ЮБИЛЕЙНА НАУЧНА КОНФЕРЕНЦИЯ ПО ЕКОЛОГИЯ (СБОРНИК С ДОКЛАДИ)
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SEASONALITY IN MARKING ACTIVITY OF THE EURASIAN OTTER (*Lutra lutra*) IN SOUTHERN BULGARIA

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Abstract. Most numerous sprainting sites of otter (*Lutra lutra*) in our study area we found during the autumn period. The marking activity was highest during this season and was mean of 4.85 spraints per sprainting site. The mean spraint number per 600 meters was 3.22. Lower but also with relatively high dropping numbers were the summer and the winter season. The mean spraint number per 600 meters, and per sprainting site were respectively 2.7 and 3.2 for summer, and 2.5 and 3.2 for winter. Despite the number of spraints per 600 meters was higher that in winter, the lowest otter marking activity as a whole we found during spring, considering the other indications were 1.8 and 2.7 respectively. This information resulting from our study area determined the autumn season as most favorable for otter monitoring in southern Bulgaria.

Key Words: otter, sprainting, monitoring.

INTRODUCTION

Eurasian Otter (*Lutra lutra*) surveys are commonly based on spraints (faeces) searching, especially when the species is monitored in Europe (FOSTER-TURLEY *et al.,* 1982).

A lot of spraint studies were carried out for the Eurasian otter. In Britain BAS *et al.* (1984) and MACDONALD & MASON (1985) found that the otter marking sites were positively correlated with the presence of bank vegetation cover. Using infrared camera observations in Israel GUTER *et al.* (2008) found that the number of fresh spraints per night, and per site was also positively correlated with the number of otter visits/night/site. According same authors latrines visited on more nights had a higher number of fresh spraints per night visited.

KRUUK (2006) showed that there is a seasonality of otter marking activity in some areas. Respectively our study was aimed on the question if there is any season varied sprainting intensity in Bulgaria, and if yes which season is most favorable for searching otter signs through future monitoring surveys.

MATERIALS AND METHODS

Twelve transects of various water basins bank line in the catchments of Tundza and Maritza Rivers (Southern Bulgaria) were walked on foot seasonally during 2005-2007. The sites usually were visited two times per season (minimum once, maximum three). The number of marking sites and the marking intensity were investigated. The marking sites number was calculated according the criteria of FOSTER-TURLEY *et al.* (1982) for 600 meters of bank line. The sprainting activity was evaluated considering QUADROS & MONTEIRO-FIHLO (2002) counting the spraints per sprainting site. Periodically walked transects were with total length of 22.95 kilometers: 1.62 km – canals east of Stara Zagora town, 7.32 km – connected complex of Bedechka River, Zagorka micro dam and a canal (Stara Zagora town), 1.0 km – Sazlyika River and a pond in Starizagorski Bani resort, 2.1 km – a river and a micro dam near Kolena village, 0.6 km – Dunda River at Trankovo village, 1.0 km – a river and micro dam near village of Konush (Plovdiv area), 3.0 km – canal near Trakia complex at Plovdiv town, 3.8 km – Maritza River west of Plovdiv town, 0.67 km – Maritza River near Orizare village, 0.9 km – Parvenetzka River near Parvenetz village, 0.2 km – Sazlyika River near Kolarovo village, 1.3 km – a canal near fishfarms at Plovdiv town.

RESULTS AND DISCUSSION

Summarized data from the seasonally visited transects from various otter home ranges are to be found in Table 1 and Figure 1. Most numerous sprainting sites we found during the autumn period. The marking activity was also highest during this season and was mean of 4.85 spraints per sprainting site. The mean spraint number per 600 meters was 3.22.

Lower but also with relatively high dropping numbers were the summer and the winter season. The mean spraint number per 600 meters, and per sprainting site were respectively 2.7 and 3.2 for summer, and 2.5 and 3.2 for winter.

Table 1. *Seasonality in marking activity of the Eurasian otter (Lutra lutra) in southern Bulgaria.*

season	spraints/600m	spraints/sprainting site	sprainting sites/600m
spring	6,2	2,7	1,9
summer	9,2	3,2	2,7
autumn	15,4	4,9	3,2
winter	3,2	3,2	2,5

Despite the number of spraints per 600 meters was higher that in winter, the lowest otter marking activity as a whole we found during spring, considering the other indications were 1.8 and 2.7 respectively.

We consider such preliminary research activities on Eurasian otter's marking activity are necessary when beginning species monitoring in a particular area. Even

some authors did not found any seasonality of spraint deposition (MASON & MACDONALD, 2004) it was clearly shown that it depends on sites or geographical ranges. On Shetland Islands (Scotland) KRUUK (1992) found that the sprainting activity was highest during winter and lowest during summer, when otters defecated mostly in water. Different picture was described for the Araglin Valley (southern Ireland) by OTTINO & GILLER (2004) where spring was the season with most spraints, and autumn showed low marking activity. These two examples with completely different results from our investigation support our suggestion.

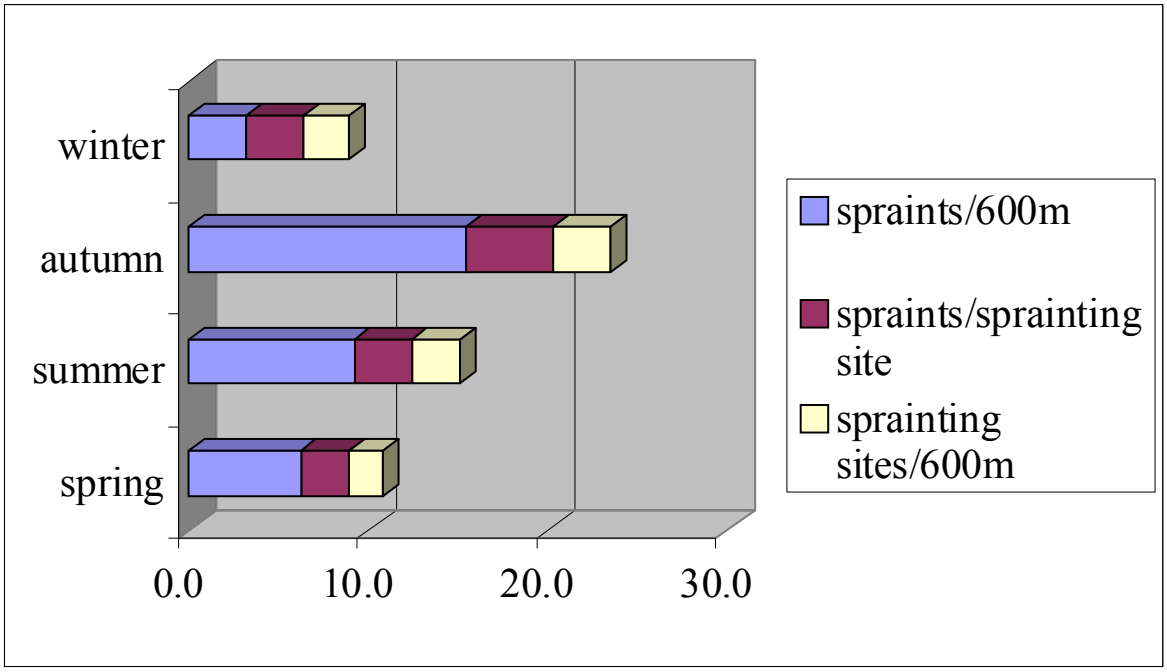

Fig. 1. *Diagram showing seasonality in marking activity of the Eurasian otter (Lutra lutra) in southern Bulgaria.*

CONCLUSIONS

The marking activity of the Eurasian otter (*Lutra lutra*) in our study area was most intensive during autumn when considering all indications studied (spraints per sprainting site, spraints and sprainting sites per 600 m). This information determined this season as the most favorable for otter monitoring by the standard method of spraint survey of FOSTER-TURLEY *et al.* (1982) in southern Bulgaria.

We also suggest preliminary research on Eurasian otter's seasonal marking activity when beginning species monitoring in a particular area.

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СЕЗОННОСТ В МАРКИРОВЪЧНАТА АКТИВНОСТ НА ВИДРАТА (*Lutra lutra*) В ЮЖНА БЪЛГАРИЯ

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(Резюме)

С оглед определяне на най-благоприятен сезон за мониторингови проучвания, периодично са посещавани 12 трансекта от брегова ивица разположени в индивидуални участъци на видри във водосборните басейни на реките Марица и Тунджа. Трансектите са посещавани средно по два пъти всеки сезон (минимум веднъж, максимум три пъти) през периода 2005-2006 година. Отчитани са броя маркировъчни места в трансекта и интензивността на маркиране. Периодично обхожданите трансекти са с обща дължина 22,95 км. Най-голямо количество маркировъчни места и екскременти регистрираме през есенния период. Интензивността на маркиране е най-висока през този сезон в изследваните трансекти и е средно 4,85 екскремента за маркировъчно място. Средния брой маркировъчни места за 600 метра е 3,22. Маркировъчните места за 600 метра и екскрементите за маркировъчно място са съответно 2,7 и 3,16 за лятото, и 2,49 и 3,17 за зимата. Най-ниски са тези показатели през пролетта и са съответно 1,87 и 2,68. Нашите данни от района на изследване определят есенния сезон като най-благоприятен за мониторингови проучвания върху видрата.