

IUCN Otter Specialists Group

Otters in Environmental Impact Assessments

Recommendations

Target audience

These recommendations are intended to guide developers and consultants preparing environmental impact assessments (EIAs), as well as NGOs and EIA advisors (biologists and lawyers) in administrations, who have to check that the otter has been properly considered in the course of an EIA for a development according to the amended Council Directive 85/337/EEC.

Background

The otter (*Lutra lutra*) is listed in annex II and IV of the Habitat Directive 92/43/EEC which has implications and obligations for developers within the EU. The Habitat Directive implies that the species and its habitats, including corridors connecting them, must be considered in EIAs throughout the EU territory, and not only in SACs. The future needs of otters should also be considered in areas which have yet to be recolonised, for instance to ensure that the routes they use along water ways are not obstructed and so impede movements. EIAs for otters should always be carried out by suitably qualified ecologists acquainted with otter ecology and relevant field work. An integral part of these recommendations is an appendix giving a brief description of the biology of the species and methods used in surveys, including details of any assumptions made and limitations of the methodology used.

Otter habitat

Otter habitats cover all wetlands and aquatic ecosystems, both fresh water and coastal. They comprise the water body plus a strip of bank or coast at least a 100 m wide. For natal holts, this distance, especially in coastal areas, can be much greater.

Habitat assessment

Features potentially affected by development are 1) food species and feeding areas, including the movements and migrations of the food species; 2) resting sites; 3) breeding areas including natal holts, i.e. dens where cubs are born; 4) corridors for movement and dispersal, 5) permanent accessibility to fresh water.

For food and resting sites, the sensitivity of an area affected by a development depends on its (the development's) extent in the context of otter home range sizes in that area. Independent of home range size, breeding sites, movement corridors and areas of permanent access to water are always important for otters.

Each of these five habitat features must be assessed in any EIA. Where they are not relevant, this should be explicitly stated. In most cases assessment should be based on field surveys, although it may be possible to obtain information from other sources.

To properly assess the importance of habitats for otters, field studies should take place during at least two different seasons. In case of major developments, the monitoring must cover all four seasons to determine the *status quo* before the evaluation takes place and mitigation or compensation measures are formulated. Where it is likely that the timing of a development will have significant effects, for example, where natal or breeding areas are known to exist, these areas should be surveyed again immediately prior to work commencing.

Otter status, distribution and population trend

Consideration of status, distribution and population trends are essential, because they influence the impact of a development. The conservation status should be considered at a regional as well as a local level. The regional approach sets the local situation in the context of the larger population. For example, does the development take place in the core area of a population or on the edge in isolated populations, or in an area where otters may be expected to occur in near future?

Information on status and population trends is often available through published and unpublished reports (e.g. Article 17 reports under the Habitat Directive). If such information is not available, appropriate surveys must be carried out. In addition, the actual status of the otter in the area directly affected by the development must be determined. When practical, discussions should take place with local people, familiar with the area and with an understanding of the distribution of the species.

Impact of the development

The assessment of the impact on ecological functionality of aquatic habitats, adjacent areas and otter populations must take into account 1) conservation status, 2) food supply, 3) resting sites, 4) breeding areas, 5) corridors.

The EIA should use this information as the basis on which to assess the potential for changes to the population, its conservation status and viability.

The methods to be used in an assessment should be determined by an otter specialist and should take into account the particular situation of a development.

Mitigation / Compensation measures

Mitigation and compensation measures must be proportionate in scale and approach to meet the impact.

Monitoring

During the construction phase an environmental clerk of works should be appointed to oversee and monitor the quality of work carried out and that person must seek advice from otter experts.

Where approval is given for a development to proceed, subject to the inclusion of mitigation work for otters, it should be a requirement that monitoring of the effectiveness of the mitigation is undertaken after completion. Where appropriate, this should include reference studies undertaken before work begins to provide baseline data with which to compare the results of surveys during and post-construction.

Assessment review

Where an EIA is being reviewed and the reviewer is not familiar with otters or has concerns about what has been written, advice should be sought from appropriate experienced ecologists acquainted with otter ecology and relevant field work.

Appendix

Biology and ecology of the Eurasian otter (*Lutra lutra*)

Otters are highly specialised carnivores preying mainly on fish, but also on amphibians, crustaceans, insects etc. Otter habitat comprises not only rivers, tributaries, lakes, estuaries and coastlines, but also small trickles, springs, bogs, swamps, ditches, artificial channels and all kind of man made water bodies such as reservoirs and fish ponds. In addition, otter habitat includes suitable corridors, sometimes over dry land, between adjacent water bodies, through which otters move. Bank and river/sea bed structures and water depth are important parameters for the availability of prey. Deep water bodies and those with no or few structures in the water, where prey can hide, characterise sub-optimal habitats. In contrast visibility of the water is not a prerequisite; in most areas, the species being nocturnal. Otters are not limited to pristine habitats; they may be found anywhere, including cities and industrial complexes as long as food and other key habitat factors are available. During the 21st century, recovering otter populations have been observed in many regions of Europe. Increased population pressure is usually the reason for the re-colonization of abandoned areas. This may lead to the occurrence of otters in sub-optimal habitats.

There are places in Europe where otter are absent at present, but are likely to colonise in the future. The needs of the species should also be taken into account here. It is of particular importance that roads and other developments are designed to ensure that when otters do re-colonise these areas, they are able to move freely and safely through their habitats.

Since otters spend a considerable time in the water and have rather poor fat reserves, they are highly vulnerable to starvation. The permanent availability of food is therefore crucial. The availability of prey may undergo significant seasonal changes (ice cover, droughts, etc.). The size of home range depends on the availability of food and other key habitat factors, such as fresh water in marine habitats (in a marine environment, the Eurasian otter needs fresh water to get rid of the salt in the fur in order to maintain body temperature), holts and breeding areas. In order to give an idea of the areas involved, home ranges of females can cover 5 - 20 km of river length plus the adjacent tributaries, while males can be twice as large. In marine habitats, estuaries and cultural landscape with artificial food supply (fish farming), home ranges may be smaller.

Otters can give birth at any time of the year. Females take care of their cubs at least for one year. Natal dens may be located relatively far from water. Disturbance of the rearing female during the first year, especially when cubs are not yet able to search for food, may result in their abandonment by their mother and subsequent death by starvation. Sub-adults, freshly independent of their mother, often depend on readily available prey such as amphibians, crustacean, insects and certain slow moving fish species. Thus it is not only the overall availability of food, but specific prey items (buffer food), which may have a significant effect on the wellbeing of otters.

Due to their adaptations for a semi-aquatic life style, otters are less mobile on land and this makes them more prone than many other small to medium sized carnivores to be killed by cars.

Methods and approaches

General

Developments may affect otter habitat at scales from a few tens of metres to several tens of kilometres. We cannot be prescriptive here but would anticipate that the level of survey work involved in an EIA for otters would be proportionate to the scale and potential effects.

Otter presence, status, densities

Otters produce spraints (scats, faeces) which are characteristic of the species. Their presence is a simple and reliable indicator for otter presence, but on a small scale the absence of such signs does not necessarily mean that there are no otters in the area. Spraint numbers cannot be used to determine otter numbers. However, spraint sites with several spraints of different age indicate the use by otters over a period of time ; in contrast single or a few very old spraints may originate from transient animals, possibly in sub-optimal areas or those not yet colonised (special caution is necessary since breeding females tend to leave no signs of their presence until the cubs are two

months old). The durability of spraint is affected by weather conditions (rain, snow, vegetation growth, falling of leaves, tide). Seasonal changes in marking behaviour by the otter can also influence what is found during a survey. This has to be taken into account particularly when undertaking consecutive surveys, where results are compared in order to indicate use of otters / the success of a mitigation or compensation measure. Questionnaires and discussions with local people (fishermen, hunters, foresters, land owners) can be unreliable and should only be used in combination with other methods.

Status, densities and population trend may be available through published and unpublished reports (e.g. also article 17 reports according FFH-Directive of the EU). The question of status and trend in most instances, however, refers to relatively large areas. If such information is not available, surveys may need to be carried out covering at least several hundred square kilometres. In each 10 x 10 km square at least four sites must be checked for signs of otter presence. Such a site can be a stretch of up to 600 m of bank length or a suitable bridge depending on the survey method adopted.

In addition, an assessment of the density of signs may be made in a study area by calculating the number (spraints, spraint sites, dens, tracks etc.) per kilometre of bank searched. Variations in this may be detected by carrying out repeated standardised searches. Interpretation of these data should be made with caution since they are likely to be highly influenced by seasonal aspects such as snow or ice cover as well as the extent of vegetation cover and the sprainting behaviour of the individual otters when comparing different seasons and by the nature of the habitat when comparing sub-areas at a given time.

Females with dependent cubs may be identified by searching for tracks in appropriate substrate, by direct observations (visual and audible) and the use of remote cameras. Indications for absolute otter numbers may be derived from genetic analysis of scats, by snow tracking and under special habitat conditions (e.g. Iberian Peninsula) by direct observations.

Habitat

The habitat functions (food, day resting sites, breeding areas and corridors) must be investigated in the field by searching the bank or shore line for otter signs (tracks, spraints, rolling places, trails, food remains) and structures under water as well as the bank itself (potential for above and below ground resting sites). Depending on the area affected, the availability of food may be estimated by otter spraint analysis, electric fishing or reference to existing, recent reports. Consideration should be given to the potential presence of natal holts (i.e. dens where cubs are born and where they can remain for up to ten weeks). Such sites are often found some distance from water, may have few, if any, evidence of otter presence and are consequently difficult to identify. Similarly important are rearing areas, where cubs stay after having moved from the breeding areas. They are found closer to the water, frequently amongst very dense vegetation and are usually near areas with a rich food supply. Both, natal holts and rearing areas are key determinants of the status of otters with long-term implications at local and regional level if they are adversely affected.