*Review on Agriculture and Rural Development 2018 vol. 7 (1-2) ISSN 2063-4803*

# CERTAIN PARASITOSIS OF THE WILD BOAR AND THEIR IMPORTANCE IN WILDLIFE MANAGEMENT IN HUNGARY AND IN CERTAIN HUNTING REGIONS OF HEVES COUNTY

**LAJOS MOLNÁR**

Heves Megyei Kormányhivatal Füzesabonyi Járási Hivatal Animal Health and Food Control Department, 3390 Füzesabony, Rákóczi Ferenc út 62., Hungary
drlajosmolnar@gmail.com

**ABSTRACT**
The authors examined coccidia infection of fecal of wild boars shot in the south region of Mátra in Hungary. All animals were harvested in the 2009-2011 hunting season.
Seventy one (43.82%) positive results were found out of 162 wild boars tested for coccidia oocyst. The *Eimeria spp.* were indentified in 44 cases and *Eimeria perminuta* in 41 cases (93.18%), *E. debliecki* 21 cases (47.72%), *E. scabra* 11 cases (25.0%), *E. neodebliecki* 6 cases (13.63%) were found. In case of the wild boars that were younger than 1-year-old 21 positive samples (29.57%) were found and in case of older than 1-year-old wild boars, 50 (70.42%) animals were tested positively. The coccidia oocyst infection occoured more frequently in case of males- 42 (59.16%) were tested positivley- as for the females 29 (40.84%) positive samples were found. Based on the results, even co-infection between Eimerias and helminths can be assumed.

**Keywords:** *Sus scrofa*, wild boar, parasites, *Eimeria*, Metasrongilosis, Trichuriosis

## INTRODUCTION

The wild boar stock has significantly increased recently in Hungary (*Table 1*).

**Table 1. The wild boar stock in Hungary (1960-2015)**

| Year | Estimation | Yearly bag |
|---|---|---|
| **1960** | 8 300 | 3 900 |
| **1970** | 15 669 | 8 992 |
| **1980** | 20 397 | 20 241 |
| **1990** | 38 826 | 46 672 |
| **2000** | 76 054 | 67 745 |
| **2010** | 106 734 | 112 381 |
| **2015** | 105 654 | 137 101 |

This fact has got financial and veterinary health significance. The rising number of wild boars is increasing the financial income of the hunting club. In addition to this, it provides a cheap hunting opportunity for the majority of national hunters. At the same time, the damage caused by wild boars may also increase. This is the reason, why the reduction led to establishing of „wild boar" game gardens, in which there is a big demand for driven hunting.
In veterinary health point of view, we should consider the following fact that a strain sow gives birth to 7–8 piglets on average but half a year later she raises only 3–4 pigs. The bulky type of species usually are of K-strategists, despite the significant mortality detected among them. It's also true that among the highly productive species there is a higher number of offsprings, which is the part of r-strategy, which is a compensation for later mortality. The mortality can be caused by the lack of food, predators' effect, or just illnesses. Besides viral and bacterial diseases parasitosis also plays an important role

(FERNANDEZ DE MERA, 2003; ILIC, 2011). Even prevention is possible against the above mentioned diseases, especially in game gardens (ÁKOSHEGYI, 1997).
That's the reason, why I focus on the endoparasita examination of wild boar stock in the test area. Among them primarily ones, the coccidiosis and helminths were examined.

## MATERIAL AND METHOD

The fecal samples were collected from Hatvan, Gyöngyös district in Heves county mainly from the Mátra mountains and its region. Altogether, 163 specimen have been collected and examined. Sampling has been done between 2009 and 2011, when classical pig plague took its tools in this region. During this time we tried to eliminate epidemic with administrative measures, which requested hunters to deliver each shot boar's blood sample and tonsils to the District Chief Veterinarian's office. It gave me the idea to ask for recent faeces from the rectum. The samples from boar were identified by the same number as the number identifying the body. It was written on the sampling sheet attached to the sample. On the sampling sheet the following data can be collected:

- big game identification number
- name and address of the authorized hunter
- the harvested place according to GPS
- the time of shooting
- the sex of animal
- the age of animal
- body weight after evisceration.

The samples avoided being frozen, were sent to the former Parasitology and Zoological Department Faculty of Veterinary Medicine of Szent István University. The examinations were performed on in two directions. On the one hand, we were looking for cell parasites, first of all, coccidias, on the other hand, the intestinal parasites' ovums.
At the university, the detection of oocysts of coccidim was performed by surface enrichment method for which Breza kind of enrichment liquid was used. The grams per definition of the samples were performed by McMaster method (KASSAI, 2011). To identify sporulated oocysts, identifier was used. In the first 54 cases of 163 samples species typing and quantitative examination have not been performed just the detecting of the presence or lack of different kinds of parasite species. 163 wild boars giving samples were fifty-fifty per cent 82 females and 81 males.
The number of wild boars under one year is 37, and 126 is the number of older ones. The age estimation of the older animals under 1 year is usually random, it gives possibility to make a mistake, that's why we did not distinguish them by age, although the hunters gave the animals' estimated age on the survey sheet.

## RESULTS AND DISCUSSION

Out of the 163 stercoraceous samples 71 oocysts were found. In 44 cases species definition has been done (*Table 2*).

In 93.18% per cent (41 cases) *Eimeria perminuta*
47.72% (21 cases) *Eimeria debliecki*
25% (11 cases) *Eimeria scabra*
13.63% (6 cases) *Eimeria neodebliecki* has been detected.

Out of 44 samples in 45 per cent (20 samples) one type of infection
in 27.27% (12 case) two types of infection
in 22.72% (10 case) three types of infection occur.
in 4.54% (2 cases) four different types of infection occured in the same species.

**Table 2. Details of the original and result database (species: wild boar)**

| Identificion number | Under 1 year | Above 1 year | Sex | Origin | GPS coordinates | Time of harvest | Eimeria | Trichuris | Metastrongylida | Oesophagostomum | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2999 | | 3 years 80kg | male | Domoszló-Kisnána | 47,81774-20,09294 | 19-10-2011 | 1450 | | 50 | | *E. neodebliecki* *E. perminuta* *E. scabra* |
| 164247 | 9 months 18kg | | female | Egererdő Zrt | 714808-284066 | 07-01-2010 | | 50 | | | |
| 164248 | 8 months 20 kg | | female | Egererdő Zrt | 714646-283968 | 07-01-2010 | 50 | | 350 | | *E. perminuta* *E. scabra* |
| 7851 | | 2 years 65 kg | male | Szücsi | 47,81050-19,72667 | 27-11-2010 | 750 | | 50 | | *E. debliecki* *E. scabra* *E. perminuta* |
| 9432 | 12 months 20 kg | | male | Gyöngyös-tarján | 710796-277063 | 30-11-2010 | 950 | 50 | 50 | | *E. debliecki* *E. perminuta* *E. neodebliecki* |
| 2330 | | 2 years 46 kg | male | Apc | 47,81509-19,69079 | 29-11-2010 | 100 | | | | *E. debliecki* *E. perminuta* |
| 4890 | | 4 years 97 kg | male | Egererdő Zrt | 710997-282533 | 04-12-2010 | 550 | | | 100 | *E. debliecki* *E. perminuta* |
| 4878 | | 15 months | male | Egererdő Zrt | 710997-285995 | 04-12-2010 | 100 | | 50 | | *E. perminuta* |
| 7027 | | 2 years 32 kg | male | Lőrinci | 47,7480-19,7136 | 05-12-2010 | 50 | | | | *E. perminuta* |
| 8531 | | 4 years 40kg | male | Detk | 47,768036-20,089034 | 12-12-2010 | 50 | | | | *E. debliecki* |

The quantitative analysis showed significant difference as extreme value 50 and 3550 oocysts/1 g fecal saples. Infection has been detected in 59.16% of males and in 40.84% of females. Among the infected wild boars older than 1–year–old there were 31 males and 19 females. There was not any significant deviation among the males and females under 1–year–old.

I think both in national and international specialised literature the significance of *Eimeria* spreading in swines so in wild boars is not regarded as impotant as it should be. This is the parasite which the swine first meets since it gets into its organism from its mother's nipple — probably — this is one reason for premature mortality of pigs. The examination of premature pig mortality has a lot of difficulties, especially in the case of wild boar as these few-day-old animals can not be found due to cannibalism, predators' and scavengers' stomach. However, the few-day-old pigs are quickly weakened due to parasitic diarrhea and abdominal discomfort that can be fatal to them.

The other part of our examination focused on detecting helminth eggs. Within this, primarily we recieved data on nematode Metastrongilydae, *Trichuris suis*, Oesophagostomum infection. Our effort to detect *Ascaris suum* eggs was not successful as only one case has been detected.
The helminth eggs were determined at University of Veterinary Medicine by applying flotation method to which Breza kind of enrichment liquid was used. The quantitave determination was performed by McMaster method.
The results: out of 163 samples in 84 (51.53%) nematode eggs were detected.
In the most cases 72.61% the animals were infected only by one type of helminth egg, while in 23.8% by dual egg, in 3.57% three different helminth eggs were detected.
Among 37 species 26 (70.27%) under one–year–old were infected. Among the animals over one-year-old some kind of helminth eggs were detected in 58 animals.
Metastrongylus eggs causing lung worms were shown in 15 among under one–year–old species, while in the case of older animals in 44. Examining the sex distribution of the infection there is a slight difference: males are 47.45%, females are 52.54% are concerned.
Out of all samples in 26 (15.95%) *Trichuris suis* eggs have been detected. Within this in 11 cases (42.3%) under one–year–old, while in 15 cases (57.69%) more than one–year–old.
In sex distribution 16 males (61.5%) and 10 females (38.46%) were infected.
Oesophagostomosist causing focal colon helminth has been detected in 22 species (13.49%) (supposedly *Oesophagostomum dentatum*, but species determination has not been done).
Within this in 6 cases (27.27%) under one–year–old while in 16 cases (72.72%) more than one year.
In sex distribution Oesophagostomosis causing focal colon helminth has been detected in 13 males (59.09%) and 9 females (40.91%).
We also examined the correlation between the different helminth and altitude above sea level, but it did not show significant result. In the case of pneumonic helminth it was assumed that such a correlation could exist between Lumbricus terrestris as vector (BICSÉRDY ET AL., 2007) and thickness, quality of soil cover.
In summary, we can say that our results can fit into detected line of wild boar parasitosis in Hungary. In Mátra and its region similar research has not been done. Having regard the results the significance of parasites within cells, supposedly, is much higher than we would expect, especially in the case of young pig mortality.
In my opinion, the benefit of this research results is especially useful with the owners' of wild boar garden, as the owners have to anticipate with detected helminth infections either adopted or purchased wild boar stock. Protection against these infections can be done by giving the right type of antiparasitic treatment.
The benefit of this can be realizable in the quality of wild boars and in the number of the raised pig.

## ACKNOWLEDGEMENTS

I would like to say thank you to the employee of Egererdő Ltd. Mátrafüred Forestry, who provided the samples. Thanks to Mónika Gyurkovszki from Parasitology Department of Veterinary Medicine, who helped me a lot with processing of samples. Lots of thanks to Miklós Heltai Dr. the tutor of the Wildlife Conservation Institute of Szent István University, who is my enthusiastic mentor. This presentation could not have been done without his assistance.

## REFERENCES

ÁKOSHEGYI, I. (1997): Vaddisznóállományok parazitológiai felmérése. Nimród 2: 12–13.
BICSÉRDY, GY., EGRI, B., SUGÁR, L., SZTOJKOV, V. (2007): Vadbetegségek. Mezőgazda Kiadó, Budapest. 149 p.
FERNANDEZ DE MERA, I.G., GORTAZAR, C., VICENTE, J., HÖFLE, U., FIERRO, Y. (2003): Wild boar helminths: risks in animal translocations. Veterinary Parasitology 115: 335–341.
ILIC, T., STOJANOV, I., DIMITRIEVIC, S. (2011): Parasitic infection in wild ruminants and wild boar. Veterinarski Glasnik 65: 419–431.
KASSAI (2011): Helmintológia. MÁOK, Budapest. 369 p.