Total milk production per each species in liters/year	milk/households/ /year (1,516 households)	milk/households/ /day (1,516 households)	Milk in litres per each habitant/year (5,634 habitant)	Milk per each habitant/day in litres
Cows	800	1,854	1,483,200	4178	11,5	263	0,7
Ewes	70	4,160	291, 200	192	0,5	52	0,15
Milking goats	100	1,588	158, 800	105	0,3	28	0,08
<b>All</b>			<b>1, 933, 200</b>	<b>4, 475</b>	<b>12,3</b>	<b>343</b>	<b>0, 93</b>

## Meat production in the PNP

Animals	Production capacity Meat kg/year	Number of animals (reproduction rate 70%)	Total meat per each species in kg/year	Meat in kg /households /year (1,516 households)	Meat in kg /households/ /day (1,516 households)	Meat in kg per each habitant/year (5,634 habitant)	Meat per each habitant/day in kg
<b>calves</b>	100	1297	129,700	355	0,97	23	0,06
<b>sheep</b>	12	2912	34.944	23	0,06	6,2	0,02
<b>goats</b>	10	1111	11,110	7,3	0,02	2	0,005
<b>pig</b>	100	230	23,000	15	0.04	4,1	0,01
<b>Poultry</b>	1	7680	7,680	5	0.01	1,3	0,003
<b>Total</b>			<b>196,434</b>	<b>405</b>	<b>1,11</b>	<b>36,6</b>	<b>0,01</b>

# Honey production in the National Park of Prespa in 2014

Table 17. Honey production in the National Park of Prespa in 2014

Bees hives	10 kg honey/year for each bee hive		Production of honey in tons/year
1570	10kg	15700 kg	15,7 tons

# Recommendations

- *Livestock population in the area of the National Park actually is **considered to be near acceptable ecosystem parameters**. There is diversity of domestic animals kept in village areas still above the limit of carrying capacities of grazing and pasture areas. It is evaluated that the carrying of the park is:  $(3697 \text{ LSU}/4183\text{ha}=0.8\text{LSU/ha})$ .*
- *Animal population diversity should be surveyed periodically in order to protect forest and flora in pasture and grazing areas of the park. On this context good animal breeding practices and improvement of animal husbandry infrastructure as well as increasing hygienic conditions for livestock are necessary in order to get more production per each domestic animal. Keeping the stable or low number of livestock in NPP will reduce pressure on pastures. The number of sheep should be under the investigation.*
- *Establishment of market for live animals near the park will have impact on control of animal population. The better livestock trade conditions and improvement of animal transportation and handling costs should be applied. In the entry of park near the main road once time per month a live animal market should be organized. This will give chances to farmers to sell live animals with good prizes.*
- *Approved urban plan for the park and villages will help to establishment of protection area or a safety belt with a distance about 250-300m far from lake shore. The animals will be not allowed to drink water directly from the lake. The improvement of waste water management systems establishing a waste water infrastructure in villages near the lake. Improvement of wells water quality through purification system, as well infrastructure protecting them from contaminated water from agriculture and livestock areas. Investment on waste infrastructure of villages near the lakes will improve water quality and will reduce ground pollution*

# *The short horn cattle*

- *The short horn cattle (Cattle of Prespa) are still keeping the race characteristics even though there is small number of animals keeping the phenotypic feature.*
- *The Center for Transferring of Technology in Korca should be involved in specific activities related to race and genetic studies of population of short horn cattle and Prespa goat (Liquenasi goat).*
- *A system of matriculation and identification of cattle, sheep and goat is in place but there are uncontrolled reproduction could lead to hybridization.*

- *The staff of park should establish the livestock database for the whole park. Scientific research should be carryout out on several aspects of livestock conservation, biodiversity, races detection using genetic molecular methods as well as ecological impact of domestic animals in different sites of National Park of Prespa.*
- *A specialized technical assistance on genetic analyzes of short horn cattle and Presa goat is considered a priority.*
- *Establishment of race nucleus for short horns cattle and Prespa goat is considered as immediate intervention. 50 short horn cattle and 100 Prespa goats should be under the protection in order to purify the race. It is recommended that cattle nucleus is better to be located in Shuec, however the nucleus of Prespa goat to be located in Ligenas.*



- *A stimulation program in cooperation with breeder associations for giving a prize for the best farmer that breeds of short horn cattle should be established. They should look more like a normal farm and be able to produce as well as others.*
- *It might be a motivation to include Center for Transferring of Agriculture Technologies in Korca to establish rescue stations for short horn cattle.*
- *All animal breeder associations should be in cooperating with transboundary or regional indicatives or projects for biodiversity conservation.*
- *For each selected cattle should be established a pedigree book which should be kept by regional coordinator in the park. The Ministry of Environment and Ministry of Agriculture, Rural Development and Water Administration should list the short horn cattle and goat of Prespa as races that should be protected.*

- *Because of quantity and quality of milk and other animal products produced from livestock in Prespa establishing of food chain production in small community of the National Park of Prespa is necessary.*
- *On this context establishment of small milk processing unit (in Liqenas) will improve socio-economic situation and food safety standards. The processing milk products as feta and hard cheese, as well as mozzarella as original animal product of Prespa will bring more profits.*
- *Standards and branding mechanisms to identify high quality livestock products need to be applied. For that reason kick starting of domestic markets to allow the villager to exploit market opportunities improving also the selling of animal products. A small market for animal product could lead to duty to help in Gorica e Vogel and other villages according to amount of animal products.*

- *Direct communication between end buyers and producers can be supported by local marketing association in NPP as powerful tool helping farmers to understand the implications of competitiveness.*
- *The market integration of the National Park of Prespa can be supported by deploying livestock market information systems at national and regional levels through promotions, publications in media and in community. Market institutions, such as livestock traders' associations, and intermediaries, both at local and national levels, can play a key role in reducing transaction costs, facilitating livestock trade and achieving market integration at the regional level.*
- *Supporting with projects on livestock conservation and food safety by the donators is immediate in order to improve food safety situation and to establish local market of agriculture and animal products.*
- *Eco-tourism in Prespa should be supported by traditional livestock organic products as cheese, meat, milk, eggs, and honey with approved quality stamps as "Organic Product of Prespa".*

# Race Liquenasi (short horn cattle- Prespa Cattle)

<i>Details</i>	Local names: short horn cattle-Prespa Cattle
<i>Acceptance</i>	officially recognized
<i>Area of distribution</i>	SE-Albania, Prespa-Region
<i>Population size</i>	2309
<i>Risk status</i>	vulnerable
<i>Color</i>	reddish brown
<i>Coat</i>	grey – greyish blue – brown – reddish brown – ochre, sometimes dark; hair coat of original type often coarse and sometimes shaggy
<i>Horns</i>	Horns short and bent front-inwards or up-inwards, color grey or white with black tips
<i>Weight</i>	250-280kg b/w
<i>Use</i>	Milk and meat
<i>Productivity</i>	800-1000 liters/year
<i>Source of information</i>	Assoc. ALBAGENE, Tirana



# Diversity of cattle population in Prespa

