IUCN OTTER SPECIALIST GROUP BULLETIN
VOLUME 20 ISSUE 1 PAGES 45 - 48

Citation: Leblanc, F. (2003) Protecting Fish Farms from Predation by the Eurasian Otter (*Lutra lutra*) in the Limousin Region of Central France: First Results *IUCN Otter Spec. Group Bull.* **20**(1): 45 - 48

PROTECTING FISH FARMS FROM PREDATION BY THE EURASIAN OTTER (*LUTRA LUTRA*) IN THE LIMOUSIN REGION OF CENTRAL FRANCE: FIRST RESULTS

Frédéric LEBLANC

Mediateur Faune Sauvage, Limousin Nature Environnement e-mail: diclidurus.albus@wanadoo.fr

Abstract: This paper describes the first results of a two-year study on methods suitable for preventing predation of fish farm stock by the Eurasian otter (Lutra lutra). The work has allowed a valuable insight into the behavioural characteristics of otters that frequent fish farms.

INTRODUCTION

Though relatively scarce in France (Figure 1), the Eurasian otter (*Lutra lutra*) is quite widespread in the region of Limousin (Figure 2), resulting in a potential conflict with local fishfarmers (GAUTIER et. al., 1995; GMHL, 2000). In response to an inquiry from one of the fishfarmers in Corrèze (Central France) to 'Limousin Nature Environnement' (Contributing organisations: SFEPM, GMB, GMHL, IUCN; and funded by the 'Direction Régionale de l'Environnement du Limousin') led a study to determine effective methods of protecting fish stocks from otter predation. The aim was also to reduce the risk of illegal trapping and killing by fish farmers under threat from this protected species. The study period covered September 1999 to October 2001. Each of eight local fish farms, producing fish of the genus Salmonidae, suffered occasional stock losses through otter predation. Detailed behavioural observation of otters and testing of various protection methods was used to identify those considered most effective. Their selection and installation, however, depends on the type and location of the individual fish farms.

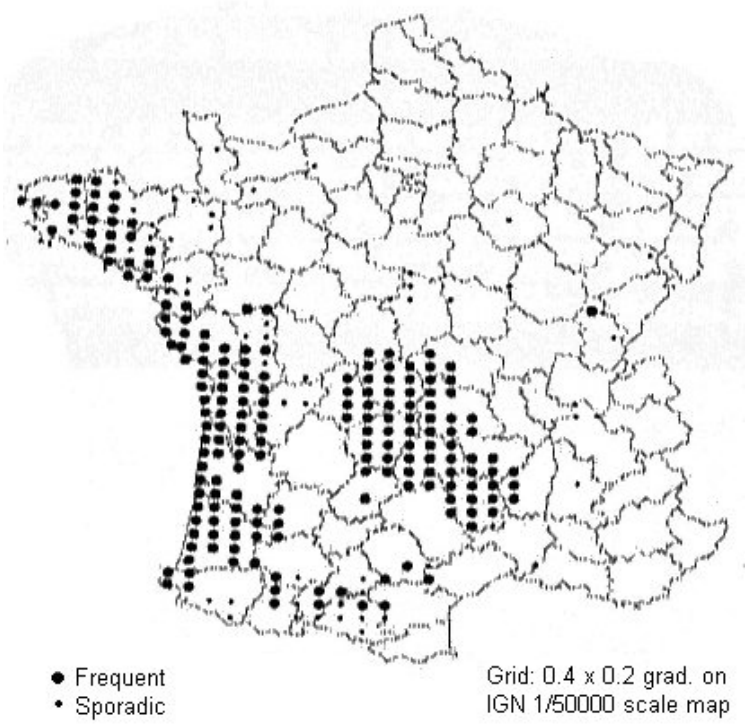

Figure 1: Distribution map of the Eurasian otter (*Lutra lutra*) in France.

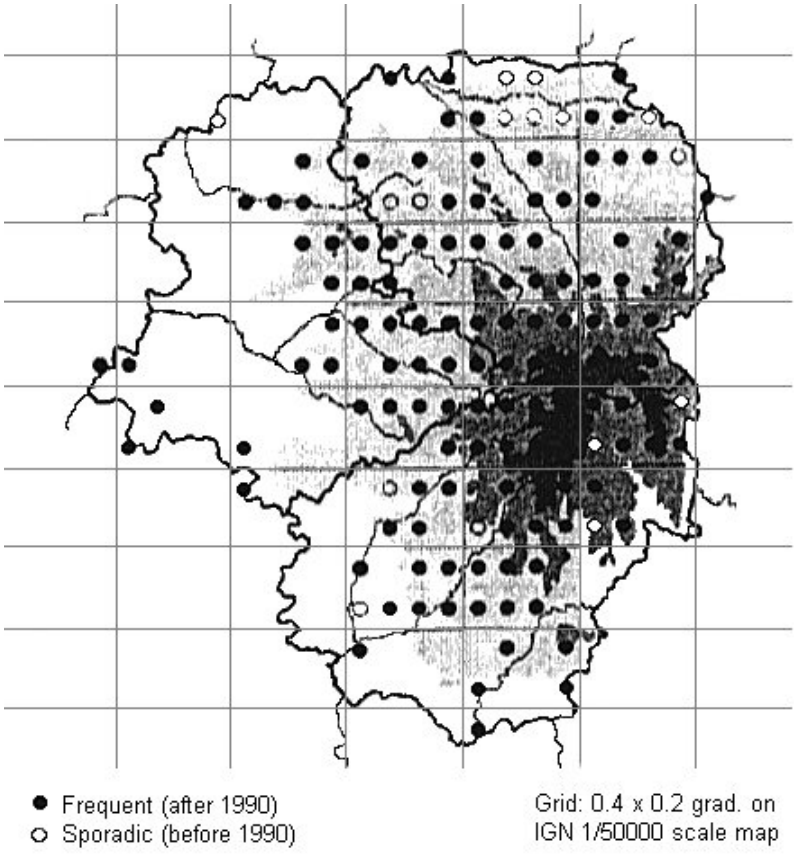

Figure 2: Distribution Map of the Eurasian Otter (*Lutra lutra*) in Limousin

PRELIMINARY RESULTS AND RECOMMENDATIONS

General protection methods:

If used alone, security-type lighting systems, i.e. those fitted with automatic detection sensors, or repellents for carnivorous animals proved ineffective. A combination of techniques is therefore recommended:

1. Bury wire netting (45-50 cm deep). Where this is not possible a concrete base or wire netting directed outwards should be used to prevent digging under fences.
2. Installation of 3-wire electric fences around fish farms (Figure 3); including across all entrances. Wires should be placed at 5cm, 15cm and 40cm above ground level.
3. Prevent access to the fish farm via water channels, e.g. from reaches of rivers, by streams, ditches or culverts used to supply or direct water around the farm. For slow-flowing waters, the installation of a removable grid is recommended. For fast-flowing streams, block all accesses to separate the fish farm from watercourses, including any debris screening devices.

Figure 3: Example of three electric wires placed around a fishpond

Behavioural observations:

During this study, a number of behavioural characteristics of Eurasian Otters were observed:

- Hunting habits: During one night, several otters (from 2 to 5) tend to hunt on one fish farm for about 2 or 3 hours. These observations were of a family group, comprising a female, her two cubs and two 2-year old otters.

- Fish loss per night: The number of fish caught was significant, e.g. 2 to 5 otters present together were able to catch more than 10 trout (*Salmo trutta fario*), weighing between 1 and 2 kg, in a single night.

- Large, breeding fish: Catches of large (6 to 10 kg) breeding salmon or trout were frequent.

- Hunting times: Otters do not appear to have regular hunting hours on fish farms. In winter (December to January), they tend to arrive fairly early in the evening, i.e. around 17:30 GMT, and remain until 5 to 6 a.m.

- Climbing ability: Otters could easily climb over wire netting or fencing up to 1.50 m in height; often starting from angles or corners. They were also able to climb over gates fitted with wire netting and are likely to climb trees that border the farm.

FURTHER WORK

Providing that funding is forthcoming, the next step is to install the preventative measures on a fish farm. This will serve as both a demonstration model and educational aid for other local fish farmers and those across Europe requiring efficient deterrents against the predation of their stock by otters.

Acknowledgements *- I wish to thank the following people for their assistance in this work: René ROSOUX (SFEPM); Christian BOUCHARDY (SFEPM); Lionel LAFONTAINE (Groupe Mammalogique Breton/ SFEPM / IUCN Otter Specialist Group - France); Hélène JACQUES (SFEPM / IUCN Otter Specialist Group - France); Michaela BODNER (IUCN Otter Specialist Group - Austria); Aksel BO MADSEN (IUCN Otter Specialist Group - Denmark). Bob HUSSEY and Jo WILSON (RJTC-France) for their help with the translation into English.*

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RÉSUMÉ : PROTÉGER LES PISCICULTURES CONTRE LA PRÉDATION DE LA LOUTRE EURASIENNE (LUTRA LUTRA) EN RÉGION LIMOUSIN, CENTRE DE LA FRANCE: PREMIERS RÉSULTATS
Cet article détaille les premiers résultats d'une étude de deux ans, relative aux méthodes de prévention efficaces pour lutter contre la prédation de la loutre eurasienne (Lutra lutra) dans les stocks de poissons de pisciculture. Ce travail a permis de jeter un regard précieux sur les caractéristiques comportementales des loutres qui vont fréquenter les pisciculture.
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RESUMEN: PROTEGIENDO LAS GRANJAS PISÍCOLAS DE LA REGION LIMOUSIN EN EL CENTRO DE FRANCIA DE LAS DEPREDACION CAUSADA POR LA NUTRIA EUROPEA (LUTRA LUTRA): PRIMEROS RESULTADOS
Este articulo describe los primeros resultados de un estudio de dos años que analiza diversos métodos para prevenir la depredación en granjas piscícolas causada por la nutria europea (Lutra lutra). Este trabajo ha generado una valiosa perspectiva acerca de las caracteristicas del comportamiento de las nutrias que frecuentan las granjas piscíicolas.