

STATUS OF THE EURASIAN OTTER, *LUTRA LUTRA*, IN TURKEY, AND EXPERIENCES WITH ESTABLISHING A NATIONAL OTTER DATABASE

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Abstract. *This paper describes the establishment of an electronic database for records of the Eurasian otter in Turkey with the aim of fostering both scientific research and conservation, as well as increasing public awareness. The database is available through the Internet, and went on-line in 2002. It currently contains 195 otter records, classified according to the experience of observer. The database stimulates the interchange of information among various experts and aims to assist co-operative work. The results show that the otter is distributed throughout Turkey. Concentrations of records in some areas, such as the Aegean and some parts of the Black Sea Region, can be explained by the activity pattern of observers, rather than by a greater abundance of the species there. Whereas records come from a wide spectrum of habitats such as rivers, creeks, lakes and river deltas, it seems that barrage lakes are not inhabited by otters. Few records come from areas above 1,000 metres a.s.l. The species is threatened throughout the country and is still hunted. Pollution is thought to have a major effect on the status and distribution pattern, but there are a few records from relatively polluted lakes in western Turkey.*

Keywords. Eurasian otter, *Lutra lutra*, database, information management, public awareness building, distribution, Turkey, Middle East

1 INTRODUCTION

Despite global research on the semi-aquatic Eurasian otter (*Lutra lutra*), many aspects of its biology and ecology remain unknown because of its normally nocturnal activity pattern. Even less understood is the status of the species in Turkey: its abundance, population, habitats and behaviour are, despite a few recent studies (EROĞLU, 1996; ÖZTÜRK 1998), widely unknown (FOSTER-TURLEY, MACDONALD AND MASON, 1990; MACDONALD AND MASON 1994)

Over the past 50 years Turkey has lost 75% of its wetlands, mainly through agricultural development and it is concluded that this loss of habitat has had a highly significant impact on the population of the Eurasian otter. However, sound scientific data to demonstrate this population decline are, unfortunately, not available (COUNCIL OF EUROPE, 1994, 1996). Even the past and present distribution patterns are unknown. There are only a few scientists interested in otters in Turkey, and the exchange of information between them is very limited. To help overcome this shortcoming, we established a National Otter Database (NFDB), which aims to change this scientific attitude through a participatory approach and by recording, collecting and disseminating data, thus creating an atmosphere of team spirit (THOL-SCHMITZ, SCHMITZ AND GÜVEN-VERYERI, 2002). Here, the structure and organisation of the National Otter Database is described, together with the first results.

An initial step to protect the otter in Turkey was taken by the Authority for the Protection of Specially Protected Areas (APSA) in the late 1990s, when it began, together with a local NGO, to promote the otter as a flagship species of the Specially Protected Area of Gökova. This was the area where I had been working on the species for over ten years. Parallel to these efforts, the Turkish Society for the Protection of Nature (Türkiye Tabiati Koruma Derneği, TTKD) declared the year 1998 an “Otter Protection Year”, and the first National Otter Symposium was held at Antalya in 1999. The second symposium, held again in Antalya, followed in 2002, and a third is scheduled for autumn 2005, to be held at Akyaka/Gökova. These symposia proved to be very important, particularly for exchanging

knowledge and creating joint efforts. The first results of the database were presented during the conference in 2002, and attracted great interest.

2 OTTER SURVEY METHODS

Otters are difficult to survey, and assessment methods are different from those applied to most other mammals. For otters, spraint surveys are the usual method (KRUUK, 1986; MACDONALD AND MASON, 1983) and numbers of individuals are not necessarily a relevant criterion. The usual objective is to obtain an overall assessment of the status of the species, according to its habitat or ecosystem, not a count. Since short-term otter surveys are based on recording spraints and tracks, the only conclusions concerning population size are to be drawn from the number and the freshness of spraints, tracks and differences in defecation habits. In the literature, spraints are seen sometimes as a guide to distribution, but not as a reliable reflection of their abundance (CHANIN, 1993; KRUUK *ET AL.*, 1986); however, some researchers believe there is a close relationship between the density of spraints and otter abundance (MACDONALD AND MASON, 1986) or are at least very positive about the existence of this relationship (STRACHAN AND JEFFERIES, 1996). We, too, tend to the latter opinion. We have a long experience in otter studies, and we were able to study behaviour and sprainting habits of one individual and her cubs over a period of 11 years (THOL-SCHMITZ, 2000). During this time we conducted surveys in various other areas (*unpublished observations*), and these led us to the conclusion that there is indeed a positive relationship between the density of spraints, sprainting behaviour and abundance of otters.

We therefore generally use the internationally acknowledged ‘Macdonald Survey Method’ (MACDONALD, 1983) for overall otter assessments, and it has provided good results. The general idea is that if a randomly chosen transect of 600 metres along the bank of river or lake within a 10 kilometre area turns out to be negative, the first record is noted as zero population. In extensive surveys with a great area to cover you might leave it at that, and generally put a zero result in brackets for further verification. There are various reasons for a momentarily lack of spraints that do not necessarily lead to the conclusion of the area not being inhabited by otters.

A slightly different technique was employed during the English otter survey of 1991–1994, using a length of 600 metres per 6-8 kilometres of survey site (CHANIN, 1993; STRACHAN AND JEFFERIES, 1996). Based on the ‘Macdonald Survey Method’ and our long-standing survey experience, we developed a special method of systematically “fine combing” an area, according to its habitat characteristics at specific sites (THOL-SCHMITZ, H. & SCHMITZ, T., 2005). The question of otter survey methodology has been discussed in great detail elsewhere (REUTER *ET AL.*, 2000)

3 RESULTS AND DISCUSSION

3.1 *The establishment of a National Otter Data Base (NFDB)*

The NFDB started as a working group with the following objectives:

- Development of a network of researchers and people interested in the Eurasian otter in Turkey. Free exchange of information among the members of the network.
- Setting priorities for field surveys. In addition to obvious “hot spots” for otters in Turkey, the identification of additional sites. This should lead to a much better and effective development of strategies or policies for site and species protection.

- Contributing to the development of KBAs (Key Biodiversity Areas), for which otters are important indicators. Considerable efforts are being made in Turkey to identify KBAs, as the identification of IBAs (Important Bird Areas) and IPAs (Important Plant Areas) have achieved good results (KILIÇ AND EKEN, 2004; ÖZHATAY, BYFIELD AND ATAY, 2003).
- Monitoring the otter population in Turkey, along with human impacts and threats.
- Collecting the scattered information on otters in Turkey.

On the database's website, all papers and notes are being collated and a mechanism to assess them established. A list of researchers and ongoing and completed projects is also available. News and the results of new studies are added on a regular basis.

At the beginning, the NFDB Working Group began to promote the idea of a Turkish database about the otter on the Internet. International contacts throughout the Mediterranean have been made during internet-based working meetings. The idea of the database has also been promoted at several symposia, conferences and meetings. Special care was taken with the database concerning safety for data transfer, sharing and storing. Group membership is based on personal contacts or references. The group tries to achieve a transparent environment, and is open to all scientists, conservationists, and interested laymen. Data are available only to group members. A list of people working on otters and/or on wetland conservation has been prepared. The members of the NFDB vouch for an ethically correct and independent treatment of data and thus set an example for the productive exchange of information between all participants.

The email groups' discussion could not be maintained on a permanent basis, as the members clearly had no interest in active participation. In other subjects such as birding or general protection, these email chains have proved to be very successful in Turkey and are an indispensable means for communication.

A key objective is to create awareness of the otter and its conservation needs. Conservation of the species is being promoted on every occasion, especially at meetings, workshops, conferences, etc. A simple recording sheet has been developed, and distributed widely at several meetings, and is also available through the Internet. Posters are being prepared and plans for a comprehensive field survey developed, but these projects still wait funding. At present, field research is conducted either as a private initiative or on request from, and in co-operation with, other NGOs (e.g. Doğa Derneği, Ankara).

3.2 Data handling

Fieldwork and data collecting for the NFDB is conducted under international standards by means of an internationally acknowledged method (Macdonald's). With this, population tables can be drawn from the abundance of spraints. One of the advantages of the Macdonald method is the ease of learning and application. It is nevertheless important that all field researchers apply the same method.

The people providing information have been classified according to experience.

Group A: otter experts;

Group B: knowledgeable, active fieldworkers and experts;

Group C: interested laymen, but not necessarily with knowledge of otters.

The same data recording sheet is used by all three groups. Whereas the information provided by the first two is accepted as reliable, the records of the third group need confirmation and verification by an expert. According to experience in Germany, records provided by persons from Group C are not reliable enough for further analysis, but this group has an indispensable influence on awareness building (REUTER, 1993).

Data are collected by email and through the website of NFDB, as well as by fax or phone. They are shown on UTM-based maps (*Data Grid System*) using standard 100 x 100 kilometre squares. In addition, a Data Reference System is used to link the name of the observer to the record. This simplifies personal communication between the participants and makes references easier. For security reasons these data are only accessible via a password and safety system.

Published data are also included in the database. In addition, NFDB provides an opportunity for publishing information on the website. An immediate increase in interest is evident especially after promotion events, which are part of the NFDB's public awareness policy. The Internet address is as follows: www.akyaka.org/otter/tr/databank_projesi.htm (Turkish) and www.akyaka.org/otter/eng/otter_database_project.htm (English).

3.3 Available information

About 20 Turkish scientists participate more or less regularly in the project, e.g., by providing records and other information, with six of them being very active.

Between 2002 and 2004, we were able to compile approximately 60 otter records (our own records are not included in this figure) from all parts of Turkey: 5% of them belong to Group A, 15% to Group B and 80% to Group C. This is a good indicator of the increase in public interest in this species, and for the success of the public awareness campaign. Participants who regularly send records are usually people who have participated in one of the otter-related events, and/or scientists who are working on mammals and are committed to the same aims as the NFDB members.

After a promotional presentation during the Second Symposium on the Eurasian otter in Turkey in Antalya in October 2002, the NFDB went online. An article about the database in the Turkish magazine *Yeşil Atlas* in 2003 and another in the Turkish *National Geographic* in March 2004 helped increase interest in the otter. Many records subsequently reached us, but these are mainly Group C data. We also received several requests to publish otter papers on the website, and so far 30 Turkish, 18 English and three German publications are available there.

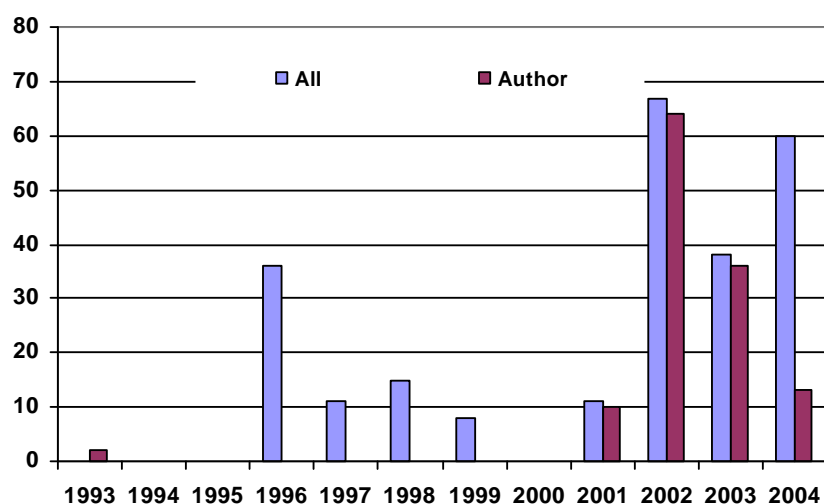


Figure 1. Development of NFDB the Otter database: The graph gives the number of new records entering the database per year. The records by the author (THOL-SCHMITZ & SCHMITZ, 2002) are indicated.

Figure 1 shows that the annual input of new records has considerably increased since the establishment of NFDB which currently (September 2004) contains 195 records. The distribution map (Figure 2) shows a concentration of records in the Aegean Region. This does not, however, indicate a greater abundance of the species there, rather simply reflects the activities by the author in this region. One hundred and six (55%) of all records stem from the author, 41 (21%) from N. Güven-Veryeri, a former associate of the NFDB, 35 (18%) from Turkish publications, and 12 records (6%) from various observers (see also Figure 1). The quality of the records is as follows (including our own observations): 147 records (76%) Group A observers (experts), 35 records (18%) Group A/B observers, and 12 records (6%) Group C observers.

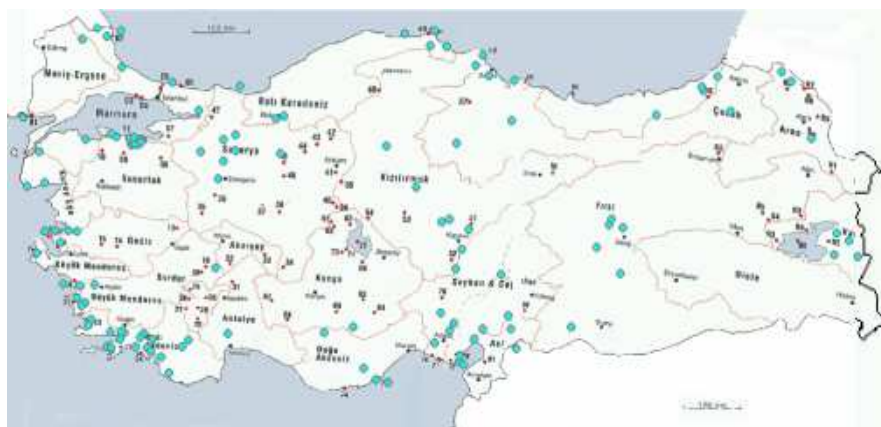


Figure 2. *Distribution of the Eurasian otter in Turkey according to records held in the NFDB, as in September 2004. Dots indicate localities where otters have been recorded. Only records from persons belonging to Groups A and B have been taken into account. As the number of sightings has not been taken into account, one dot may represent several records.*

The NFDB has now transferred to Doğa Derneği, a national conservation-oriented NGO, where the necessary infrastructure and long-term support is secured. A broader public can now be reached by using already existing networks with overlapping or specific interests, such as wetland protection or conservation of key biodiversity areas.

3.4 Distribution

NFDB covers records from all parts of the country. This confirms KUMERLOEVE (1967, 1975) who provided the first distribution map for Turkey and stated that the otter is distributed throughout Turkey. The highest density of records is found in the Aegean Region and in the areas of Adana (Mediterranean Region), Bursa (Marmara Region), Samsun (Black Sea Region) and between Kars and Trabzon (north east Turkey). The high density of records apparently does not reflect high species abundance, but is a matter of better assessments, and generally indicate those locations where NFDB members are based. The map does not include negative records.

Our data did not reveal any distinct habitat preference. The Eurasian otter is found at lakes, rivers and creeks, in river deltas and estuaries, etc. Barrage lakes are not apparently inhabited. Very clean lakes and rivers in north east and eastern Turkey are inhabited (ZIEGLER, N. AND WEISS, M., 1999), as are greatly polluted lakes in western and north west

Turkey (THOL-SCHMITZ, H. AND SCHMITZ, T., 2005). These include Lake Uluabat, Gediz River and the Büyük Menderes Delta. Most of the records come from habitats below 500 metres a.s.l.; we have only five records, all from 2004, from above 1000 metres (1) Hanak River near Öncülköy in north east Turkey at 1437 metres a.s.l.; (2) Kelkit River near Amasya in northern Turkey at 1698 metres a.s.l.; (3) Gesi River near Kayseri in Central Anatolia at 1396 metres a.s.l.; (4) Soğuksu River near Beyşehir in south west Turkey at 1141 metres a.s.l., and (5) Lake Beyşehir in south west Turkey at 1168 metres a.s.l.

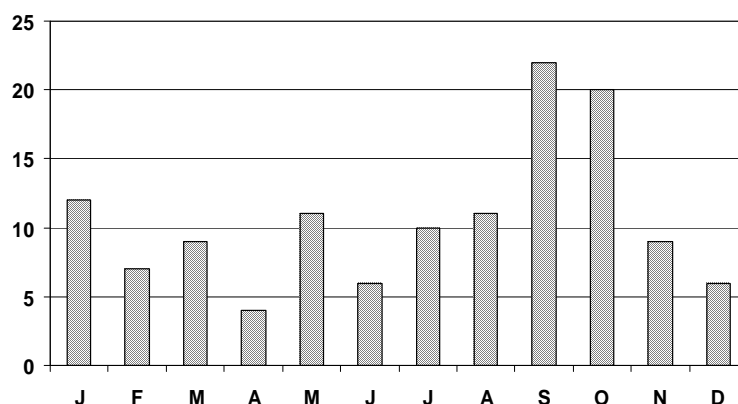


Figure 3. Seasonal distribution of records of the Eurasian otter at Akyaka, Muğla Province.

Records of the Eurasian otter in NFDB come from all months of the year (Figure 3). Observations at Akyaka in the Muğla Province, where the author has studied the species since 1986, show no clear seasonal pattern. Only in September-October is there an increase in the number of records. There are several possible explanations for this:

1. Food is more easily available, as fish that have spawned in spring have now reached a feasible size;
2. Cubs born in spring are now learning to hunt;
3. Nutrition needs are higher before winter;
4. Tourist areas are quieter after summer.

None of these issues can fully explain the increase in observations in September/October. Knowing this seasonal activity pattern, we usually schedule otter surveys in other areas for September-October, and have always been rather successful during this period. Also the first winter rains usually fall in this season, making tracking easier, and this of course also leads to an increase of records.

2.5 Conservation status

The records from the database show that the Eurasian otter is not only widely distributed in Turkey, but is also not rare. Despite alarming signs of decreasing numbers caused mainly by heavy pollution in and around more and more industrialised areas, mainly in the west and north west of Turkey, the species has succeeded in surviving in many areas.

KUMERLOEVE (1967, 1975) described the species as being distributed all over Turkey, but seriously threatened by hunting. He cites local sources, which say that the annual number of furs on the Turkish market can reach 30,000. Although it is hard to believe that such a high number of otters could have been hunted even at that time, it is evident that hunting and culling have had a significant impact on population development. Nowadays, the

impact of hunting is not so great, but it still exists. Table 1 lists cases of otter killing in Turkey. It can be seen that significant numbers are still being killed, and this puts hunting among the main threats to the population.

Table 1. *Mortality of the Eurasian otter in Turkey. The table gives cases of known deaths. From: THOL-SCHMITZ, SCHMITZ and GÜVEN-VERYERI. (2002)*

Area	Year	No. of animals	Reason
Mersin: Mut	1994	2	Culling by fishermen
Mersin: Mut	1995	1	Culling by fishermen
Adana	1988-92	3	Hunting by villagers
Adana	1995	2	Hunting by villagers
Kayseri	before 1993	6	Hunting by villagers
Kayseri	1993	2	Hunting by villagers
Kayseri	1996	4	Hunting by villagers
Kayseri	1997	1	Natural (found dead by villagers)
Muğla: Akyaka	before 1990	2	Culling by villagers
Muğla: Akyaka	1994-95	4	Culling by villagers
Muğla: Hisarönü	before 1990	20	Culling by fishermen
Yozgat	1996	2	Hunting by villagers
Çorum	1996	1	Hunting by fishermen
Bilecik	1996	2	Hunting by villagers
Yozgat	1998	5	Hunting by villagers
Antalya: Fethiye	2000	1	Hunting by fishermen
Muğla: Dalyan	2001	1	Hunting by fishermen

The population of the Eurasian otter has been classified as “near threatened” (IUCN, Red Data Book), and the species has been given protection status by several international treaties:

- CMS (Bonn Convention on the Conservation of Migratory Species of Wild Animals)
- Bern Convention of the Conservation of European Wildlife and Natural Habitats
- RAMSAR Convention on Wetlands
- CITES (Washington Convention of International Trade in Endangered Species of Wild Flora and Fauna)

Although still widely distributed in Turkey, the otter population is declining and the species has been classified as “endangered” (GÜVEN, 1999; THOL-SCHMITZ, 2000, 2002, 2005; DEMIRSOY, 1997; KAYAÖZ, 2002). Although otter hunting is strictly forbidden throughout the year and the fines are rather high (Central Commission for Hunting, annual circular), a large number of otters is believed to be lost through poaching as well as by direct and indirect persecution. The main threat to the population is, however, the destruction of natural wetlands (ÖZDEMİR, 2002; UYSAL, 2002).

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5 REFERENCES

- ANONYMOUS** 1994. *Convention on the Conservation of European Wildlife and Natural Habitats: Seminar on the Conservation of the European Otter (Lutra lutra). Secretariat Memorandum.* Directorate of Environment and Local Authorities, Council of Europe, T-PVS(94) 11, Strasbourg.
- ANONYMOUS** 1996. *Convention on the Conservation of European Wildlife and Natural Habitats: Draft Recommendation on the Conservation of the European Otter (Lutra lutra). Secretariat Memorandum.* Directorate of Environment and Local Authorities, Council of Europe T-PVS (96) 54, Strasbourg.
- CHANIN, P.R.F.** 1993. *Otters.* Whittet Books, London.
- DEMIRSOY, A.** 1997. *Memeliler (Mammals).* Ministry of Environment, Directorate for the Protection of Environment, Ankara.
- EROĞLU, M.** 1996. The status and habitat destruction of the otter (*Lutra lutra*) in the eastern Black Sea Region of Turkey. *Environmental Encounters*, No. 24: 81-84. Council of Europe, Strasbourg.
- FOSTER-TURLEY, P., S.M. MACDONALD & MASON, C.F.** 1990. *Otters: An Action Plan for their Conservation.* – IUCN, gland, Switzerland.
- GÜVEN, N.** 1999. *Doğu Akdeniz'de Su Samuru (Lutra lutra)'nun Dağılımı* [The Distribution of the Eurasian Otter in the eastern Black Sea Region] Bilim Uzmanlığı Tezi, Biyoloji Anabilim Dalı, Hacettepe Üniversitesi, Ankara. [In Turkish]
- KAYAÖZ, E.** 2002. Türkiye'deki Su Samuru (*Lutra lutra*)'nun Korumasının Önemi ve Yaşama Alanlarını Saptam Çalışmaları [The importance of protecting otters in Turkey and defining study of their life territories] *Proceedings of the Second Symposium on the Situation of the Fischotter in Turkey, Antalya, September 2002.* Pp. 31–38. TTKD, Tübitak, Ankara.
- KILIÇ, D. T. & EKEN, G.** 2004. *Türkiye'nin Önemli Kuş Alanları – 2004 Güncellemesi* [Turkey's Important Bird Areas – An Update 2004] Doğa Derneği, Ankara. [In Turkish]
- KRUUK, H., CONROY, J.W.H., GLIMMERVEEN, U. & OUKWERKERK, E.** 1986. The use of spraints to survey populations of otters (*Lutra lutra*). *Biological Conservation*, **35**: 187–194.
- KUMERLOEVE, H.** 1967. Zur Verbreitung kleinasiatischer Raub- und Huftiere sowie einiger Grossnager. *Säugetierkundliche Mitteilungen*, **15**: 337-409.
- KUMERLOEVE, H.** 1975. Die Säugetiere (Mammalia) der Türkei. *Veröffentlichungen der zoologischen Staatssammlung München*, **18**: 69-158.
- MACDONALD, S. M. & MASON, C.F.** 1983. Some factors influencing the distribution of otters (*Lutra lutra*). *Mammal Review*, **13**: 1–10.
- MACDONALD, S.M. & MASON, C.F.** 1994. *Status and Conservation needs of the Otter (Lutra lutra) in the Western Palaearctic.* Council of Europe, Strasbourg.
- ÖZDEMİR, N.** 2002. Muğla İlindeki Mevcut Alabalık İşletmelerinde Su Samurları Konusunda Yapılan Bilinçlendirme ve Eğitim Çalışmaları [Awareness-raising and education about otters in trout enterprises in Muğla Province]. *Proceedings of the Second Symposium on the Situation of the Fischotter in Turkey, Antalya, September 2002.* Pp. 15-20. TTKD, Tübitak, Ankara.
- ÖZHATAY, N., BYFIELD, A. & ATAY, S.** 2003. *Türkiye'nin Önemli Bitki Alanları* [Turkey's Important Plant Areas]. – WWF Türkiye, DHKD, İstanbul.
- ÖZTÜRK, B.** 1998. The Turkish Marine Research Foundation. *Black Sea Biological Diversity.* P. 39. UNDP, New York.
- REUTHER, C.** 1993. *German Campaign for Otter Protection*, IUCN Otter Specialist Bulletin, 7: 16-19 Reuther, C., Dolch, D., Green, R., Jahrl, J., Jefferies, D., Krekemeyer, A., Kucerova, M., Madsen, A.B., Romanowski, J., Roche, K., Ruiz-Olmo, J., Teubner, J. & Trindade, A. 2000 *Surveying and monitoring distribution and population trends of the Eurasian otter (Lutra lutra).* Habitat, 12:1-148
- STRACHAN, R. & JEFFERIES, D.J.** 1990. *Otter Survey of England 1991–1994.* The Vincent Wildlife Trust, London.
- THOL-SCHMITZ, H.** 2000. Akyaka Su Samurları [The otters of Akyaka]. *Nature and Man*, Issue 1 (March 2000), 24-32. TTKD, Ankara.

- THOL-SCHMITZ, H.** 2002. Akyaka Su Samurları II- Suzi'nin Mirası [The Otters of Akyaka II. Suzi's Heritage]. *Proceedings of the Second Symposium on the Situation of the Fischotter in Turkey. Antalya, September 2002.* Pp. 43-50. TTKD & Tübitak, Ankara.
- THOL-SCHMITZ, H. & SCHMITZ, T.** 2005. *The Situation of the Eurasian Fischotter (Lutra lutra) at Lake Uluabat.* G.A.S.-Der/ BS 1, Akyaka.
- THOL-SCHMITZ, H.** 2005. *The Situation of the Eurasian Fischotter (Lutra lutra) in the Tirebolu Region.* G.A.S.-Der/ BS 2, Akyaka.
- THOL-SCHMITZ, H., SCHMITZ, T. & GÜVEN-VERYERİ, N.** 2002. Ulusal Data Bank - Bir Öneri [National Database: A proposal]. *Proceedings of the Second Symposium on the Situation of the Fischotter in Turkey, Antalya, September 2002.* Pp. 85-94. TTKD & Tübitak, Ankara.
- UYSAL, İ.** 2002. Balık yetiştiriciliği ve Su Samuru ilişkisi [Relationship between fish-culture and otter]. *Proceedings of the Second Symposium on the Situation of the Otter in Turkey. Antalya, September 2002.* Pp. 63-72. TTKD & Tübitak, Ankara.
- ZIEGLER, N. & WEISS, M.** 1999. *Verbreitung und Gefährdung des Fischotters an der Südwestküste der Türkei* [Distribution and threats to the Eurasian otter on the south-west coast of Turkey]. Unpublished Manuscript.