

**PREVENTION OF CLASSICAL SWINE FEVER  
IN THE BORDER REGION CROATIA – SERBIA  
(STOP – CSF)**

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### **“PREVENTION OF CLASSICAL SWINE FEVER IN THE BORDER REGION CROATIA – SERBIA (STOP – CSF)” „SPREČAVANJE ŠIRENJA KLASIČNE KUGE SVINJA U POGRANIČNOM REGIONU HRVATSKA – SRBIJA (STOP – KKS)“**

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## MANAGEMENT OF WITH WILD BOARS IN CONFINED AND OPEN HUNTING GROUNDS IN VOJVODINA WITH TERMS OF BIOSECURITY MEASURES

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### Introduction

The hunting grounds in Vojvodina are among the best known in Europe today, the reason lies in fact that natural potential for growing almost any kind of game are favorable, as evidenced by many top trophies, world and European champions bred in those hunting grounds.

Wild boar (*Sus scrofa*, Linnaeus 1758) on the basis of systematic belongs to: phylum - Chordate (*Chordata*), subphylum - vertebrates (*Vertebrata*), class of mammals (*Mammalia*), a subclass - real mammals (*Euteria*), order - ungulates (*Artiodactyla*), suborder - non-ruminants (*Nonruminantia*), family - pigs (*Suidae*), genus - *Sus*. The ancestors of today's wild boars lived in the wide areas of Europe and Asia 60 million years ago (in the Tertiary). Up to now days, wild boars, unlike many other species, changed relatively little, which indicates they are well adapted to the habitat conditions in which they live. Fully adult males are called: wild boar, adult female: a wild pig or sow, cub in the first year of life: a wild boar piglet, from 12 to 24 months is considered a young adult.

Wild boar genus and its six species inhabit Europe, Asia including the Malay Archipelago and northern Africa. Wild boars have been introduced by man in several places in the United States, Argentina and Chile. Severity of winter, temperatures lower than -30°C, and the snow depth above 50 cm are the limiting factors for the spread of wild boars to the north, so they do not inhabit areas above 55° north latitude, i.e. in Scandinavia and the northern belt of Russia.

Europe is inhabited by the following seven subspecies of wild boar: Central European wild boar - *Sus scrofa* - a typical form inhabiting regions of Europe north of the Pyrenees and the Alps to the west of Belarus (except for open hunting areas of Ireland, Great Britain and the substantial part of Scandinavia); Iberian wild boar - *Sus scrofa castilianus* - living in the Iberian Peninsula, Sardinian dwarf wild boar - *Sus scrofa meridionalis* - which inhabits the Mediterranean islands of Sardinia and Corsica, the Italian wild boar - *Sus scrofa maiori* - physically smaller than in Central Europe, inhabits central Italy and Sicily, Polish wild boar - *Sus scrofa falzfeini* - living primarily in northeastern Poland and is characterized by coarseness and quality trophies and Yugoslav wild boar - *Sus scrofa reiser* - that lives in the former Yugoslavia with Bosnia as a central area. It is characterized by excellent quality trophies.

All kinds of big game, and thus the wild boar can be grown in open and fenced hunting areas. Growing big game in fenced hunting areas has also a negative side. In fenced hunting areas wildlife habitat is limited, and thus the possibility of finding larger choice of food, even when thousands and even tens of

thousands of hectares are fenced. For example, Novakovic (1981) states that, four years after the enclosure of one hunting area and also as a result of increasing population density, reduction of the net weight in all age classes of deer up to six years of age was noticed, but also a decline of the trophy value was evident. For this reason, in such fenced hunting areas additional food must be provided. The same author found that in such hunting areas population growth was also reduced so after four years doe fertility declined by 11%.

The increased density of population in fenced hunting grounds leads easier to the spread of disease, contagious, as well as parasitic. Because of this, precaution (prevention) against these diseases must be embedded in the technology of the process of growing and the breeders must abide and implement them. In establishing fenced hunting grounds the environmental conditions of the terrain on which the fenced hunting ground is established and biological characteristics of the species of big game that will be grown must be strictly taken into account.

### **Structure of the hunting area in Vojvodina**

Analysis of the current hunting grounds in Vojvodina, which are managed by hunting organizations, shows that the existing conditions do not suit for all types of wildlife that live in these areas. Hunting organizations have only 53.228 ha or 2.68% of forest and woodland ground. Orchards and vineyards occupies another 33.186 ha or 1.67%. If you add up these two areas that are under perennial crops, it turns out all in all 86.414 ha or 4.35% of so called “green” areas. Given the fact that the orchards and vineyards are mostly fenced, makes that these areas are not even counted in the hunting area, which is even more disastrous situation when it comes to reproduction of a small game.

Meadows and pastures cover area of 148.496 ha or 7.48% and are a good habitat for game birds, if the tall grass is not mow down for years and cattle do not pasture across the grass. When mowing such grass areas, half of pheasants, partridge, quail and other game birds nests perish.

Of all hunting grounds established in Vojvodina, areas under ponds, reeds and water occupies 14.364 ha or 0.72%. These areas are most suitable for most water birds (ducks and wild geese, etc...). Fields and farm land occupies 1.565.782 ha or 78.84% of all hunting areas of Vojvodina, so it is normal that all kinds of wild game are found in these areas (habitat). Most farmed animals live in this habitat throughout the year, and according to change of the vegetation, all of game are adapting for reproduction, rearing of young, providing a food, finding shelter and security in goal of the protection and survival throughout the year, especially in harsh winter conditions. Area of 171.020 ha or 8.61% occupies so called “other areas”, and this land does not represent a particularly important habitat for any species, but this wildlife habitats are used by some species only in certain periods of the year.

### **Condition of the hunting grounds since 1993 up to now days**

On the basis of the Hunting Act of 1993 were established 89 hunting grounds on the total area of 2.152.635.60 ha in Vojvodina. Hunting organizations are

managing 57 hunting grounds, 55 of which are managed by Hunting Associations. The total area managed by hunting organizations is 1.986.076 hectares which is 92.26% of the total of all hunting grounds established in Vojvodina. Compared to the previous period it is an increase of 63.169 ha or 3.29%. Of the total area of hunting grounds in Vojvodina that occupies 2.152.635.60 ha, surface structure is as follows: forest and woodland 152.277,50 ha (7.07%), meadows and pastures 173.467.50 ha (8.06%), fields 1.580.445 ha (73.42%), orchards and vineyards of 33.324 ha (1.55%) and other land 213.121.60 ha (9.90%).

Public company "Vojvodinašume" has managing 14 hunting areas, total area of 109.048 ha. Under the fence are 25.758 ha which, compared to the total area of all established hunting areas managed by the Public company "Vojvodinašume", makes 23.62%. In the fenced hunting areas the following types of big game are grown: deer, fallow deer, mouflon and wild boar.

One hunting area is formed on the surface of agricultural combine „Zobnatica" near Backa Topola occupying area of 2.537 ha, Public company National Park "Fruška gora" manages hunting ground surface of 25.764 ha, Military Institution „Karadorđevo" manages hunting ground surface of 6.914,60 ha and hunting area "Nepričava" Morović area of 2.857 ha, total of 9.771,60 ha. The total area of hunting area of these three users is 38.072.60 ha. Hunting area consists of: „Revir Mostonga" (forests area of 1.595ha owned by MI „Karadorđevo" and 535 ha of private land), „Revir Bukinski rit" (forest and agricultural land owned by MI „Karadorđevo" the area of 3.934 ha, „Šaregradska ada" an area of 576,40ha and the island "Hagel" of 274.20 ha). Of all these areas fenced are hunting areas „Guvnište" the surface of 776 ha and, "Bukinski rit" area of 3.348 ha (these data are based on the decision of the Minister).

Table 1. Display of hunting areas according to users in Vojvodina

User	Surface (ha)	% Share
Hunting associations	1.991.605	92,34
PC «Vojvodinašume»	108.988	5,05
PC NP «Fruška gora»	22.420,6	1,04
Fish farms	18.154	0,84
Serbian military force	13.251	0,61
Agricultural companies	2.537	0,12

Table 2. Number of hunting grounds according to users in Vojvodina

User	Number of hunting grounds	% of share
Hunting associations	61	62,24
Fish farms	17	17,35
PC «Vojvodinašume»	14	14,29
Serbian military force	4	4,08
NP «Fruška gora»	1	1,02
Agricultural companies	1	1,02

For example, the size, planned and actual shooting, as well as wild game losses for year 2010 are given in Table 3 and 4 for the conditions of hunting grounds in Slovakia.

Table no. 3 The game number in Slovak republic

<i>Game species</i>	<i>Number</i>	<i>Planned harvest</i>	<i>Realized harvest</i>	<i>Losses</i>
<i>Wild boar</i>	27 116	25 137	21 804	612

Table No. 4 Number of wild boars Slovak Republic (year 2010)

<i>Game Species</i>	<i>Planned harvest</i>	<i>Realized Harvest</i>	<i>Caught</i>	<i>Died</i>	<i>Total</i>	<i>Introduced</i>	<i>Number in spring Next season</i>
Wild boar	2.135	1.414	0	38	1.452	0	4.086
Wild sow	1.742	1.190	0	55	1.245	0	4.497
Youngster	6.618	8.311	65	144	8.520	25	8.075
Piglet	14.642	10.889	70	375	11.334	0	10.458
Total	25.137	21.804	135	612	22.551	25	27.116

In several hunting grounds in Croatia after the shooting was found that of 495 wild boars observed 38.8% of them were in the type of crossbred with domestic pigs. This estimation is based on the findings of the exterior, mostly noticeable deviations from the characteristic pigmentation of wild boars in pure blood. Wild boars of the pure blood are easily distinguishable from domestic pigs and their crosses on the basis of the characteristic pigmentation of bristles (Toncic J., et al. 2006).

### **Technology of wild boars production in Serbia**

Wild boar (*Sus scrofa*) requires medium and large fenced hunting areas (several hundred acres and more) that will be provided with sufficient natural foods otherwise must have intensive supplemental feeding (fed). Hunting grounds (fenced) where wild boars are grown in its composition must have wood, water, clearing the meadows, ponds and reeds. Thus, Fuchs (1978) considers that inside hunting ground must be at least 10% of the grasslands and open areas, which will provide sufficiently good quality pasture to the wild boars. In natural breeding, it is important to adhere limitations of the size of wild boar hunting productive surface area regarding solvency. Prescribed number of pigs, in such situation for I grade credit rating hunting round, is 5-6 (base stock) to 100 ha. This is a number that provides cost management (Sertic, 2004), and guaranties reduction of the potential damage.

Average growth is 2.5 to 3 piglets per sow older than two years. With proper regulation of the number (up to 60% of harvest should be in the category of young up to the age of 3) ensuring the proper additional food and securing peace in the area, less damage to crops can be expected. In farm breeding the wild boar need for digging up and rolling in mud, should be respected, as well as the existence of a

strong hierarchy in the herd. It is necessary to provide resting in a special place for the boars after mating in order to have peaceful recovering from exhausting breeding season (separated from the wild boars which did not participate in mating). The necessity of a separate breeding of wild boars (not with other species of game) is of particular importance, because they can cause considerable damage to the calf or wounded game (deer, roe deer, mouflon). Otherwise, wild boars are grateful for the farming because it is one of species relatively resistant to stress and illness, with good growth, good meat quality and prized trophies.

Thus, in 2000 in Serbia was determined number of the wild boars of 7.603 of which 89.74% (6.823 animals) were in hunting grounds of central Serbia, and only 10.26% in Vojvodina, while in 2007 were 12.412 wild boars in Serbia, of which 11.066 in central Serbia (89.15%). During year 2000 was hunted 1.114 units, of which 884 (79.35%) in central Serbia and 20.65% in Vojvodina. Data from year 2006 indicates that during the year were shot 3.003 wild boars, of which number 2.435 (81.08%) was hunted in Central Serbia.

Studying the real growth of wild pigs in semi-intensive breeding Maletic (2004) found that the average gain per sow was 3.52 piglets for a period up to June 15, and that the average increase in the period up to November 15<sup>th</sup> was 2.99 piglets. Krze (1982) in the book about wild pigs states that three-year boars can gain up to 120kg weight. Ristic (2008) published that sows reach 80-90 kg of weight, and mails 110-170 kg with some exceptions which can reach up to 300 kg. Exploring the wild boars Romic (quoting Andrasic, 1979) found that the mass of sows ranges from 126 kg to 163 kg, and mails from 148 kg to 221 kg.

For conditions in Hungary Tamas (1978) presents data for three fenced hunting grounds for wild boars, size of 200 or more hectares. The author states that the area under forest occupies from 80 to 93% of fenced ground, the area under ponds and reeds 2 to 13%, and the area under grassland 5 to 13%. In our fenced hunting grounds the average land structure is about 70% of forests, about 16% of bogs and reeds, and about 15% of grass (Jovanovic V. and al. 1984).

Opinions about wild boar population density in fenced hunting grounds are different. Tamas (1978) believes that the well-based fenced hunting ground population density may be one wild boar on one hectare (i.e. 100 pigs per 100 ha).

According to research of Cvetic (1981) the optimum population density is 25 pigs per 100 ha, while according to Fuchs (1978) should be 70 to 80 wild pigs per 100 ha. Population density in the fenced hunting grounds should not be fixed, but every particular hunting ground needs to have enough natural food in most of the year, and additional feeding should be only during winter. Tamas (1978) and Cvetic (1982) recommended feeding throughout the year. It is proven by the research of Tarasenko and Jovanovic (1984) that wild boar in fenced hunting grounds are lot more susceptible to disease than pigs in the wild. This is particularly true in the plain hunting areas with marshes.

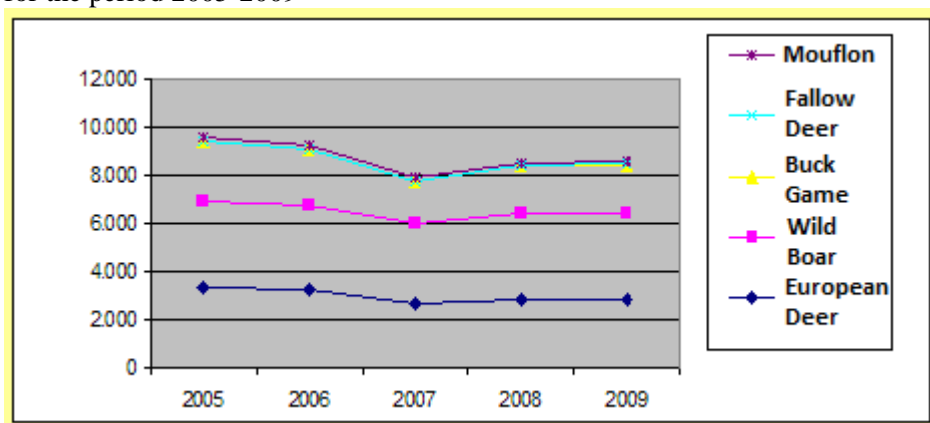
### **Planned and rational management**

Wild boars belong to the group of animals that are relatively quickly adapting to new habitats and significantly expand their current range. It becomes game more and more interesting for shooting, for domestic but also for the foreign



hunters. Wild boars can be successfully grown in fenced areas. Umicevic and Ceranic, during studying the possibility of semi-intensive breeding of wild boar, point out that, as omnivorous species, they has a good use of the possibility of natural food in an enclosed space. In addition, wild boars easily accept additional food and also get used to it. Reaching the maximum number of wild boars is relatively easy, since this species has early reproductive maturity and high reproductive capacity. Of particular importance is that the wild boar has a relatively short period of physical and trophy development. In semi-intensive production of wild boars in the highland-mountain hunting grounds shooting can go up to 50%, and hunting is possible all year-round. The biological potential of this game should be better organized and used. According to, Regulation of the declaration about closed season for protected species of wild game (Official Gazette. RS no. 9/12) wild boar can be hunted from April 15<sup>th</sup> to February 28<sup>th</sup>, sows from July 1<sup>st</sup> to December 31<sup>st</sup>, young up to 60 kg, from April 15<sup>th</sup> to February 28<sup>th</sup>. Based on data from JP "Vojvodinašume" for the period 2005-2009 can be seen that the number of the most important game species decreased.

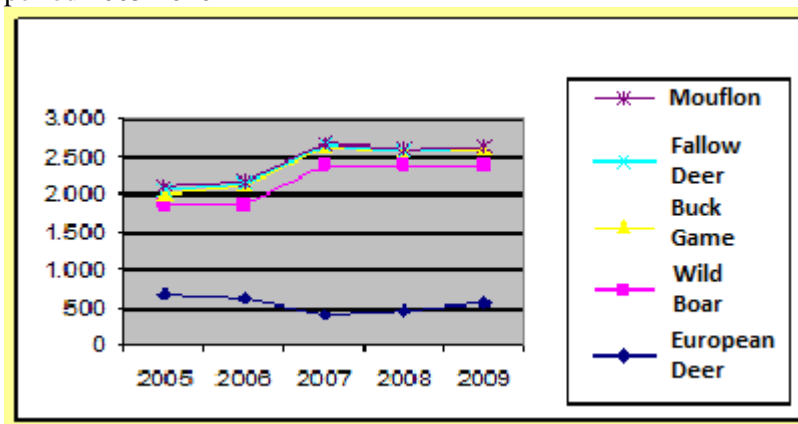
Figure 1. Number of the big game in the hunting grounds of PC «Vojvodinasume» for the period 2005-2009



Also, it is evident that, compared to year 2005, the shooting of some of the big game (mouflon, fallow deer, roe deer) has been increased during last several years in hunting grounds of this company, while hunting of the small game was reduced in years up to 2008, then a significant increase was recorded.

The number of the wild boars in "Vojvodinašume" hunting grounds ranged from 1905 to 3478, for the period from 2002 to 2005, with an annual harvest from 1153 to 1234 units. Trophy structure of hunted boars per year was: 2.56% in year 2003, 6.93% in 2004, 11.21% in 2005. This percentage, for example for hunting ground „Belje” was 6.34% for the period from 1977 to 1987 (Ristic, 2008).

Figure 2. Big game harvest in hunting grounds of PC «Vojvodinasume» for the period 2005-2010



### Wild boars parasites as enemies of the breeding

According to Tamara Ilic et al. (2011), trichinellosis at wild boars was registered in different parts of Serbia (Kulišić et al., 1994; Teodorović, 2007). *Trichinella spiralis* is a species characteristic of the epizootiological region of Serbia, where continental climate prevails, and was isolated in almost all species of wild carnivores and omnivorous: wolf - 44%, lynx - 47%, brown bear - 7.44%, foxes - 6% -32%, Badger - 1% -25%, and wild boar - 4.34% (Teodorovic, 2007). These data indicate that virtually all carnivorous and omnivorous of the wild fauna represent a permanent reservoir for this pathogen, which has specific epidemiological-epizootiological significance.

The most common ectoparasites of the wild boars are pediculosis, which causes *Haematopinus aperis* and *H. suis*, and scabies, caused by *Sarcoptes scabiei* var. *suis*. Lepojev et al. (1992) present the results of studies of parasitic infections of wild pigs, which are based on methods of feces examination. The study was conducted in one of the hunting grounds on the territory of Srem, where was paid great attention to the promotion of this type of production. The highest prevalence of coccidia infections in animals was established, pulmonary nematodes (*Metastrongylus elongatus*) and trihostrongilidama. Then follow the trematode, and *Strongyloides ransomi* and Capillaridae. Types *Arduena strongylina*, *Physocephalus sexalatus*, *Balantidium coli*, *Trichuris suis* and *Gnathostoma hypsidum*, were diagnosed at small number of animals. In wild boar in central Italy, was established as the dominant nematode *Globocephalus urosubulatus* (Magi et al., 2002), in Iran *C. tenuicollis* - 25% *C. cellulosa* - 8.3%, *M. april* - 41.6%, *M. pudendotectus* - 16.6%, *M. salmi* - 8.3%, *T. suis* - 8.3% and *M. hirudinaceus* - 41.6% (Solaymani-Mohammadi, 2003; Krithiga et al., 2010), in Corsica nematode *G. urosubulatus* and *A. suum*, louse *Haematopinus suis* and ticks *Hyalomma* and *Rhipicephalus sanguineus aegyptium* (Foata et al., 2006) and in Finland, coccidia species of the genera *Eimeria* and *Isospora*, *A. suum*, *T. suis* and trihostrongilide (Hall et al., 2010).

## Conclusion

Wild boar hunting is one of the most attractive big game in our open hunting as it is available to most of our hunters. In last more than 20 years, wild boars are spreading much more rapidly in all hunting grounds and can be found in those hunting areas in which was absent for decades. Wild boar is a species very resistant an attack of predators (most recently it is jackal in Vojvodina), while no other predators.

The advantages of growing wild boar in the open hunting grounds are: has enough food during the whole year, accept additional food in the area, reaches maturity early, and has a good reproductive capacity, a brief period of physical development and trophy hunting (average "management" age from 5 to 7 years), allows large annual hunting quota of up to 50% of the spring number, hunting is among the most attractive.

This game is in expansion and it is estimated that several thousands of these animals lives in our open hunting grounds in Vojvodina. In order to keep the wild boar in hunting areas, and reduce damage from it to the minimum it is necessary to do the following: to improve feeding throughout the year by seeding topinambour and other nutrients that they like, maintaining the economic capacity of hunting and the sex ratio of 1:1 with appropriate age structure, ensuring peace for the area especially in this habitat for wildlife and protection of endangered plants by raising the electric fences. In carrying out the shooting should pay special attention: the sex ratio of hunted animals should be approximately 1:1, that hunting should not be detrimental to the age structure and growth should not be threatened by predators, and exclude passing game factors if possible. In carrying out the shooting take into account the mortality and migration of a certain number of units.

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## Literature

1. Valentinčić S. (1986): «Uzgoj divljači u ograđenim površinama» - Hage des Wildes in den Gattern und auf den natürlich begranzten Bodenflächen (Zusammenfassung), Zbornik radova Simpozijuma „Uzgoj i zdravstvena zaštita divljači u ograđenim i prirodno omeđenim prostorima i zoovrtovima", od 29. do 31. maja 1986. god, na Brionima, Ljubljana, str. 4-10;
2. Hadži-Pavlović M. (1986): «Uzgoj muflona, lopatara i divljih svinja u ograđenom lovištu Dubašnica» - Hage des Muffel, Dam und Schwarzwildes in Gattergebiet Dubašnica (Zusammenfassung), Zbornik radova Simpozijuma „Uzgoj i zdravstvena zaštita divljači u ograđenim i prirodno omeđenim prostorima i zoovrtovima", od 29. do 31. maja 1986. god, na Brionima, Ljubljana, str. 36-48;
3. Jovanović V, Tarasenko B, Hart K. (1986): «Uticaj ekoloških faktora na rezultate gajenja divljaih svinja u ograđenom prostoru» - Einfluss der oekologischen Faktoren auf die Resultate der Hage des Schwarzwildes in Gattern, Zbornik radova Simpozijuma „Uzgoj i

- zdravstvena zaštita divljači u ograđenim i prirodno omeđenim prostorima i zoovrtovima", od 29. do 31. maja 1986. god, na Brionima, Ljubljana, str. 87-101;
4. Kučančanin S., Pantelić A., Hadži Cenić R., Čeranić A. (1995): Gazdovanje divljim svinjama (*Sus scrofa* L) u otvorenim lovištima, Zbornik radova sa savetovanja u Igalu i Novom Sadu 1994. godine, Lovački savez Jugoslavije, Beograd, str. 163-165
  5. Novaković V. (1986): «Mogućnost uspešnog uzgoja divljih svinja u ograđenim lovištima LŠG „Jelen”» - Die Möglichkeiten erfolgreicher Zucht der Wildschweine in eingezaunten jagdbieten der Forst-Jagdwirtschaft „Jelen" (Zusammenfassung), Zbornik radova Simpozijuma „Uzgoj i zdravstvena zaštita divljači u ograđenim i prirodno omeđenim prostorima i zoovrtovima", od 29. do 31. maja 1986. god, na Brionima, Ljubljana, str. 103-109;
  6. Novaković V. (1995): Racionalizacija gazdovanja divljim svinjama, Zbornik radova sa savetovanja u Igalu i Novom Sadu 1994. godine, Lovački savez Jugoslavije, Beograd, str. 157-162
  7. Pavlović M, (1972): «Budućnost ograđenih lovišta», «Zbornik radova Simpozijuma o lovstvu» Beograd, str. 78-82;
  8. Jovanović V, Tarasenko B. (1984): «Uzgoj divljači visokog lova u ograđenim lovištima», «Zbornik radova Simpozijuma u Novom Sadu, 26. oktobar 1984. godine „ Zdravstvena zaštita i uzgoju divljači" Beograd, 1984. str. 37-53;
  9. Valentinčić S. (1984): «Uzgoj divljači u slobodnim lovištima i njena zdravstvena zaštita», «Zbornik radova Simpozijuma u Novom Sadu, 26. oktobar 1984. godine „ Zdravstvena zaštita i uzgoju divljači" Beograd, 1984. str. 54-61;
  10. Ristić Z.,(2008): Lovno-turistički značaj ograđenih lovišta, Zbornik radova, Sveska LVI, Geografski fakultet Univerziteta u Beogradu, str. 193-208
  11. Tamara Ilić i sar. (2011): Parazitske infekcije divljih preživara i divljih svinja jetri i plućima), Veterinarski glasnik 65 (5-6) 419 - 431
  12. Umićević B., Čeranić A. (1996): Modelno lovište za poluintenzivno gajenje divlje svinje (*Sus scrofa* L.) u brdsko – planinskom staništu. Savetovanje „Savremeni aspekti gajenja, zaštite i korišćenja divljači u funkciji razvoja brdsko – planinskog područja Jugoslavije. Požega. Zbornik radova, str.139-145
  13. Josip Tončić, Branko Šoštarić, Ivan Vicković, Ivan Tarnaj (2006): Zdravstveno i genetsko stanje divljih svinja u Hrvatskoj (Health and genetic status of european wild boar in Croatia) Rad. Šumar. inst. Izvanredno izdanje 9: 223–236, Jastrebarsko

## UPRAVLJANJE DIVLJIM SVINJAMA U ZATVORENIM I OTVORENIM LOVIŠTIMA U VOJVODINI U ODNOSU NA BIOSIGURNOSNE MERE

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### Uvod

Danas se lovišta u Vojvodini ubrajaju među najpoznatija u Evropi jer prirodni potencijali za gajenje skoro svih vrsta divljači su povoljni, što dokazuju mnogobrojni vrhunski trofeji, svetski i evropski prvaci uzgojeni u našim lovištima.

Divlja svinja (*Sus scrofa* Linne 1758) na osnovu sistematike spada u: tip organizacije Hordata (*Chordata*), podtip kičmenjaka (*Vertebrata*), klasa sisari (*Mammalia*), podklasa Pravi sisari (*Euteria*), red: *Artiodactyla* (papkari), podred: *Nonruminantia* (nepreživari), porodica: *Suidae* (svinje), rod: *Sus*. Preci današnje divlje svinje živeli su na širokim prostranstvima Evrope i Azije još pre oko 60 miliona godina (u tercijaru). Do dana današnjeg divlje svinje su se, za razliku od mnogih drugih vrsta, relativno malo izmenile što govori o tome da su odlično prilagođene uslovima staništa u kojima žive.

Odraslog mužjaka nazivamo: divlji vepar, odraslu ženku: divlja krmača ili divlja svinja, mladunče u prvoj godini života: divlja prase, a divljač uzrasta od 12 do 24 meseci: divlja nazimad. Rod divljih svinja sa svojih šest vrsta naseljava Evropu, Aziju sa malajskim arhipelagom i severni deo Afrike. Divlje svinje su unete od strane čoveka i u nekoliko mesta SAD i u Argentinu i Čile. Oštrina zime, odnosno temperature niže od -30°C i dubina snežnog pokrivača iznad 50 cm su ograničavajući faktor za širenje divljih svinja ka severu tako da njih nema iznad 55° severne širine, tj. u skandinavskim zemljama i severnom pojasu Rusije.

Evropu naseljavaju sledećih 7 podvrsta divljih svinja: Srednjeevropska divlja svinja - *Sus scrofa* - tipična forma koja naseljava predele Evrope severno od Pirineja i Alpa do zapadne Belorusije (osim slobodnih lovišta Irske, Velike Britanije i pretežnog dela Skandinavije); Iberijska divlja svinja - *Sus scrofa castilianus* - koja živi na Iberijskom poluostrvu; Sardinjska patuljasta divlja svinja - *Sus scrofa meridionalis* - koja naseljava mediteranska ostrva Sardiniju i Korziku; Italijanska divlja svinja - *Susu scrofa maiori* - telesno sitnija od srednjeevropske koja živi u centralnoj Italiji i na Siciliji; Poljska divlja svinja - *Sus scrofa falzfeini* - koja živi pre svega u severoistočnoj Poljskoj a odlikuje se krupnoćom i kvalitetom trofeja i Jugoslovenska divlja svinja - *Sus scrofa reiseri* - koja živi na prostoru bivše SFRJ a centralni prostor je Bosna. Odlikuje se odličnim kvalitetom trofeja.

Sve vrste krupne divljači, pa time i divlja svinja mogu se gajiti u otvorenim i ograđenim lovištima. Gajenje krupne divljači u ograđenim lovištima ima i negativnih strana. U ograđenim lovištima, pri ograđivanju nekoliko hiljada pa i desetina hiljada hektara, divljači je ograničen životni prostor, a time i mogućnost većeg izbora i pronalaženja hrane. Tako na primer Novaković (Novaković, V, 1981.) navodi da četiri godine posle ograđivanja jednog lovišta i usled povećanja gustine populacije, smanjuje se neto telesna masa kod svih starosnih klasa jelena do

šest godina starosti, a evidentan je i pad trofejne vrednosti. Zbog ovoga mora se u ovako ograđenim lovištima obezbediti dopunska ishrana. Isti autor je utvrdio da se u ovako napravljenim lovištima smanjio i prirast tako da je posle četiri godine opala plodnost košuta za 11%.

U povećanoj gustini populacije u ograđenim lovištima lakše dolazi do pojave i širenja bolesti, kako zaraznih, isto tako i parazitskih. Zbog ovoga mere predostrožnosti (preventive) protiv ovakvih oboljenja moraju biti ugrađene u samoj tehnologiji procesa gajenja i istih se uzgajivači moraju pridržavati i sprovesti ih. Pri osnivanju ograđenog lovišta mora se strogo voditi računa o ekološkim uslovima terena na kome se ograđeno lovište osniva i bioloških karakteristika vrste krupne divljači koja će se uzgajati.

### **Struktura lovnih površina u Vojvodini**

Ako se analiziraju sadašnje lovnne površine u Vojvodini, sa kojim gazduju lovačke organizacije, evidentno je da postojeći stanišni uslovi ne odgovaraju svim vrstama divljači koje žive na ovim prostorima. Pod šumom i šumskim zemljištem lovačke organizacije imaju svega 53.228 ha ili 2,68%. Pod voćnjacima i vinogradima je 33.186 ha ili 1,67%. Ako se saberu ove dve površine koje su pod višegodišnjim kulturama, onda ispada da je pod zelenilom svega 86.414 ha ili 4,35%. S obzirom na činjenicu da su voćnjaci i vinogradi u najvećoj meri ograđeni, onda ove površine se ni ne računaju u lovnne površine čime je još katastrofalnija situacija kada je u pitanju reprodukcija sitne divljači.

Livade i pašnjaci pokrivaju površinu od 148.496 ha ili 7,48% i predstavljaju dobro stanište za pernatu divljač, uz uslov da se visoka trava ne kosi i da se preko trave ne tera stoka radi ispaše. Pri košnji polovina nasadenih gnezda od strane fazanki, jarebica, prepelica i druge pernate divljači propadne. Na ustanovljenim površinama lovišta u Vojvodini pod barama, tršćacima i vodom nalazi se 14.364 ha ili 0,72%. Ove površine najviše odgovaraju pticama močvaricama (divlje patke i guske i dr.).

Pod njivama i oranicama nalazi se 1.565.782 ha ili 78,84% od svih lovnih površina Vojvodine, te je i normalno da se sve vrste divljači nalaze na ovim površinama (staništu). Većina gajene divljači u toku cele godine žive na ovom staništu, i kako se menja vegetacija, tako se ova divljač prilagođava za reprodukciju, za uzgoj mladih, za obezbeđenje hrane, za obezbeđenje zaklona i zaštite i preživljavanje tokom cele godine, a posebno u surovim zimskim uslovima. U ostala zemljišta spadaju površine od 171.020 ha ili 8,61% i ova zemljišta ne predstavljaju posebno značajna staništa za sve vrste divljači, ali ova staništa pojedine vrste divljači koriste samo u pojedinim periodima godine.

### **Stanje lovišta od 1993. godine do danas**

Na osnovu Zakona o lovstvu iz 1993. godine u Vojvodini je formirano 89 lovišta na ukupnoj površini od 2.152.635,60 ha. Lovačke organizacije gazduju sa 57 lovišta, sa kojima gazduju 55 Lovačka udruženja. Ukupna površina lovišta lovačkih organizacija iznosi 1.986.076,00 ha što iznosi 92,26% od ukupno formiranih svih lovišta u Vojvodini. U odnosu na predhodni period to je povećanje za 63.169 ha ili

3,29%. Od ukupne površine lovišta u Vojvodini od 2.152.635,60 ha, struktura površina je sledeća: šume i šumskog zemljišta 152.277,50 ha (7,07%); livade i pašnjaci 173.467,50 ha (8,06%); njive i orarioce 1.580.445,00 ha (73,42%); voćnjaci i vinogradi 33.324,00 ha (1,55%) i ostalo zemljište 213.121,60 ha (9,90%).

Javno preduzeće Vojvodinašume gazduju sa 14 lovišta, ukupne površine 109.048 ha. Pod ogradom se nalazi 25.758 ha, što u odnosu na ukupnu površinu svih formiranih lovišta sa kojima gazduje Javno preduzeće Vojvodinašume iznosi u proseku 23,62%. U ograđenim delovima lovišta uzgajaju se sledeće vrste krupne divljači: jelen, jelen lopatar, muflon i divlja svinja.

Jedno lovište formirano je na površini poljoprivrednog kombinata „Zobnatica“ kod Bačke Topole u površini od 2.537 ha, JP Nacionalni park „Fruška gora“ gazduje sa lovištem površine 25.764 ha, VU „Karađorđevo“ gazduje sa lovištem površine 6.914,60 ha i lovištem „Neprečava“ Morović površine 2.857 ha, što ukupno iznosi 9.771,60 ha. Ukupna površina lovišta ova tri korisnika iznosi 38.072,60 ha. Površine lovišta čine: „Revir“ Mostonga (šume u posedu VU „Karađorđevo“ u površini od 1.595 ha i privatno zemljište 535 ha), „Revir Bukinski rit“ (šume i poljoprivredno zemljište u posedu VU „Karađorđevo“ u površini 3.934 ha; „Šarengadska ada“ u površini od 576,40 ha i ostrvo „Hagel“ u površini 274,20 ha). Od navedenih površina ograđeni su delovi lovišta „Guvnište“ u površini 776 ha i „Bukinski rit“ u površini 3.348 ha (ovi podaci su na osnovu Rešenja Ministra).

Tabela br. 1 Prikaz lovnih površina po korisnicima u Vojvodini

Korisnik	Površina (ha)	% Udeo
Lovačke organizacije	1.991.605	92,34
JP «Vojvodinašume»	108.988	5,05
JP NP «Fruška gora»	22.420,6	1,04
Ribarska gazdinstva	18.154	0,84
Vojska Srbije	13.251	0,61
Poljoprivredno preduzeće	2.537	0,12

Tabela br.2 Broj lovišta po korisnicima u Vojvodini

Korisnik	Broj lovišta	% Udeo
Lovačke organizacije	61	62,24
Ribarska gazdinstva	17	17,35
JP «Vojvodinašume»	14	14,29
Vojska Srbije	4	4,08
NP «Fruška gora»	1	1,02
Poljoprivredno preduzeće	1	1,02

Primeru radi, brojnost, planirani i ostvareni odstrel, kao i gubici divljači za 2010. godinu dati su u tabeli 3 i 4 za uslove lovišta u Slovačkoj. U lovištima Hrvatske nakon odstrela utvrđeno je da od 495 osmatranih divljih svinja njih 38,8% je bilo u tipu križanaca s domaćim svinjama. Ova procena temelji se na

eksterijernim nalazima, uglavnom na uočljivim odstupanjima od karakteristične pigmentacije divljih svinja u čistoj krvi. Divlje svinje u čistoj krvi najlakše se raspoznaju od domaćih svinja i njihovih križanaca na osnovu karakteristične pigmentacije čekinja (Tončić J., et all. 2006).

Tabela 3.- Brojno stanje divljači u Republici Slovačkoj

<i>Vrsta divljači</i>	<i>Brojnost</i>	<i>Planirani odstrel</i>	<i>Ostvareni odstrel</i>	<i>Gubici</i>
<i>Divlja svinja</i>	27 116	25 137	21 804	612

Tabela 4. - Brojno stanje divljih svinja u Republici Slovačkoj (2010. godina)

<b>Vrsta divljači</b>	<b>Planirani odstrel</b>	<b>Realizovan odstrel</b>	<b>Uhvaćeno</b>	<b>Uginulo</b>	<b>Ukupno</b>	<b>Unešeno</b>	<b>Prol. stanje naredne godine</b>
Vepar	2.135	1.414	0	38	1.452	0	4.086
Krmača	1.742	1.190	0	55	1.245	0	4.497
Nazime	6.618	8.311	65	144	8.520	25	8.075
Prase	14.642	10.889	70	375	11.334	0	10.458
Ukupno	25.137	21.804	135	612	22.551	25	27.116

### **Tehnologija proizvodnje divljih svinja u našim uslovima**

Divlja svinja (*Sus scrofa*) zahteva srednja i velika ograđena lovišta (nekoliko stotina hektara i više) u kojima će biti obezbeđeno dovoljno prirodne hrane jer u suprotnom moraju se intenzivno prihranjivati (hraniti). Lovišta (ograđena) gde se uzgaja divlja svinja u svom sastavu mora imati šumu, vodu, čistinu pod travnjacima, barama i traščacima. Tako Fuchs (Fuchs I. 1978.) smatra da u lovištu mora biti bar 10% površine pod travnjacima i čistinama, koje će u najvećem delu godine obezbediti divljim svinjama dovoljno kvalitetne pašne. U prirodnom uzgoju važno je pridržavati se ograničenja broja divljih svinja prema veličini lovno-produktivne površine u zavisnosti od boniteta. U takvim je prilikama za I. bonitetni razred propisana brojnost do 5-6 svinje (matični fond) na 100 ha. Ovo je brojnost koja osigurava ekonomičnost gazdovanja (Sertić, 2004), a garantuje i smanjivanje štete. Prosek prirasta je 2,5-3 prasadi po krmači starijoj od dve godine. Uz pravilnu regulaciju brojnosti (do 60 % odstela treba obuhvatiti mlade kategorije do 3 godine starosti) osiguravanjem pravilne prihrane i obezbeđenjem mira u lovištu, za očekivati je i manje štete na usevima. U gaterskom i farmskom uzgoju treba poštovati potrebe divljih svinja za rovanjem i kaljužanjem, kao i postojanje čvrste hijerarhije u krdu. Veprovima nakon parenja potrebno je osigurati odmor u posebnom prostoru kako bi se u miru oporavili od naporne sezone parenja (odvojeni od veprova koji nisu učestvovali u parenju). Od posebnog je značaja nužnost posebnog uzgoja divljih svinja (ne s drugim vrstama divljači), jer mogu pričiniti znatne štete na mladunčadi ili ranjenoj divljači (lopatari, srne, mufloni). Inače, divlje svinje su za uzgoj zahvalna vrsta, relativno otporna na stres i bolesti, dobrog prirasta, kvalitetnog mesa i cenjenih trofeja.

Tako je 2000. godine u Srbiji utvrđen broj divljih svinja iznosio 7.603 grla, pri čemu je 89,74% (6.823 grla) bilo u lovištima centralne Srbije, a samo 10,26% u



Vojvodini, dok je u 2007. u Srbiji bilo 12.412 divljih svinja, od čega u Centralnoj Srbiji 11.066 grla (89,15%). Tokom 2000. godine odstreljeno je 1.114 jedinka, od toga 884 (79,35%) u Centralnoj Srbiji, a 20,65% u Vojvodini. Podaci iz 2006. ukazuju da su tokom godine odstreljene 3.003 divlje svinje, a od tog broja u Centralnoj Srbiji je odstreljeno 2.435 (81,08%).

Proučavajući realan prirast divljih svinja u poluintenzivnom gajenju Maletić (2004.) je utvrdio da prosečan prirast po krmači iznosi 3,52 praseta za period do 15.juna, a da je prosečan prirast u period do 15.novembra. iznosi 2,99 praseta. Krže u knjizi o divljim svinjama (1982) navodi da trogodišnji veprovi dostižu 120 kg težine. Ristić (2008) krmače dostižu 80-90 kg žive telesne mase, a da nerastovi imaju 110-170 kg uz mogućnost izuzetaka koji dostižu i 300 kg. Istražujući divlje svinje Romić (cit.Andrašić 1979) je utvrdio da se masa krmača kreće u granicama od 126 kg do 163 kg, a nerastova od 148 kg do 221 kg.

Za uslove u Mađarskoj Tamaš (Tamaš K.,1978) iznosi podatke za tri ograđena lovišta za divlje svinje veličine 200 i više hektara. Ovaj autor navodi da površina pod šumom zahvata od 80 do 93% ograđenog terena, površina pod barama i tršćacima 2 do 13%, a površina pod travnjacima 5 do 13%. Prosečno u našim ograđenim lovištima je oko 70% šuma, bara i tršćaka oko 16% i travnjaka oko 15% (Jovanović V. i sar., 1984). O gustini populacije divljih svinja u ograđenom lovištu mišljenja su različita. Tamaš (Tamaš K.,1978) smatra da u dobro zasnovanom ograđenom lovištu gustina populacije može da bude jedna divlja svinja na jedan hektar (tj. 100 svinja na 100 ha).

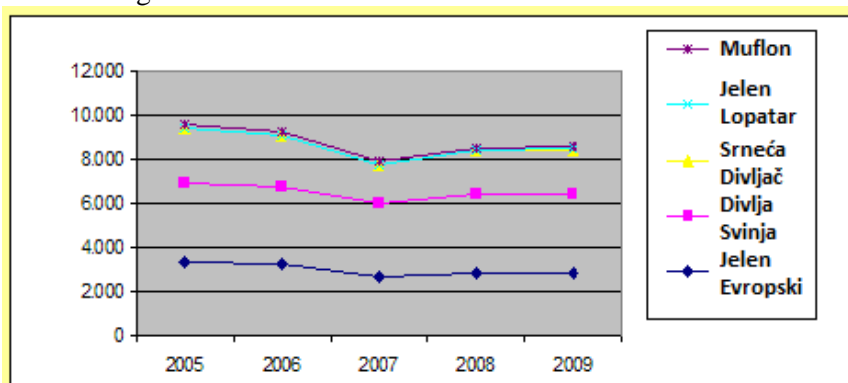
Prema istraživanjima Cvetića (Cvetić Lj.,1981) optimalna gustina populacije je 25 svinja na 100 ha, dok prema Fuchs (Fuchs J.,1978) treba da bude 70 do 80 divljih svinja na 100 ha. Gustini populacije u ograđena lovišta ne treba robovati i šablonizovati je, već za svako konkretno lovište treba da ima dovoljno prirodne hrane u najvećem delu godine a prihrana da se vrši samo zimi. Tamaš (Tamaš K.,1978) i Cvetić (Cvetić Lj.,1982). preporučuju prihranjivanje tokom cele godine. U lovištima koja su bogata sa šumom (preko 80% pošumljena), u otvorenim lovištima gustina divljih svinja se kreće od 1,60 grla na 100 ha u nekim perifernim delovima lovišta, do 4,00 grla u centralnim delovima lovišta, sa prosekom od 2,50 grla na 100 ha (Novaković, 1995). Kućančanin i sar. (1995) preporučuju da u šumskim područjima u otvorenim lovištima može da se gaji 1 grlo na 100 ha, dok na poljoprivrednim zemljištima, na kojima prevladuje obradivo zemljište može se gajiti od 0,50 do 1,00 grlo, dok na područjima na kojima ima do 25% šuma ne treba gajiti divlje svinje. Dokazano je istraživanjima Jovanovića i Tarasenka (Jovanović V, Tarasenko B, 1984) da su divlje svinje u ograđenim lovištima mnogo osetljivije na oboljenja nego svinje u slobodnoj prirodi. Ovo je naročito izraženo u ravničarskim lovištima sa ritovima.

### **Plansko i racionalno gazdovanje**

Divlja svinja pripada grupi životinja koje se relativno brzo prilagođavaju novim staništima i u znatnoj meri šire svoje dosadašnje areale. Postaje sve interesantnija divljač za odstrel, kako domaćem tako i inostranom lovcu. Uspešno se može gajiti i u ograđenim prostorima. Umićević i Čeranić, proučavajući mogućnost poluintenzivnog uzgoja divljih svinja, ističu da, kao omnivorna vrsta, bolje koristi

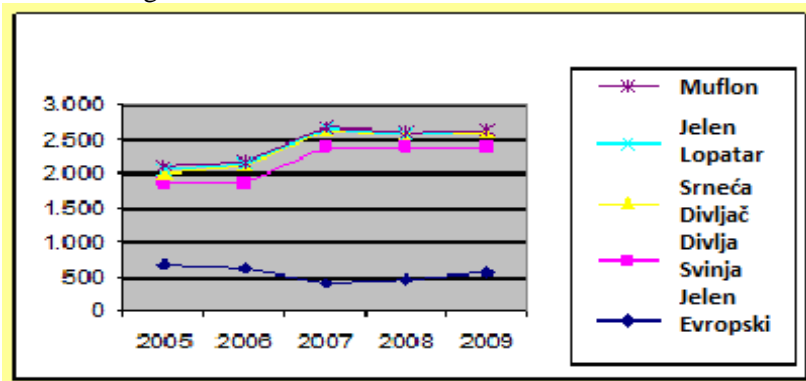
moгуćnost prirodne ishrane u ograđenom prostoru. Osim toga lako se navikava i prihvata dodatnu hranu. Dostizanje maksimalne brojnosti divljih svinja relativno je lako pošto ova vrsta ima ranu reproduktivnu zrelost i visoke reproduktivne sposobnosti. Od posebnog je značaja što divlja svinja ima relativno kratak period telesnog i trofejnog razvoja. U poluintenzivnom gajenju divljih svinja u brdskoplaninskim lovištima odstrel može ići i do 50%, a tokom cele godine moguć je lov. Biološke potencijale ove divljači treba bolje i organizovanije koristiti. Pravilnikom o proglašavanju lovostajem zaštićenih vrsta divljači (*Sl. gl. RS br. 9/12*) vepar se može loviti od 15.04. - 28.02., krmača od 1.07. do 31. 12. i nazime do 60 kg, od 15.04. do 28.02. Na osnovu podataka dobijenih od JP «Vojvodinašume» za period 2005-2009. godine može se uočiti da je brojnost najznačajnijih vrsta divljači smanjena.

Grafikon br. 1 Brojnost krupne divljači u lovištima JP «Vojvodinašume» u periodu 2005-2009.god.



Takođe, može se uočiti da je odstrel pojedine krupne divljači (muflon, jelen lopatar, srna) u lovištima ovog preduzeća, poslednjih godina povećan u odnosu na 2005. godinu dok je izlov sitne divljači smanjen do 2008. godine a potom beleži značajan porast.

Grafikon br.2 Odstrel krupne divljači u lovištima JP «Vojvodinašume» u periodu 2005-2010. g



Za period od 2002. do 2005. godine brojno stanje divljih svinja u lovištima Vojvodinašume se kretao od 1.905 do 3.478, sa godišnjim odstrelom od 1.153 do 1.234 jedinki. Trofejna struktura odstreljenih veprova po godinama je bila za 2003. godinu 2,56%; za 2004. - 6,93% i za 2005. - 11,21%. ovaj procenat, primera radi za lovište „Belje“ iznosio je 6,34% za period od 1977. do 1987. godine (Ristić, 2008).

### **Paraziti divljih svinja kao neprijatelji uzgoja**

Kako navodi Tamara Ilić i sar. (2011), trihineloza je kod divljih svinja registrovana u različitim delovima Srbije (Kulišić i sar., 1994; Teodorović, 2007). *Trichinella spiralis* je vrsta karakteristična za epizootiološko područje Srbije, u kome preovladava umereno kontinentalna klima i izolovana je kod skoro svih vrsta divljih omnivora i karnivora: vuk - 44%, ris - 47%, mrki medved - 7,44%, lisica - 6%-32%, jazavac - 1%-25% i divlja svinja - 4,34%, (Teodorović, 2007). Navedeni podaci ukazuju da praktično svi mesojedi, svaštojedi i glodari u divljoj fauni predstavljaju stalni rezervoar ovog uzročnika, koji ima poseban epidemiološko-epizootiološki značaj.

Najčešće ektoparazitaze divljih svinja su vašljivost, koju prouzrokuje *Haematopinus aperis* i *H. suis*, i šuga, koju izaziva *Sarcoptes scabiei* var. *suis*. Lepojevi i sar. (1992) iznose rezultate istraživanja parazitskih infekcija divljih svinja, koji su zasnovani na metodama koprološkog pregleda. Ispitivanje je sprovedeno u jednom od lovišta na području Srema, gde se unapređenju ovog vida proizvodnje poklanjala velika pažnja. Ustanovljena je najveća prevalencija infekcije životinja kokcidijama, plućnim nematodama (*Metastrongylus elongatus*) i trihostrongilidama. Zatim slede trematode, *Strongyloides ransomi* i *Capillaridae*. Vrste *Arduena strongylina*, *Physocephalus sexalatus*, *Balantidium coli*, *Trichuris suis* i *Gnathostoma hypsidum*, dijagnostikovane su kod manjeg broja životinja. Kod divljih svinja u centralnoj Italiji, kao dominantna je ustanovljena nematoda *Globocephalus urosubulatus* (Magi i sar., 2002), u Iranu vrste *C. tenuicollis* - 25%, *C. cellulosa* - 8,3%, *M. apri* - 41,6%, *M. pudendotectus* - 16,6%, *M. salmi* - 8,3%, *T. suis* - 8,3% i *M. hirudinaceus* - 41,6%, (Solaymani-Mohammadi, 2003; Krithiga i sar., 2010), na Korzici nematode *G. urosubulatus* i *A. suum*, vaš *Haematopinus suis* i krpelji *Hyalomma aegyptium* i *Rhipicephalus sanguineus* (Foata i sar., 2006), a u Finskoj vrste kokcidija iz rodova *Isospora* i *Eimeria*, *A. suum*, *T. suis* i trihostrongilide (Hälli i sar., 2010).

### **Zaključak**

Divlja svinja u našim otvorenim lovištima spada u najatraktivniju krupnu divljač za lov jer je dostupna većini naših lovaca. U poslednjih 20 i više godina, divlja svinja se mnogo brže širi po lovištima tako da se može naći i u onim lovištima u kojima je decenijama nije bilo. Divlja svinja je vrsta koja jako dobro trpi napad predatora (u poslednje vreme to je u Vojvodini šakal) dok drugih predatora nema.

Prednosti gajenja divljih svinja u otvorenim lovištima su: što u toku cele godine ima dovoljno hrane, prihvata dodatnu hranu u lovištu, ima ranu zrelost i izraženu reproduktivnu sposobnost, kratak period telesnog razvoja i trofejnog odstrela (gazdinska starost od 5 do 7 godina), omogućava veliku kvotu godišnjeg