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**THE END OF THE OTTER AND OF OTTER REINTRODUCTION PLANS IN
SWITZERLAND**

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Abstract: Otters are now extinct in Switzerland. Switzerland has to be considered as a country where viable otter populations cannot exist now and in the foreseeable future, because PCB levels in fish are much too high and not decreasing. Reintroduction programs cannot be justified. The message to the public is that sometimes nature cannot be repaired, pollution is out of control and we must learn from the lesson of PCB-caused otter extinction.

THE OTTER GROUP SWITZERLAND, ITS PLANS AND THE QUESTIONS TO ANSWER

In 1984, the Otter Group Switzerland started its work. Members of the group were both governmental (Wildlife service, Nature conservation, Fisheries, Veterinary service) and non-governmental (WWF Switzerland, Nature Conservation Organisation, otter-studbook keeper). Founding for projects was provided by the federal agencies concerned.

It was the goal of this group to re-establish a viable otter population in Switzerland by means of habitat protection, habitat improvement and eventually reintroductions. From the beginning it was clear that the recommendations of the IUCN otter specialist group would be followed.

In 1984, the available information on otters in Switzerland suggested, that the reintroduction of the seventies had been successful and that there were some additional otters surviving in the western part of our country and probably also in southern parts (in contact with Italian otter populations).

The main questions to be answered before planning actions were:

1. Where do otters still live in Switzerland and what is the status of eventually existent otter populations?
2. Habitat:
 - a. Does habitat quality in Switzerland match the needs of a viable otter population (of at least 50 individuals)?
 - b. If not, what must be done to improve habitats, and where are the key regions to do it?
3. Do the factors responsible for the otter decline still operate?
4. Are otters for eventual reintroductions available?

Within the last six years, the otter group tried to answer these questions as seriously as possible, based on a series of specific baseline studies. Some of these studies will be published. Unpublished reports are available from the author of this paper.

THE ANSWERS

1. Status of the Otter in Switzerland

There is only one place in Switzerland with freelifving otters (probably only one individual left in 1989); the decline has continued during the seventies and eighties even in the best protected otter habitats of Switzerland. The reintroduction of 1975 was unsuccessful, although reproduction has

occurred at least once (1982) . Due to an insufficient scientific program, we know hardly anything about the reasons of this failure.

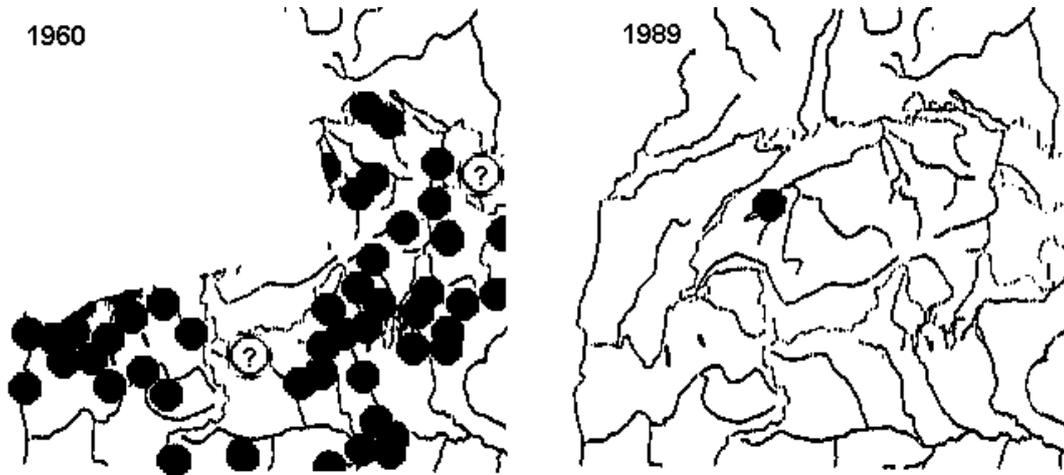


Figure 1: Presence of Otters in and around Switzerland 1960 and 1989

2. Habitat Quality

Habitat quality was evaluated applying a habitat suitability model especially developed on the basis of the relevant scientific information available in 1987. The main factors incorporated in this model are fish-biomass-density, cover, absence of nocturnal human activities, presence of undisturbed areas. It was concluded that there are several regions in Switzerland, which still match the needs of an otter population. In habitats classified as insufficient, most often fish biomass was considered the crucial factor.

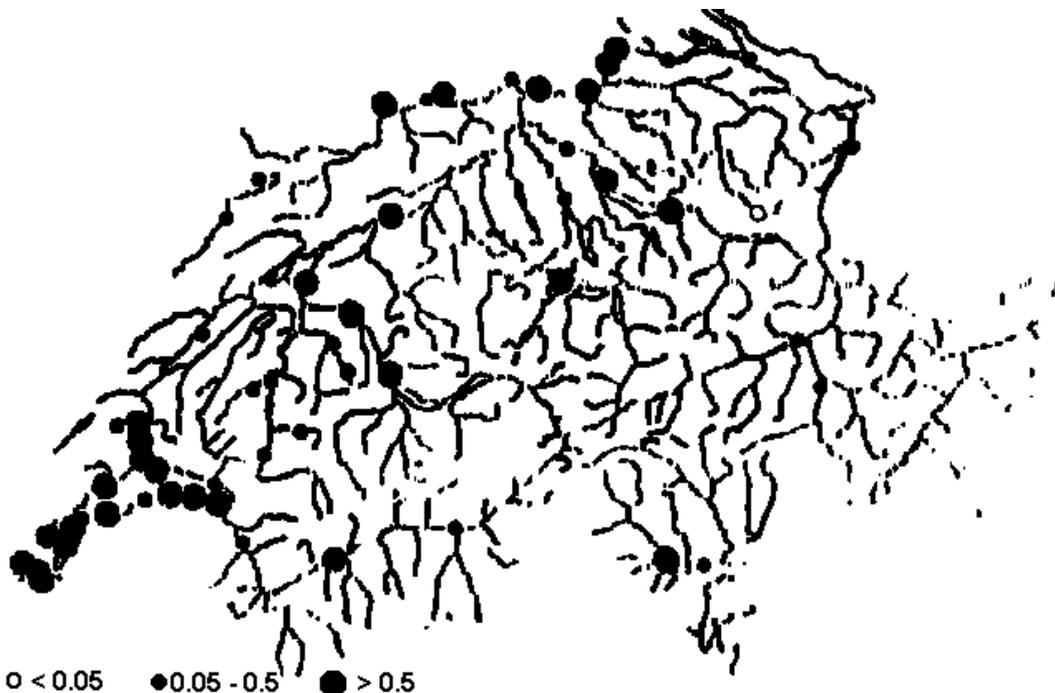


Figure 2: PCB-Levels in Fish from different Sites in Switzerland: whole fish, ppm fresh weight, mainly trout, no eels)

3. Factors Responsible for the Otter Decline

It is not possible to exactly state to which extent different factors have contributed to the otter decline in Switzerland. However, it is puzzling that otters have disappeared in "untouched" river systems in Switzerland as well as in the neighbouring parts of France and Italy, where they had survived until the seventies (and locally until the mid-eighties). The only hypothesis explaining sufficiently this phenomenon is contamination of fish with organochlorine substances, especially PCBs (a review of the available data showed that levels of heavy metals and organochlorine pesticides are relatively low in fish in Switzerland). The otter group therefore initiated a study on PCB-contamination of fish in those watercourses which are considered providing the best otter habitats in Switzerland. Together with other data on PCBs in fish, the results of this study are appalling: PCB-levels range from 0.04 to 8.4 mg/kg (some ten whole trouts per site homogenated, fresh weight). For comparison: Minimum concentrations affecting otter populations are estimated 0.02 - 0.05 ppm (Sim Broekhuizen and Mats Olsson, pers. comm.). The PCB contamination in Switzerland is considered stable; there is no sign of a decrease.

4. Otters for eventual Reintroducing

Captive breeding success in several zoos of Switzerland would allow reintroduction projects without otters caught in the wild.

CONCLUSIONS

The otter group concludes, that

- Instead of considerable efforts to save the otter, **the species is now extinct** in Switzerland.
- Based on the current knowledge, **Switzerland has to be considered as a country where viable otter populations cannot exist now and in the foreseeable future, because PCB levels in fish are much too high and not decreasing.** This conclusion is independent of the fact, that we do not exactly know whether and to which extent other factors have also contributed to the decline of the otter in Switzerland.
- **Reintroduction programs cannot be justified** as long as the PCB concentrations in fish is not drastically reduced or future research has not led to a rejection of the PCB-otter hypothesis.

INFORMATION OF THE PUBLIC

The otter group has decided to use its energies to inform the public on its conclusions, trying to spread the following general rules and messages:

- **Sometimes, nature cannot be repaired**, even when money and manpower are available. Therefore try to conserve nature as long as there is something left to save.
- **Things are out of control.** There is not even an idea of how we could eliminate the PCBs from the biota affected. Nobody has yet formulated a convincing concept about how we could prevent the large quantities of diffusely spread PCBs in the technosphere to enter the food-chains.
- **Learn from the PCB-lesson:** Do no longer allow industrial production of a chemical before there are methods available to detect it in the biosphere (even in very low concentration). Do immediately stop the production of any chemical suspected to be dangerous (not only some applications) . Do not buy and use products containing halogenated hydrocarbons.

PUBLICATIONS IN PREPARATION

Nicollerat, M.S., Rossel, D., and Tarradellas, J. (1989): Results of the analyses of PCBs and DDT in fish from lakes and rivers of Switzerland

Weber, D., Weber, J.-M. and Müller, H. -U. Otters in the Schwarzwasser-Sense-catchment: documentation of an unsuccessful re-introduction project, (Gerrnan; French and English summary)

Weber, J.-M., Weber, D. (1989) The otter (*Lutra lutra* L.) in Western Switzerland.

Weber, D. The extirpation of otters in Switzerland: a history of the changing problems in conservation, (in German)

UNPUBLISHED REPORTS AVAILABLE

All mandated and financed by the Federal Office of Environment, Forests and Landscape, Berno)

Weber, D. (1987) A model to evaluate potential otter habitats in Switzerland. (50p; German and French version available)

Weber, D., Weidkuhn, C. and Hohl, C. (1988) Western Switzerland and Ticino as potential otter habitats. (64pp; German and French version available)

Weber, D. and Weber, J.-M. (1989) The otter in western Switzerland (14pp; in German and French)

Weber, D. (1990) PCBs as the cause of the otter decline in Europe and in Switzerland: hypothesis, facts, missing evidence. (17pp; in German)

Weber, D. (1990) The extirpation of the otter in Switzerland. (15pp; in German and French)