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**THREE MEN IN A BOAT (TO SAY NOTHING OF THE OTTER IN  
LATVIA)\***

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**Abstract:** In the first half of this century, the otter *Lutra lutra* was regarded as 'nowhere numerous in Latvia but more common in the eastern part of the country than in the western'. Otters were rare in the whole East Baltic in the late 1970s. Field surveys carried out between 1986 and 1991 estimated the minimal population to be 4,000 otters. The aim of this study was to find out whether otters have increased in Latvia since the last survey 10 years ago, to find out what otters eat in late summer in a zone with low fish availability, whether otters occur along the Baltic coast, and whether they feed in the marine environment. A stable or possibly growing otter population was found. Along the coast, otter sign was only found in the estuaries of small creeks, and little marine food was eaten. Such otters as were indicated were along rocky shores where kelp beds shelter fish, rather than the predominating sandy shores. Unlike the rest of Europe, fish were not the most important prey - amphibians were consumed in equal amounts, and there was a high proportion of insects and other non-fish food eaten. Only in eastern Poland are similar diet proportions found.

## INTRODUCTION

In the first half of this century, the otter *Lutra lutra* was regarded as 'nowhere numerous in Latvia but more common in the eastern part of the country than in the western' (LANGE, 1970). Latvian game statistics show a fairly evident decrease of otters from the 1920s until the 1940s, followed by a rapid increase after the Second World War (ORNICANS, 1996). Following the annexation of the country by the USSR, very little was known on an international scale about the status of the country's otter populations. REUTHER (1980) mentioned that otters were rare in the whole East Baltic in the late 1970s. The first more detailed survey of otters in a Baltic country came from Estonia (LAANETU, 1989), who estimated the population to be 600 individuals, a comparatively low number for an area of 45.100 km<sup>2</sup>. The first investigations on otters in Latvia after the Second World War started in the 1980s. Initial evidences of an abundant population came from the legal bycatch of otters killed in beaver (*Castor fiber*) traps. 1.490 otters were killed in beaver traps over four consecutive hunting seasons in Latvia, in an area of 63.700 km<sup>2</sup> (OZOLINS and RANTINS, 1994, 1995). Beaver hunting lasts from 1. October until 31. March, however, most beavers and also otters are caught in two months, October and November, before the rivers are covered by ice. Field surveys were also carried out between 1986 and 1991 (OZOLINS and RANTINS, 1992) and the minimal population was estimated to be 4,000 otters. In the 1990s, beaver hunting was no longer popular, because the fur price became too low and consequently only few otters are caught as a bycatch. This might cause an increase of otter numbers, but in Latvia fish densities are very low (BIRZAKS et al., 1998). This raises interest in the feeding peculiarities of otters in these habitats with few fish. Hence our 10 day field excursion had two main goals. Firstly, are there indications that otters increased in Latvia since the last survey, which was

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\* It is not our aim to imitate or to compete with the excellent writer JEROME K. JEROME (1889). We just make an attempt to follow the kind recommendations of TERTIL (1992) and, with this title, try to raise more attention to the otter in a region of Europe which was comparatively rarely mentioned in international papers, the East Baltic.

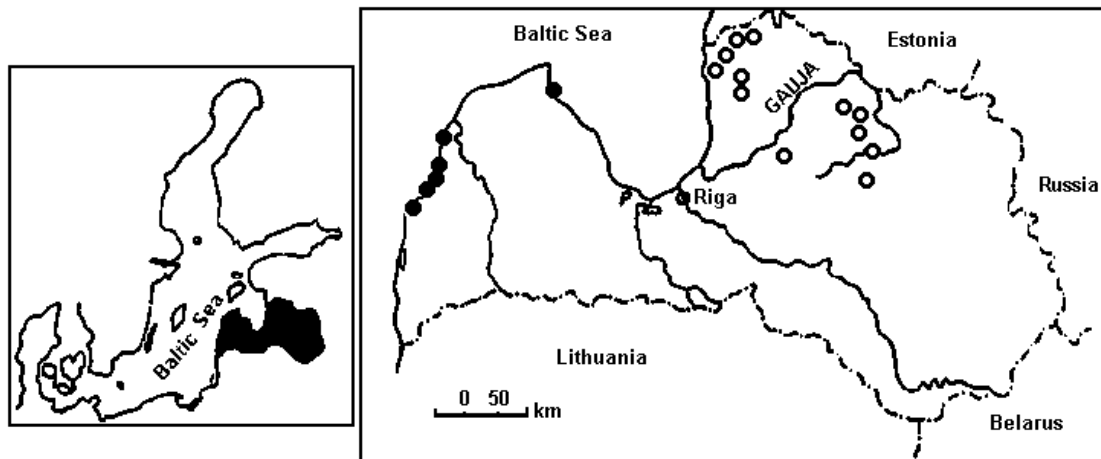
conducted 10 years ago. Secondly, what do otters eat in late summer, the season elsewhere in Europe dominated by fish as otter food. An additional question was to determine whether or not otters occur along the coast of the Baltic Sea and feed also in the marine environment.

**STUDY SITES, MATERIAL AND METHODS**

The Gauja is one of the main rivers of Latvia with a total length of 452 km. The investigated stretch - 23 km long and 91-68 km upstream of the estuary - is located within the Gauja National Park, though this did not mean a hunting ban on beavers. Here the river is about 70-100 m wide and on average 1.5 m deep. The flow is generally slow, but often interrupted by the presence of rapids. Bank side vegetation is trees, with areas of high sandstone cliffs.

This stretch was investigated from a rowing boat on 6. and 7. September 1997, at the end of a long dry season which had resulted in a low water levels. Data from exactly the same stretch were available from an earlier survey in July 1988, but then the water level was higher (OZOLINS and RANTINS, 1992). Otter signs (spraints, tracks and sand heaps) were counted along 1 km river sections.

In addition to the survey along the River Gauja, 237 spraints were collected from 12 small-medium sized inland streams, a further 26 were collected from the mouth of six small streams draining into the Baltic Sea (Fig. 1). The age of the spraints was from very fresh up to two weeks old (dry but still strong smelling) These were analysed and the results expressed as a relative frequency of occurrence. The length of eaten fish were estimated according to measurements of vertebrae (CONROY et al., 1993) or using measurements of other bones or scales in the reference collections (BIRZAKS et al., 1998).



**Figure 1.** Location of the study sites (black dots indicate coastal sites, empty dots indicate inland sites)

**RESULTS AND DISCUSSION**

In September 1997 many more signs (206 signs) were found along the 22 sections of river than in July 1988 (96 signs). These findings might be biased by more favourable weather conditions in September 1997 as well as a general seasonal increase of sprainting activity (KRANZ, 1996). It should be noted that the number of spraints alone is a problematic parameter for indicating the status of a population (CONROY and FRENCH, 1987; MASON and MACDONALD, 1987; KRUK et al., 1986), however, the fact that during the 1997 survey otters occurred along almost all waterbodies, including ditches and small streams throughout the country, and even on isolated less than 3 m wide creeks draining into the Baltic Sea, indicates a thriving population. This omnipresence of otters is obviously the result of a sufficient population to push otters also into small isolated streams and ditches and indicates rather a stable or increasing otter population than a decreasing one. However, more systematic investigations would be necessary to really prove an increase of the otter population after hunting ceased.

The Baltic Sea obviously does not hold an otter population on its own, because no tracks and spraints could be found except from estuaries of small creeks and even there spraints did not contain many saline fish species. Along the coast of Kurland, between the Lithuanian border and Riga, otters were found at six of seven estuaries visited, but only 6.5% of the prey items found in 26 spraints belonged to

saline species, mainly *Zoares viviparus*. The Baltic Sea is very shallow and sandy there, which might be unfavourable for fish in the littoral zone and in particular for otters predated these fish. Coastal otters are more commonly associated with rocky or gravel coast, frequently with kelp forests, which provide cover for fish (KRUIK, 1995). Similar observations come from the Lake Baikal, where otters avoid sandy beaches (KRANZ et al., 1995) and the same is true along the Costa Brava in eastern Spain, where otters were reintroduced (RUIZ-OLMO, pers. com.)

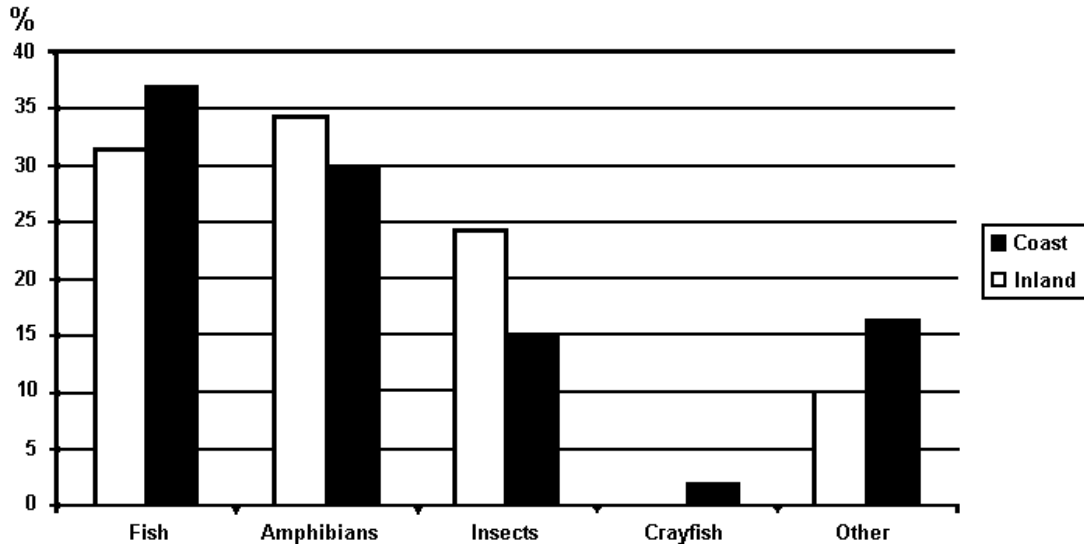


Figure 2. The diet of otters in Latvia in September (n = 263 spraints)

Along the inland streams, the late summer diet of otters (Fig. 2) was only to 37% fish. Amphibians accounted for 30%; insects (mainly *Dytiscus sp.*, terrestrial Coleoptera and Odonata) 15%; mammals 4%; birds 4%; molluscs 2.2% (spraints contained whole shells or fragments and covers of cover-holding snails (*Viviparidae*); plants 5.8% and crayfish 2%. The situation along the coast was similar, but more insects and amphibians were recorded; no crayfish or crabs were found. Almost 90% of the fish (n = 501) were less than 10 cm (Tab. 1). The strong prevalence of non-fish prey, especially in late summer contrasts with findings elsewhere in Europe. In most habitats throughout Europe fish dominate the diet of otters, e.g. in Sweden (ERLINGE, 1967), in Hungary (KEMENES and NECHAY, 1990), in the Pyreneas (RUIZ-OLMO et al., 1989) or in Ireland (KYNE et al., 1989). Only in spring can amphibians form an important part of the diet (WEBER, 1990). Actively consumed insects, as it was definitely the case here in Latvia, were nowhere recorded in such quantities. It is only in the geographically near eastern Poland (BRZEZINSKI et al., 1993) resembles our findings. They contradict the statement that insects and amphibians increase in otter spraints as latitude decreases (ADRIAN and DELIBES, 1987). Indeed not only in late August and early September but throughout the year (BIRZAKS et al., 1998) non-fish prey is dominant in the diet of Latvian otters. The low abundance of fish in the small and medium-sized streams fits well to these findings. Big rivers, lakes and large beaver ponds are more rich in fish (OZOLINS and RANTINS, 1992), but they make only a small fraction of otter habitat in the Eastern Baltic. Hence, Latvia might provide an example that otters can thrive even when fish are scarce, given that other prey species are abundant.

**ACKNOWLEDGEMENTS** - We are very grateful to two anonymous reviewers for their comments, which improved both, the style and the content.

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## **RESUMEN**

Tres hombres en un bote (decir nada sobre las nutrias en Latvia). En la primera mitad de este siglo la nutria *Lutra lutra* se consideraba "de ninguna forma numerosa en Latvia, pero mas común en la parte oriental del país que en la occidental". Las nutrias era raras en todo el Este Báltico a finales de los '70. Las primeras investigaciones en Latvia posteriores a la segunda guerra mundial son de 1980, y entre 1986 y 1991 se estimó una población mínima de 4000 nutrias. Los objetivos de este estudio fueron ver si existían evidencias de un aumento en el número de nutrias en los últimos 10 años, averiguar que comían a fines del verano en una zona con poca disponibilidad de peces, y determinar su presencia o no en las costas del mar Báltico y si forrajeaban en ambientes marinos. Se contaron signos a lo largo de secciones de 1 km del río Gauja, y se recogieron fecas (que variaban de frescas a 2 semanas de viejas) en otros cursos de agua. Se registró la presencia de nutrias en la mayoría de los cursos estudiados (se registraron más signos que en 1988). Esto parece indicar la existencia de una población estable o en crecimiento. El Mar Báltico no alberga por sí mismo poblaciones de nutrias, quizás debido a que la poca profundidad en esas zona y el hecho de ser arenoso podría dificultar la pesca en la zona litoral. En los cursos de agua tierra adentro la dieta estaba compuesta sólo en un 37% por peces, en un 30% por anfibios, 15% por insectos, 4 % por mamíferos, 4 % por aves, 2,2% por moluscos, 5,8% por plantas y 2% por cangrejos de río. La situación en la costa fue similar. Más del 90% de los peces medían menos de 10 cm. Este predominio de presas no peces contrasta con lo registrado en el resto de Europa. El consumo activo de insectos en tales cantidades no había sido registrado previamente en ningún lugar. Sólo en Polonia del Este los resultados son similares. Esto contradice la aseveración de que anfibios e insectos aumentan en las fecas de las nutrias con el descenso latitudinal. De hecho, durante todo el año las presas no peces predominan en la dieta de las nutrias en Latvia. La escasez de peces en los cursos pequeños y medianos concuerda con estas observaciones.