



IEGULDĪJUMS TAVĀ NĀKOTNĒ

**LVMI Silava zinātniskās asistentes Gundegas Aizupietes dalība
30. Starptautiskajā Medību Biologu kongresā Barselonā Spānijā
*XXXth IUGB Congress and Perdix XIII***

Laika posmā no 2011. gada 5. līdz 9.septembrim LVMI Silava zinātniskā asistente Gundega Aizupiete piedalījās 30. Starptautiskā Medību Biologu kongresā *XXXth IUGB Congress and Perdix XIII*, ko organizēja Barselonas Universitāte sadarbībā ar Zemkopības un Vides ministriju un Medību Resursu pētniecības institūtu. Dalība konferencē segta no ERAF 2.1.1.2 aktivitātes "Atbalsts starptautiskās sadarbības projektiem zinātnē un tehnoloģijās" LVMI Silava pieteiktā projekta "Atbalsts LVMI Silava starptautiskajai sadarbībai, atpazīstamībai un konkurētspējai" ietvaros.

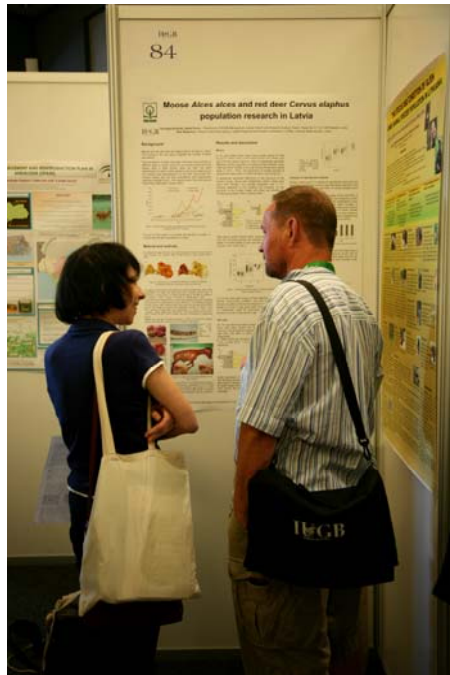
Reizi divos gados kopš deviņdesmito gadu vidus, Starptautiskā Medību Biologu apvienība (*International Union of Game Biologist - IUGB*) ir pulcējusi zoologus, mežsaimniecības zinātniekus, veterinārārstus, medniekus un citus cilvēkus ar interesi par medībās vai savvaļas dzīvnieku bioloģiju. IUGB mērķis ir veicināt informācijas apmaiņu zinātniskajā un praktiskajā jomā, medību un dzīvās dabas pārvaldības sfērā.

Konferencē 8 paralēlās sekcijās tika sniegti vairāk kā 120 mutiski ziņojumi, kas skāra tādas aktuālas tēmas kā

- migrējošo sugu aizsardzība un saglabāšana,
- cilvēka un dzīvās dabas mijiedarbība,
- jaunāko tehnoloģiju, metožu izmantošana dzīvnieku izpētē,
- populāciju dinamika, medījamo dzīvnieku izpēte, un citas tēmas.

Tāpat tika sniegti arī vairāk kā 100 stenda ziņojumi.

LVMI Silava tika pārstāvēta apakšsekcijā „Dzīvās dabas bioloģija, uzvedība un medījamo dzīvnieku izpēte” ar stenda ziņojumu, kura kopsavilkums iekļauts abstraktu grāmatā: Aizupiete G., Stepanova A., Žunna A., 2011. „*Moose Alces alces and red deer Cervus elaphus population research in Latvia*”. *XXXth IUGB Congress and Perdix XIII. Book of abstracts. Barcelona (Spain) September 5th – 9th 2011, 291 pp.* (skatīt pielikumu).



Konferences ietvaros organizētas 6 darba grupas, kur notika diskusijas gan par eksotiskajiem (reintroducētiem un introducētiem) pārnadžiem kā medījamām sugām – ekoloģiskiem un socioekonomiskiem aspektiem; gan par mednieku un medību biologu sadarbību, kā arī apspriests mežacūku skaita pieaugums Vidusjūras reģiona valstīs un ar to saistītās problēmas, iespējamie risinājumi.

Kongresa gaitā nodibināti kontakti ar Lietuvas Lauksaimniecības un Mežsaimniecības Institūta (*Institute of Forestry, Lithuanian Research Centre for Agriculture and Forestry*) pētnieci Olgirdu Belovu; Igaunijas Meža un Lauksaimniecības Institūta (*Institute of Forestry and Rural Engineering*) pārstāvjiem Titu Randvēru (*Tiit Randveer*), Karli Ligi un Ingu Jogisalu (*Inga Jõgisalu*); Sabīni Bertouilli (*Sabine Sertouille*) no Dabas un Ūdens Resursu direktorāta Beļģijā, apspriesta turpmākā sadarbības iespēja un pieredzes apmaiņa.

Konferences noslēguma dienā apmeklēts Cadí nacionālais parks Spānijas dienvidaustrumos, kur parka darbinieki demonstrēja Pireneju laukirbju *Perdix perdix hispaniensis*, kalnu kazu *Rupicapra pyrenaica* kalnu murkšķu *Marmota marmota* apdzīvotos biotopus, kas cilvēku darbības rezultātā degradēti, bet tagad tiek atjaunoti.

Par nākamo konferences dalības vietu 2013.gadā izraudzīta Brisele (Beļģija).

Background

Moose and red deer are the biggest game animals in Latvia. The hunting is the only way to regulate the number of these populations.

The populations of these two large mammals have evolved in different ways in Latvia: moose is an ancient animal and has always lived in state forests, while red deer has been reintroduced in Latvia in deer gardens, and at the beginning of 20th century they acclimated in to the wild. Since early 20th century moose and red deer populations had experienced essential changes (Fig.1). The reasons were First and Second World Wars (Mikhyeva, Gaross 2002).

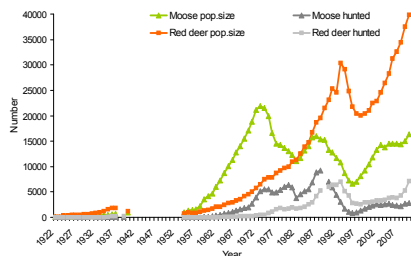


Figure 1. Moose and red deer population and hunting dynamic since the beginning of 20th century.

The aim of this study is to assess demographic condition of moose and red deer populations in Latvia.

Material and methods

To assess sex-age structure, we used data about hunted moose and red deer numbers from Latvian State Forest Service in time period 1999 – 2010.

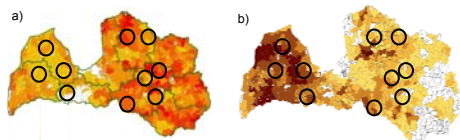


Figure 2. Moose (a) and red deer (b) density in Latvia and selected monitoring forestries (Latvian State Forest Service 2008-2009).

To assess morphometric parameters of hunted animals (sex, age, antler parameters- for bulls), we used data from shooting permits from 10 forestries in Latvia (Fig.2). In these permits age of animals is divided in four groups: 1 - calf (< 1 year), 2 - young, 3 - middle age, 4 - old. The reproductive material from moose and red deer cows were collected during autumn hunting seasons in year 2008-2010. The material consisted of intact uterus, both ovaries (Fig.3) and lower jaw for age determination (Fig.4). The weight of ovaries were measured, number of corpora rubra from previous pregnancies and parameters of corpora lutea verum (number, length, width) were determined. The measurements of embryos were: weight, length, age in weeks and sex (if possible to determine) (Fig.5).

Moose and red deer browsing intensity in winter and summer foraging places were detected, results are not included in this report.

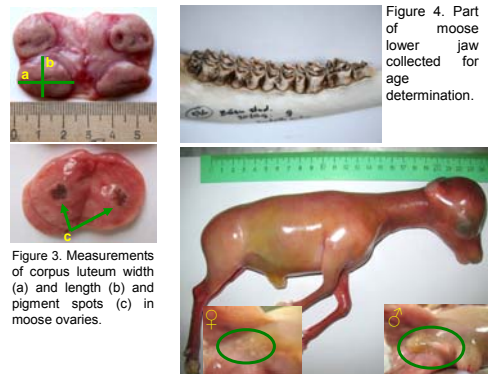


Figure 5. Length and sex measurements of red deer embryo.

Statistical analyses is performed using SPSS 15 and MS Excel programs. To assess any differences in morphometric parameters of the hunted animals through the years and among different age groups, we used nonparametric Mann-Whitney U test and Kruskal Wallis H test. To assess if there is any statistically significant difference between calf sex proportion, we used χ^2 Yate's correction.

Results and discussion

Moose

In 12 year period there have been hunted almost 30 000 moose in Latvia. 44% of all hunted moose are middle aged and 21% are calves (Fig.6.a). There is statistically significant difference of the proportion of hunted animals between years 1999 and 2010. Initially 21% of all hunted moose were calves while in 2010 – 40%. The proportion of hunted animals at reproductive age is 56% in 1999 and 36% in 2010 (Fig.6.b).

A statistically significant difference in sex structure of the hunted moose calves was established, where males were more than females, the average proportion was 1: 0.7. Hunting selectivity is not shaping calf shooting, so sex structure of the hunted calves can show sex structure in remaining population (Moe, Solberg 2009).

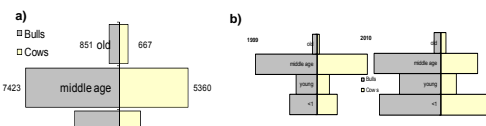


Figure 6. Hunted moose sex-age structure in time period 1999-2010 in Latvia (a) and the differences between these proportions in 1999 and 2010 (b).

Data about hunted moose antler parameters were obtained from 287 shooting permits. No changes were established in length of moose antlers in four year period, in any age group (Asymp. Sig > 0.05) (Fig.7).

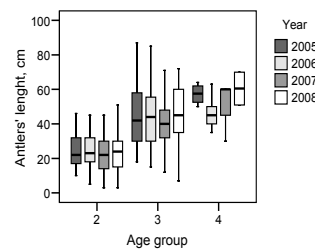


Figure 7. Variations of antler length of hunted moose bulls (mean values; N=287).

It is known that antler length of bulls depends on age of the animal, environment condition, and this parameter shows physical condition of the animal (Nygrén *et al.* 2007). For antler length in 2nd and 3rd age group there is tendency to decrease. An explanation could be preliminary – too high hunting pressure on bulls of reproductive age.

Red deer

45 047 red deer have been hunted during 12 year period – of them 26% were calves and 44% middle aged animals (Fig.8.a). The proportion of reproductive aged animals in 1999 was 49% and 38% in 2010, calves – 20% and 31%, respectively. In 1999 hunted sex structure of the calves was bulls:cows= 1:0.9, in year 2010 – 1:1.3. The difference is statistically significant.

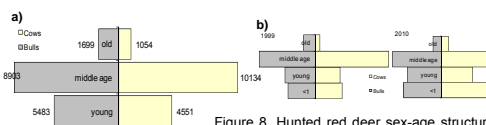


Figure 8. Hunted red deer sex-age structure in time period 1999-2010 in Latvia (a) and the differences between these proportions in 1999 and 2010 (b).

Antler parameters of the red deer bulls were analyzed from 824 shooting permits. As well as for moose bulls, also for red deer bulls no statistically significant differences were detected for antler length between age groups and years (Asymp. Sig > 0.05) (Fig.9). But there is a tendency for this parameter to decrease.

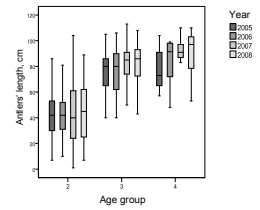


Figure 9. Variations of antler length of the hunted red deer bulls (mean values; N=824).

Analysis of reproductive material

During 3 year period 71 sample of reproductive tract from red deer cows and 22 from moose cows have been collected. Only 62% of red deer samples and 64% of moose samples were complete.

The frequency of corpora rubra in ovaries shows that 50% of female moose and red deer have their first pregnancy when they are 1.5 year old (Fig.10). One of the explanations could be that there are not enough middle aged females in population. Markgren G. (1969) in Sweden found that a part of moose females has their first pregnancy at 2.5 years, usually at 3.5, and that younger females take part in rut only if there is low fecundity among middle aged females. Also available food is a limiting factor (Sand *et al.* 1995; Solberg *et al.* 2002).

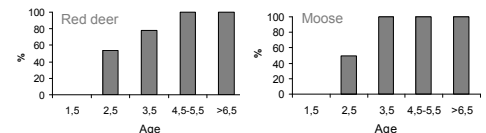


Figure 10. The frequency of corpora rubra in ovaries for moose and red deer cows.

The breeding season for red deer lasts from the beginning of August till beginning of November, maximum at the end of September. There is a tendency that middle aged and old red deer females become impregnate earlier than younger ones (Fig.11).

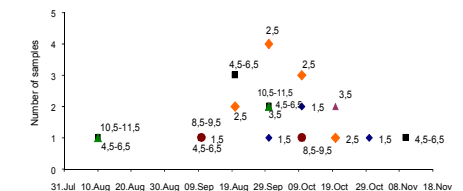


Figure 11. Red deer breeding period (each spot shows the age group (number near the spot) and number of samples from each group).

Conclusions

1. There is high hunting pressure on male moose and red deer. Solberg E.J. *et al.* (2002) concluded that the long-term biased harvesting of males may have some effects on the reproductive output in populations.
2. Post-embryonic and pre-embryonic sex structure for both species is more male biased – that could indicate of too many females in populations.
3. Mean antler length for moose and red deer bulls is decreasing and that also can indicate to female-biased population structure (Clutton-Brock *et al.* 1997).
4. It is necessary to continue research and to include data about browsing intensity.

References

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