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HEAVY METALS, OCPS AND PCBS IN SPRAINTS OF THE OTTER FROM SLOVENIA

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Abstract: The otter has declined in most of its former European range. Little attention has been paid to the problem of pollution in the former east European countries. This study surveyed the parts of Slovenia that were adjacent to Austria, and where positive otter signs were found. Otter numbers and distribution seems to have changed little since 1984, being restricted to certain watercourses. In the rivers where otter sign was found, pollution levels of heavy metals, organochloropesticides and PCBs were low enough to cause no problems. Further investigations are recommended.

The otter *(Lutra lutra)* has declined in most parts of its former range in Europe. Much attention is paid to the contamination of otters and their habitats but little information is given on that problem in former east European countries. Furthermore little information is available on the distribution of the otter in these countries. Hönigsfeld (1984) gives an overview on the occurrence of the otter in Slovenia. No data are available on the contamination of otters from Slovenia.

STUDY AREA AND METHODS

Only the parts of Slovenia adjacent to the areas in Austria with positive otter signs were surveyed. The samples were collected in 1992 and 1993 as part of a study on the contamination of various contaminants in Austria and some neighbouring countries (Gutleb, in prep). A total of 39 sites was surveyed for otter signs following the method of Macdonald (1983).

All samples were kept deep frozen prior to analysis. Heavy metals were detected in single spraints by using AAS. For the analysis of organochloropesticides and PCBs up to ten spraints from the same place were put together and contaminants were determined with a GC-ECD-system. All details on the methods will be given in Gutleb (in prep.).

RESULTS AND DISCUSSION

33,3 % of the controlled sites were positive (see Map 1). The otter seems to be widespread along River Pesnica and River Ledava. No spraints were found on River Scavnica, River Drava, River Dravmia and its small tributaries coming from the mountains east of Maribor. Otter signs were also observed on small fish ponds near the border with Styria/Austria and local fishermen complain on the damage occuring in the cold months of the season (Kraus, pers. comm).

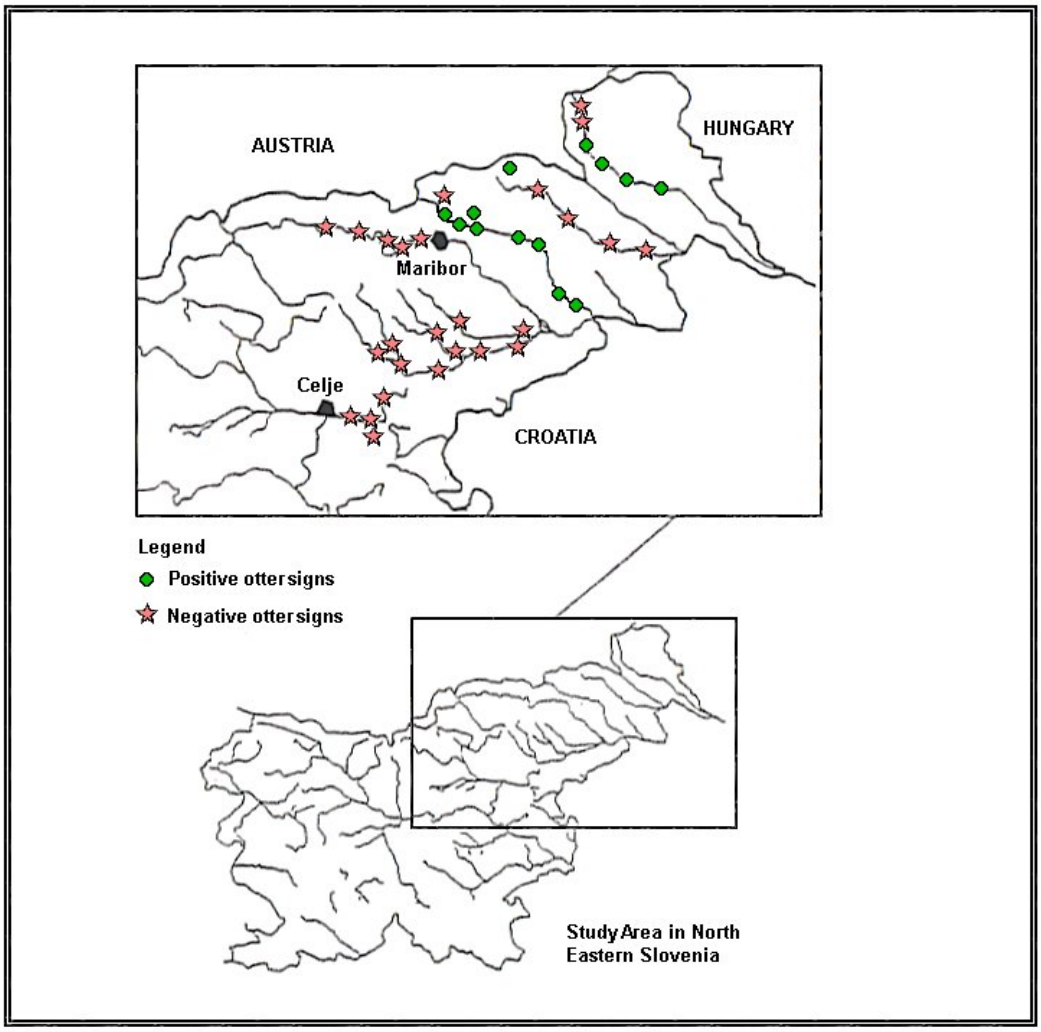

Figure 1: The area of investigation in north-eastern Slovenia

The mean concentrations of the various contaminants in spraints are given in Table 1 and Table 2.

Table 1: Heavy metals in otter spraints (Cd, Pb, Zn, Cu: mg/kg dry weight: Hg mg/kg fresh weight)

		Cadmium	Lead	Zinc	Copper
Pesnica	**X**	0.08	0.72	602.8	9.91
	n	22	22	22	22
	min-max	nd - 0.24	0.07-1.99	249.1 - 880.4	0.4 - 48.3
Ledaval	**X**	na	na	na	0.12
	n				5
	min-max				0.01 - 0.21

na = not analysed; up to three spraints were pooled for mercury analysis

Table 2 : Organchlorpesticides and PCBs in otter spraints (mg/kg fat weight)

		α-HCH	β-HCH	γ-HCH	HCB	DDD	PCBs
Pesnica	n	2	2	2	2	2	2
	min-max	nd - 0.02	0.03 - 0.1	nd - 0.8	nd - 0.05	nd - 0.016	0.223 - 0.634

Up to ten spraints were pooled. The PCB-data are summarized from the amount of seven congeners (IUPAC Nr. 28, 52,101, 118, 138, 153, 180).

The concentrations of heavy metals were lower or in the same range of magnitude previously found in other areas. These levels are assumed to be of no concern for otters (Mason and Macdonald, 1986; Mason, 1989).

Aldrin, dieldrin, endrin, heptachlorepoxid, DDE and DDT were not detected in the samples. The amounts of pesticides and PCBs in the spraints were low compared to data given for areas in England or Scotland (Mason et al., 1992; Mason and Macdonald, 1993a,b). The total value of organochloropesticides and PCBs was lower than the proposed no effect level of 4 mg/kg in spraints (Mason et al., 1992).

CONCLUSIONS

The otter population in the north-eastern parts of Slovenia is scattered and restricted to some watercourses, in general the situation seem to be unchanged compared to the conclusions of Hönigsfeld (1984). Pollution should to be no problem in the two rivers with positive otter signs.

Further investigations on the occurence and contamination of otters in Slovenia could give also important information for possible threats to the otter population in the south east of Austria and are therefore strongly recommended.

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