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Wildlife management problems in northeastern Slovenia in wider area of the State border with Hungary – historical overview and current situation

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1. Introduction

Political history of the Prekmurje in northeastern Slovenia, which strongly impacted the game management in the area, was diverse. From the 9th Century and up to the end of 1st WW, Prekmurje was the part of Hungarian Kingdom and thus also the part of Austro-Hungarian Empire. On large estates, belonging mostly to Hungarian noble families, „modern“ game management in the then sense was performed. The stock of red deer and roe deer, as well of brown hares and grey partridges offered good hunting opportunities. During the WW I and few years after it, the density of red deer and other game species was reduced by local poachers, as well by the soldiers „of different colors“ (WINKLER 1899, KOLLER 1922, ZIMMER 1924, BEJEK 1953).

With the Trianon Peace Treaty in 1920, Prekmurje became the constitutive part of the then Serbian-Croatian-Slovene Kingdom (1st Yugoslavia). In the same time the State border with the Hungary in the length of 102 km was fixed. The border line was fixed in pure political sense, according to the prevailing shares of the inhabitants of Hungarian and Slovene nationalities in the villages in border area. Thus, the State border was just the line on the map, including no topographic elements which might affect the cross-border migrations of wildlife.

In the period between WW I and WW II, the densities of game wildlife populations have increased again. Hunters in Prekmurje collectively joined the Slovenian Hunters Association, established in Ljubljana in 1908. The hunting grounds, as well the right of hunting have been leased to local Hunters Clubs, which carefully improved habitat conditions for wildlife, particularly for the partridges and brown hares. Pheasant breeding and re-stocking of hunting grounds became regular part of the game management (BEJEK 1953, MARIČ 1959).

During WWII the Prekmurje was occupied by the Hungarian Army. After the end of WW II Prekmurje became the part of Slovenia, the then Federal Yugoslav Republic, and after 1991 it is the part of the Republic Slovenia.

Few red deer and wild boar in Prekmurje survived WW II. CIMER (1949) reported that about 10 red deer lived in the State Game Reserve Murska šuma (Mura Forest) in southwestern Prekmurje in 1948. MLINARIC (1990) reported that one red deer stag was shot in 1947 near the village Motvarjevci, not far from the State border. MARIČ AND IVANJSIČ (1976) noticed that the crossings of wild boar occurred in forested parts of the border. The harvest of both large ungulates in that period was exceptional and was taken as a real sensation among local hunters (BEER 1982).

Due to hostile political relations between Yugoslavia and the Soviet Union after 1948, the border with Hungary was hermetically closed. Wire fences and mine-fields have been laid on Hungarian side. Any hunting on Slovenian side was prohibited in the belt of 5 km away from the State Border (OBLAK 1951, KAHR 1949). It meant that the hunting ground was reduced for about 500 km², or for a good half of total area. Frequent border patrolling of the Armies on both sides of the border rendered the crossings of wildlife impossible. KOVES (1949) reported that border patrols have been chasing remaining red deer in Murska šuma, particularly in the rutting period. Uncommon sounds of roaring stags frightened the soldiers, who regularly opened the fire upon ghost enemies in the dark. Thus, several deer have been killed or wounded, or chased away.

After 1960, since the political situation „softened“, the hunting conditions in the area improved. Red deer and wild boar dispersed into Prekmurje from Hungary, where the increase of both species was noticeable (TOTH, SZEMETHY 2000, MARIČ 1959). After 1975 the density of red deer in Prekmurje increased noticeably. Even the expansion of red deer into Austria in the area of Cankova in western Prekmurje, was noticed in that period (BEER 1982).

The Mura River on western side of Prekmurje represents the only ecological barrier in the area, separating it from the rest of Slovenia. Since the river is fast running and rich of water yearlong, few red deer crossed it. In the period 1996–2005 only 90 red deer, among them 56 stags in the age ≥ 2 years, have been shot westwards of the Mura River. Similar is the situation with wild boars crossings.

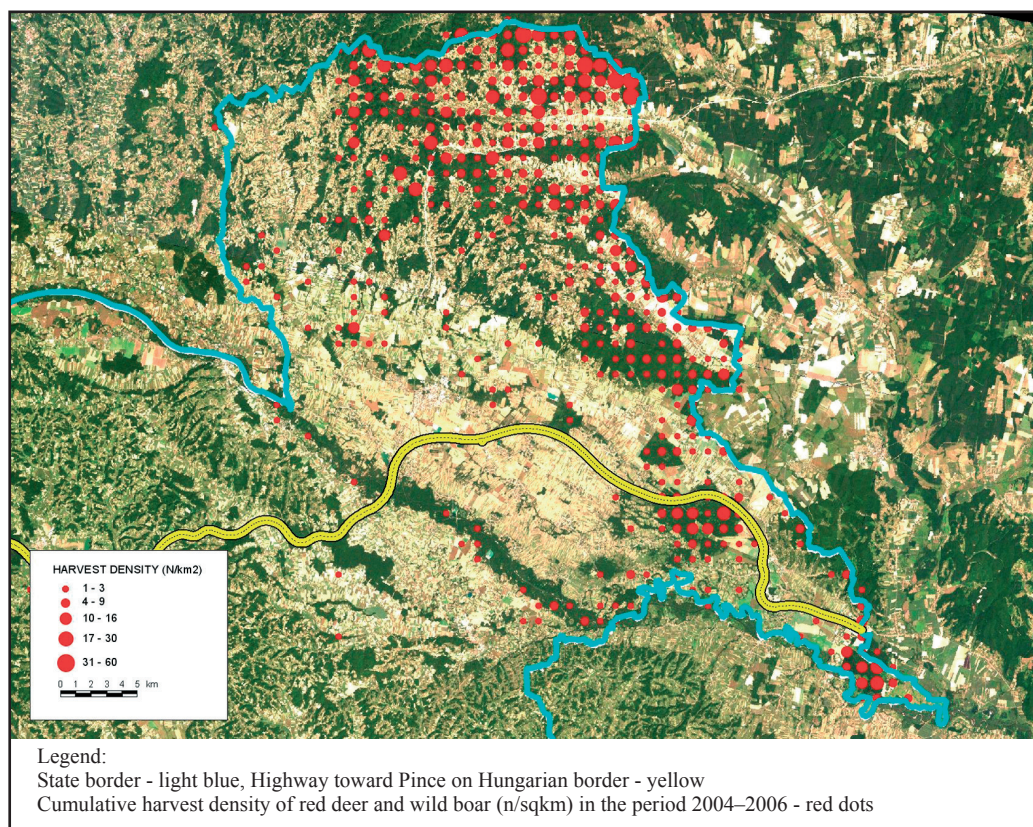


Figure 1 The map of Prekmurje

2. Current hunting situation in Prekmurje

Total surface of Prekmurje is 962 km², of which 898 km² (93,3 %) is hutable. Agriculture areas with 63 % of total surface are prevailing. Forests cover about 292 km² (30 % of the surface), but are in slow increase. In the period 1996–2005 forest surface increased for about 16 km². Forests are scattered inside agricultural space, mostly in small units. Larger blocks of forests are found in the border area. Whole Prekmurje is to be found in the altitudes between 160 and 418 m a.s.l. Sub-Pannonian climate with dry, hot summers and cold winters, with irregular snow cover is prevailing in Prekmurje. Yearly precipitations hardly exceed 800 mm (ADAMIČ, JERINA 2007).

Currently, the hunting grounds of Prekmurje are divided among 23 game management units. Two of them, with the surface of about 120 km² each, are under the supervision of Slovenia Forest Service, and the rest, 21 units with average surface of about 35 km² each, belong to the Hunters Clubs.

Strategic, 10-years wildlife management plans, as well operative yearly plans are prepared by District Wildlife Officers of Slovenia Forest Service. Operative plans include the extent of planned harvest of game species, biotechnical works (habitat management, supplemental feeding of red deer and wild boar, crop protection measures, damage compensation system, etc.). All listed obligations have to be performed by the members of Hunters Clubs (in Slovenia named as Hunters Families), who are responsible to provide funds for the compensation of damage claims, too.

Red deer from Prekmurje are the part of Pannonian mega-population, living on both sides of the State border. Local densities in the area

are influenced by habitat conditions, as well by seasonal cross-border migrations of deer groups. Red deer from Prekmurje is the only genetically autochthonous red deer population on recent territory of Slovenia. In other parts of the country they have been eradicated in second half of the 19th Century. Later, in post-1890 red deer was reintroduced on several locations. Animals from different European source populations have been used for restocking. Average body weights and antler sizes of Pannonian red deer are higher from those in central Slovenia (DOVČ et al 2005, ADAMIC, JERINA 2007, JERINA 2007).

The harvest of red deer and wild boar in the period 1962–2005 increased significantly (Fig. 2). The harvest of red deer increased from 6 to 581 ($R^2=0,85795$, $n=21$) and that of wild boar from 14 to 577 ($R^2=0,74188$, $n=21$). Favorable winter conditions with moderate snow cover, as well rich food availability year-long are the reasons of high survival of wild boar litters.

In last 30 years the shares of crop surfaces have changed drastically. Maize fields are prevailing over wheat and other cereals, once traditional cultures in the area. Sugar beet, formerly an important crop is now missing due to EU Sugar Regulations. Repeated drought years in post-2000 period affected the agricultural production and made the land owners more sensitive towards the ungulate crop damage. Wildlife damage claims in the period 1996–2005 reached $\cong 780.000$ Euros in total (www.zgs.si). Since wildlife managers believe that the extent of compensation claims and the ungulate densities are in close correlations, yearly harvest plans of both species are in increase.

About 70 % of wildlife damage claims in Prekmurje in last 10 years, was reported in Wildlife Reserve Kompas with the surface of 124 km²,

Table 1 The structure of land use in rekmurje (in % of total surface) according to the situation in 2000.
(www.zgs.si)

Forests	Arable land	Orchards	Vineyards	Meadows, pastures	Others*	Total
30	40	3	2	18	7	100
* Others: open waters, settlements, roads, etc.						

which is only 12,5 % of the area. Since pronounced yearly fluctuations in the extent of wildlife damage was noticed, we made the study on the relations of reported damages with yearly climatic conditions and harvest of red deer and wild boar in the area (GÖNTER et al 2007). It was found that the extent of yearly harvest of wild boar and red deer on Slovenian side, alone does not fully explain the fluctuations of wildlife damage. The late is the proof that wild boar and red deer in Prekmurje are the parts of vast populations with their core areas on Hungarian side.

It was also found that the sum of precipitations and daily temperatures in the vegetation period also affected the extent of damages. All three variables explained 62,8 % of yearly fluctuations in the damage extent.

According to the compensation claims (see Table 2) it is evident, that important extent of

damage in Prekmurje is made by red deer with 56,5 %, and by wild boar with 37,7 %. The area is an exception in Slovenia, since in other areas the damage by wild boar exceeded those of red deer. Roe deer with 5,7 % of all damage claims is not serious financial problem. But since the greatest part of it occurred in vineyards, mostly cultivated by small hobby owners, the damage by roe deer triggers stronger emotional, than financial impacts.

3. Current differences in cross-border wildlife management practices

Several important differences in the cross-border management of (same!) wildlife populations in Slovenia and in Hungary have been noticed (BEER, VAJNDORFER, BACIC, KERCMAR, personal communications, 2007), e.g.:

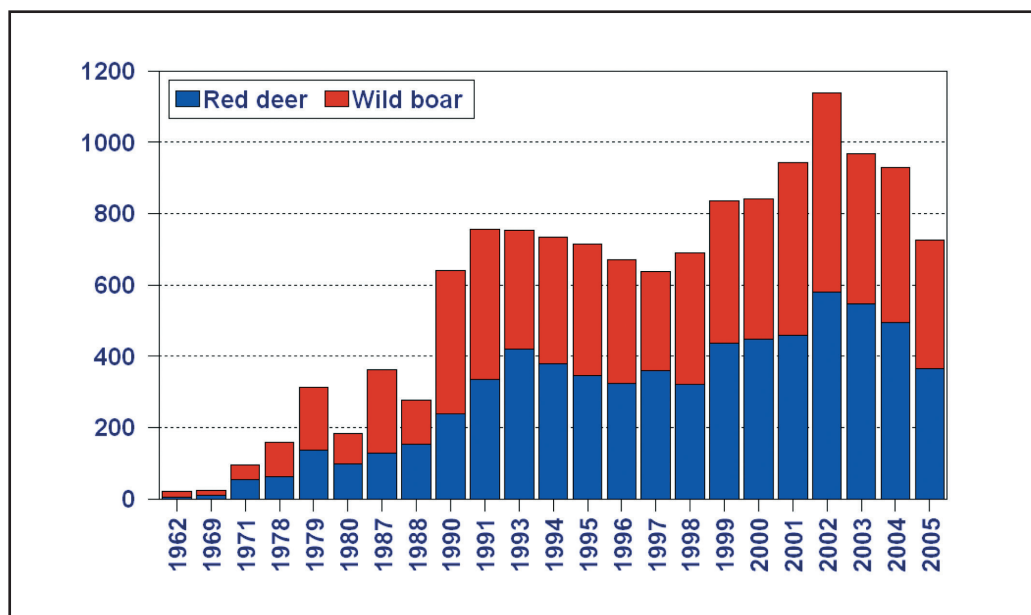


Figure 2 Cumulative harvest of red deer and wild boar in Prekmurje in the period 1962–2005 (uncomplete data)

Table 2 Species specific shares of damage claims in Prekmurje in the period 1996–2005

Species	Red deer	Wild boar	Roe deer	Total
Damage in €	440.509	294.267	3.224	779.209
%	56,5	37,8	5,7	100

- Differences in wildlife management planning systems,
- Differences in legal hunting seasons,
- Differences in ownership of forests and arable land (in Slovenia mostly private-owned),
- Differences in the surface of game units and the densities of members of Hunters Clubs,
- Differences in the systems of wildlife damage compensations, etc. ...

The differences listed above are to be taken as outputs of different hunting traditions, as well historical and current political systems in two neighbor States. Although both, Slovenia and Hungary, became in 2004 the EU member States, the late did not soften the problems. Unformal contacts among hunters and foresters from adjacent hunting grounds along the State border, as well few polite meetings on the levels of the Ministries brought only weak results, which did not improve sustainable cross-border management of wildlife populations until now. The hunters *per se* will have to seek for official opportunities to fix the way of cooperation and take it for their own. In this sense the experiences from the cooperation with Italian hunters in western Slovenia, as well with Austrian hunters in the area of the Karawanke Alps might be used as a good praxis. The organization of periodical meetings among hunters, technicians and local authorities, joint assessments of harvest plans, establishment of a trans-boundary committee for the evaluation of red deer trophies, etc. brought promising results in both areas.

4. Future of ungulate populations in Prekmurje?

The situation in agricultural space is changing, according to regional, as well global economic conditions. Higher prices of wheat and other cereals will probably trigger the expansion of crop surfaces in the area. Since market prices of agronomic crops are used as the basis in the calculations of wildlife damage compensations, the Hunters organization will hardly sustain increasing financial pressure of compensations. If the impacts of detected climatic changes in the area, with decreasing amounts of spring-summer precipitations and accompanied with rising

summer temperatures will be met in future, the rising extent of crop damages by ungulates is to be expected. Succulent crops, e.g. fruits, grapes, oil pumpkins, potatoes and maize will be affected in particular. Thus, the hunters of Prekmurje are not expected to oppose increasing harvest plans of ungulates, given by Slovenia Forest Service (www.zgs.si). Increasing harvest of red deer on Slovenian side would hardly bring good results in population management. Trophy potentials of Pannonian red deer are poorly achieved, since stags are extracted far earlier they reached the harvest ages. Very similar are the outputs of wild boar management, alas.

New fenced motorway toward the Hungary affected few existing vast forest blocks inside the area (Fig. 1). Important connections between the forests on Hungarian side, forest blocks in central and southeastern Prekmurje, as well the forests along the Mura River are cut. Thus, westward expansion of red deer and wild boar will be suppressed. Three green bridges of combined use, which are in the course of the construction will hardly mitigate the fragmentation effect of the motorway.

5. Summary

Prekmurje in northeastern Slovenia, with the surface of about 962 km² is currently among best red deer (*Cervus elaphus*) and wild boar (*Sus scrofa*) hunting grounds. The State border with Hungary in the length of 102 km, pose no ecological barriers for cross-border migrations of large ungulates. Historical differences in hunting traditions reflect in different game management praxis in neighbor States. Due to intensive crop cultivation on Slovenian side, the area is an attractive feeding ground for both ungulate species yearlong. Damage compensation claims in last 15 years have been rising steadily, peaking in 2003–2005, in the years, with pronounced droughts in vegetation periods. Although the harvest of ungulates in Prekmurje was increasing simultaneously, their effects have been under the expectation. We believe that the late has proven that cross-boundary populations should be managed equally intensive on the whole population range. According to weak contacts among the Hunters Associations in cross border

area, as well to different goals of wildlife management in both countries, the late will hardly be implemented in near future.

Zusammenfassung

Schwierigkeiten mit der Schalenwildverwaltung im Nordosten Sloweniens entlang der ungarischen Grenze – historischer Überblick und heutiger Zustand

Prekmurje, ein Gebiet mit etwa 960 km² Fläche im äußersten Nordosten Sloweniens, zählt momentan zu den besten slowenischen Rothirsch (*Cervus elaphus*) und Wildschweinjagdgebieten (*Sus scrofa*).

Prekmurje grenzt mit zirka 102 km Länge an Ungarn, die Staatsgrenze stellt aber keine ökologische Barriere dar, die grenzüberschreitende Bewegungen großer Huftiere beschränken würde. Obwohl das Prekmurjegebiet vom 9. Jahrhundert bis zum Ende 1. Weltkrieges zu damaligem Königreich Ungarn gehörte, bestehen historische Unterschiede in der Jagdtradition beider Nachbarstaaten. Diese spiegeln sich auch in heutigen Zeiten in der Wildtierverswaltung wider.

Intensiv bewirtschaftete Ackerflächen auf slowenischer Seite, die sich alle im Privatbesitz befinden, bieten Schalenwild beider Staaten ein optimales, ganzjähriges Nahrungsangebot. Jagdorganisationen in Slowenien müssen Privatbesitzern Finanzmittel für die Wildschadenerstattung zusichern.

Die aktuellen Marktpreise der landwirtschaftlichen Erzeugnisse stellen dabei die Ausgangsbasis für die Errechnung der Schadenshöhe dar, die folglich von Jahr zu Jahr steigt. So wurde der Höhepunkt in den ausgesprochen dürren Jahren 2003–2005 erreicht. Trotz eines erhöhten Rotwild- und Wildschweinabschlusses blieb die erwartete Wirkung in Form einer Schadensminderung aus.

Wir vermuten, dass nur bei gleich intensivem Abschuss beiderseits der Staatsgrenze die erhoffte Wirkung zu erzielen wäre. Die letztere ist, aufgrund unterschiedlicher Zielvorstellungen in der Wildtierverswaltung, sowie bescheidener Kontakte zwischen den lokalen Jagdorganisationen beider Staaten, in Kürze kaum zu erwarten.

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