

Forestry and Otter Guidelines.

Forest Service
Department of Agriculture, Fisheries and Food



Forest Service Forestry and Otters Guidelines.

Introduction and Summary

These guidelines are a result of a review of relevant literature including National Parks and Wildlife Service's *Otter Species Action Plan, Conservation Status Assessment Report and Threat Response Plan for Otters*; Coillte Teoranta's *Guidelines on Habitats and Species of Conservation Concern in Ireland*, the English Nature publication *Ecology of the European Otter*, the UK Forestry Commission publication *Guidance on Managing Woodlands with Otter in England* and best expert advice. The Forest Service Forestry and Otter Guidelines are divided into two parts as summarised below. The first part gives some general background information on otters and the threats to the species (sections 1 – 4) and the second focuses on forestry and otters (sections 5 – 11).

The following Part (pages 2 to 4 inclusive) summarises some of the Headings of the main document (pages 5 to 15 inclusive). It contains links to those Headings.

PART 1: BACKGROUND INFORMATION

1.0 [Protection and conservation status.](#)

Otter, *Lutra lutra*, being an Annex IV species under the Habitats Directive, is strictly protected wherever it occurs, making it an offence to deliberately disturb the species or damage or destroy its breeding or resting place. It is also an offence under national legislation (Wildlife Act 1976, Wildlife (Amendment) Act 2000) to hunt, disturb or intentionally kill otters. A total of 44 Special Areas of Conservation (SACs) have been designated for the species.

2.0 [Distribution](#)

In Ireland, otters are widespread occurring in approximately 70% of all river and lake sites. However, the population appears to be declining.

3.0 [Lifecycle, Habitat and Ecology](#)

Otters spend about 75% of their lives on land. They dig burrows in or near the riverbank / lakeshore called holts, where they rest during the day. Otters also rest above ground in specially constructed couches. These are often found on islands or in dense cover. Otters' droppings (spraints) are used to mark their territories, usually at noticeable points such as on rocks or high mounds, called 'seats'. Otters use chutes in mud, termed slides, to slip into the water.

4.0 [Threats](#)

The major threats to otters are loss of riparian habitats, water pollution leading to reduced prey availability and disturbance of resting and breeding places (holts and couches).

PART 2: FORESTRY AND OTTERS

5.0 [Forestry and Otters](#)

In most cases, the presence or potential for otters to occur on site will need to be assessed by looking for signs and indicators (spraints, couches, holts, chutes, hairs on wire fences, suitable habitat).

6.0 Woodlands Habitats used by Otters

Woodlands used by otters include:

- Woodland with a good shrub layer and within 50 metres of a watercourse.
- Woodlands that contain large patches of dense cover e.g. scrub thickets, weedy young plantations, timber stacks and log piles, groups of windblown trees, large bankside root systems, hollow trunks and stands of tussocky tall fen vegetation.
- Mature conifer plantations without a shrub layer will not provide suitable resting places. However, any watercourse with fish in it will attract and support otters, so although such conifer plantations may not provide suitable resting/breeding places they may still be part of an otter's territory.

7.0 Forest Operations that may impact on the Species.

If otters are present then any activity (e.g. scarification, drainage, scrub clearance during afforestation/reforestation, thinning/harvesting, coppicing, road/path construction or upgrade) near a watercourse is likely to impact on the species or its habitat.

8.0 Detecting the presence of Otters

Indicators are:

- Presence of watercourse.
- Dense scrub (whether in open fields or within woodland) on the site within 50 metres of a watercourse.
- Records (NPWS website) and local knowledge of sightings.
- Spraints, holts, chutes (slides), couches.

The screening chart in [Figure 1](#) should be used to determine whether or not a site contains otters or suitable resting/breeding habitat for otters. If the site contains otters or suitable resting/breeding habitat for otters proceed to Section 9 Forestry Operations and Otters and if not, proceed with the application/operation and follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations.

9.0 Forestry Operations and Otters

Sites within SACs:

- The Forest Service will consult with NPWS and an Appropriate Assessment may be required.

Sites where otters occur or where their presence is likely:

- Avoid the habitat/likely habitat e.g. retain it as an Area for Biodiversity Enhancement (ABE), route the activity away from the habitat.
- If the operation is to proceed confirm whether or not the species occurs in the habitat, i.e. is it a resting or breeding place.

- If the occurrence of the species is confirmed and if there is a risk that its resting or breeding place may be damaged or destroyed the applicant must seek a *derogation licence* from the Minister for the Environment, Heritage and Local Government under Regulation 25 of the Habitats Regulations. On receipt of this licence by the applicant the Forest Service will consider the approval/licence application.

10.0 Specific Forest Activity/Operation Measures

- Afforestation
- Harvesting (thinning and clearfelling)
- Reforestation
- Road Development

11.0 Derogations

12. Glossary

13.0 References

FORESTRY AND OTTERS GUIDELINES

PART 1: BACKGROUND INFORMATION

1.0 Protection and conservation status

Otters (*Lutra lutra*) (madra uisce) are protected under the Wildlife Act 1976, as amended by the Wildlife (Amendment) Act 2000, making it illegal to hunt, disturb or intentionally kill them. This legislation also protects their breeding and resting places. Under European legislation the otter is listed on Annex II and Annex IV of the EU Habitats Directive (92/43/EEC). A total of 44 Special Areas of Conservation (SACs) have been designated for otters. In addition, as an Annex IV species, otters are strictly protected (i.e. protected wherever they occur) and the deliberate disturbance of otters and the destruction of their resting and breeding places is an offence.

Otters are listed in Appendix II of the Bern Convention on the Conservation of European Wildlife and Natural Habitats, which prohibits all forms of deliberate destruction, disturbance or sale. They are included in the Convention on International Trade of Endangered Species (CITES) and are listed as internationally important in the Irish Red Data Book

Under Regulation 23(d) of the Habitats Regulations ignorance is not a defence (i.e. it is not a defence that the person damaging or destroying a breeding or resting site did so unknowingly or not deliberately). Therefore, there is an onus on those working in forestry to inform themselves of the risk of their activities causing damage and to ensure that their activities will not result in the disturbance or destruction of otters' resting or breeding places. In cases, where there is a risk of damage but a person wishes to proceed with an operation or an application for a license or approval, one must seek a derogation licence from the Minister of the Environment, Heritage and Local Government under Regulation 25 of the Habitats Regulations (see Section 11 Derogations).

2.0 Distribution

Eurasian otter (*Lutra lutra*) has the widest distribution of all otter species, occurring as far north as the Arctic Circle in Europe, in most of Asia and in northern Africa. In much of its range it is scarce or extinct, consequently Ireland's otter population is considered one of the most important in Western Europe.

There have been three national otter surveys in Ireland (1980/1981 - Chapman and Chapman; 1991 - Lunnon and Reynolds and 2004/2005 – Bailey and Rochford). The most recent survey analysed data from all three surveys and found a net loss in population of 20% between 1980/81 and 2004/2005 (Bailey & Rochford, 2006). Consequently, although otters are widespread in Ireland, the population appears to be decreasing. The current otter population is estimated at approximately 6,000 female animals not including juveniles (O'Neill, 2008). A similar result was recorded in Northern Ireland where a 9.9% decrease was recorded between surveys in 1981 and 2001. The 2004/2005 Republic of Ireland survey found the highest percentage occurrence of otters at running freshwater sites and recorded a positive relationship with channel width and the presence of in-stream vegetation.

3.0 Lifecycle, Habitat and Ecology

Otters belong to the Family Mustelidae, which also includes pine marten, mink, stoat and badger. The body of an otter is long (up to 1.2m), muscular and streamlined with a long flattened tail that tapers to a point. It has webbed feet. The dense coat is usually dark brown on the back, grey-brown on the underside and paler, even creamy-white, on the throat. Otters are semi-aquatic carnivores associated with freshwater habitats, for example rivers, lakes, marshes, estuaries, and most coastal habitats. Coastal otters must wash salt deposits from their fur so access to freshwater is essential. Otter cubs may be born at any time of the year but those born in summer have the greatest chance of survival. Generally litters comprise of two or three cubs but in some cases there may be up to five.

Otters are territorial, solitary, and are most active at dusk or after dark. They are more diurnal (active in the daytime) in cold weather. Otters' droppings, called spraints, are used to mark their territories, usually at noticeable points such as on rocks or high mounds, known as seats. These locations are generally important fishing or grooming sites e.g. floor of bridges, saddle of overhanging bankside trees or in-channel rocks. The home range of otters depends on the quality of the foraging habitat and other resources and is usually 5 to 15km but it can vary. Male otters have a larger range than female otters and the ranges of males and females may overlap. However otters are very territorial so the ranges of the same sex do not overlap.

Otters spend about 75% of their lives on land. They dig burrows in the riverbank or under the roots of bank side trees, called holts, where they rest during the day. An otter may have several holts in its home range. Holts are commonly found among tree roots, especially those of ash, horse chestnut and sycamore, but scrub such as bramble is also important. In coastal areas in the UK holts consisting of burrows in peat have been reported. Holts may have up to six entrances, some of which may be underwater.

Otters also rest above ground in specially constructed couches. These are often found on islands or in dense cover. Holts may be used more often in winter and couches in summer when the vegetation provides cover. Otter cubs are born in natal holts, which tend to be very well hidden, in undisturbed locations, near a good food supply and not liable to flood. These holts are unusual in that they may be some distance from a watercourse (e.g. 100 m is not uncommon). Otters use chutes in mud, termed slides, to slip into the water.

Otters have a varied diet but this may be more of a result of prey availability rather than preference. A recent Irish survey found that fish, especially salmonids, eels and sticklebacks, dominated the otters' diet. Frogs and to a lesser extent birds and mammals were also recorded, but crayfish were less frequent than previously recorded.

4.0 Threats

The loss of riparian habitats has been cited as a factor in the decline of otters throughout Europe. Threats to otters include the following:

- Water quality – reduction in water quality will reduce the prey availability and may result in otters having to increase their home range.

- Alteration of the riverbed – dredging, arterial drainage and flood defence works may result in the loss of riparian habitat and a reduction in fish populations.
- Pesticides – otters are at the top of the food chain and as such they can accumulate high levels of pesticides from their fish prey. This was a major concern in Europe but was not thought to be significant in Ireland (based on work from the 1990s)
- Destruction of holt sites – bank side management has the potential to destroy holt sites or reduce the area suitable for holts. This may occur during drainage schemes, river maintenance and vegetation or tree removal.
- Road deaths – accounts for most of the recorded otter mortalities in Ireland but many of these had bite wounds suggesting that they were not resident in the area where they were killed (i.e. they were transient individuals).
- Road schemes have the potential to impact on otters, consequently the National Roads Authority published *Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes*
- Disturbance of watercourse banks – increases in human activity may in extreme cases result in an otter deserting its whole territory
- Accidental trapping – otters can get entangled in fyke nets, eel traps and crustacean baskets. This accounts for 14 – 17% of reported otter mortalities in Ireland.
- Dogs –the majority of dead otter cubs found in Britain had bite wounds from dogs (either due to hunting other species with dogs or through walking pets without a leash).

PART 2: FORESTRY AND OTTERS

5.0 Forestry and Otters

In Ireland, given the wide distribution of otters, it can be assumed that most areas are potentially in the distribution range of otters. There are 44 SACs designated for otters but the 2004/2005 survey (Bailey and Rochford, 2006) found that otters were equally represented inside and outside these designated areas. NPWS holds a database of otter locations in Ireland and these will shortly be available on the National Biodiversity Data Centre website. However specific site information is patchy at best. Therefore, in most cases, the presence or potential for otters to occur on a site will need to be assessed by looking for signs and indicators.

6.0 Woodlands Habitats used by Otters

Otters may use a variety of woodland habitats, especially small patches of wet woodland, carr (woodland growing on wet ground or waterlogged soil usually dominated by alder or willow species) and thick scrub or woods within approximately 50m of a watercourse (river, canal, pond, lake, wetland). Otters may have a home range of up to 50km of a waterway (usually 5 – 15km) and any small streams and ditches within this home range may be used as foraging habitats and corridors.

Otters are more likely to use woodlands (resting, breeding) if there is relatively little other good ground cover along the waterway. Highly disturbed sites are unlikely to be

used by otters. Otters are more likely to use a less disturbed site, even if it is not the preferred habitat or the most favourable. The entrance to a holt (underground burrow) will be in the riverbank or under the roots of bankside trees. Couches are above ground resting places that are close to water (<50m) and are found in a wider range of woodland habitats, occurring in woodlands 0.5ha or less in size provided they contain patches of dense scrub at ground level, thickets or any of the breeding site features. Holts are more often used in winter and couches in summer.

The possibility of breeding sites (holts/couches) in woodlands increases if they are relatively undisturbed by humans, not grazed by livestock, within 50m of water and rarely flooded or just above the floodplain level. Woodlands that contain large patches (at least 0.5ha) of dense cover e.g. scrub thickets, weedy young plantations, timber stacks and log piles, groups of windblow trees, large bankside root systems, hollow trunks and stands of tussocky tall fen vegetation are also more likely to be used.

7.0 Forest Operations that may impact on Otters.

If otters are present then any activity near a watercourse is likely to impact on the species or its habitat. Therefore activities during all parts of the forest cycle have the potential to impact on otters e.g. scarification, drainage or scrub clearance during afforestation/reforestation, thinning/harvesting, coppicing, and road/path development. However, not all activities will have the same impact and the likelihood and level of disturbance depends on a number of factors including:

- Location of operation

Holts and couches are generally within 50m from a watercourse, therefore any activity within 50m of a watercourse has the potential to damage a holt or couch (if present on the site or if not known). Consequently any activity greater than 50m from the watercourse may disturb the species but is unlikely to impact holts or couches.

- Type of operation

Some activities are likely to have long term impacts, such as habitat removal e.g. clearfelling or clearing a shrub layer, while others will reduce the habitat quality e.g. development of a walking/cycling track leading to increased human activity.

- Type of habitat

Mature conifer plantation with no shrub layer will not provide suitable resting places although otters may forage along rivers and streams in this habitat. Woodland with a well developed shrub layer will be more likely to be used by otters.

- Indirect impacts

This refers to impacts that do not directly damage or disturb the species or its resting place but affects the species in another way e.g. sedimentation reducing its food supply in a watercourse.

- Intensity of use

Changes in the use of a woodland may disturb otters e.g. encouraging recreational users in a woodland that previously had no visitors, increasing grazing pressure.

8.0 Detecting the presence of Otters

In order to ensure sustainable forest management and the protection of Annex IV species in Ireland, the Forest Service has developed forestry guidelines for selected Annex IV species. Otters are known to occur all over Ireland, therefore all Forest

Service grant aided, approved or licensed activities must be assessed for the presence or potential presence of the species as outlined in the Forestry and Otter Guidelines. The *Forestry and Otter Guidelines* supplement all other Forest Service Guidelines and the Code of Best Forest Practice and apply to all potentially impacting forest operations in areas where otters occur or are likely to occur.

Screening for Otters or potential Otter habitat

The screening chart in Figure 1 (page 15) summarises the questions below and may be used to determine whether or not a site contains an otter or its breeding and resting habitat. If the result is 'yes' proceed to Section 9 "Forestry Operations and Otters" beneath and if it is 'no' proceed with the application/operation and follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations.

1. Is there any record or sighting of otters on the site? Potential information sources include NPWS maps and data (<http://www.npws.ie/en/MapsData>) and the National Biodiversity Data Centre (www.biodiversityireland.ie). If 'yes' go straight to Section 9 "Forestry Operations and Otters" beneath. If 'no' go to Q2.
2. Are there any signs of otters on the site e.g. otter spraints? Spraints are used to mark territories, usually at noticeable points such as on rocks or high mounds, called 'seats'. These locations are generally important fishing or grooming sites e.g. floor of bridges, saddle of overhanging bankside trees or in-channel rocks. Footprints and feeding remains also indicate the presence of otters. If spraints or other signs are detected go straight to Section 9 "Forestry Operations and Otters" beneath. If 'no' go to Q3.
3. Is the application for approval/license within a designated area or within a designated area referral zone? If 'yes' National Parks and Wildlife Service will be consulted; see Section 9 "Forestry Operations and Otters" beneath. If 'no' go to Q4.
4. Are otters likely to use the site?
 - a) If there is a watercourse on site, check for the presence of holts, if possible. Holts are burrows in the riverbank, where otters rest during the day and are commonly found among tree roots, especially those of ash, horse chestnut and sycamore, but scrub is also important. Check for the presence of slides (chutes in the mud) where otters slip into the water. If a holt or slide is detected, otters are using the site, go to Section 9 "Forestry Operations and Otters" beneath. If holts are not detected or if unsure go to Q4b.
 - b) Is there dense scrub within 50m of a watercourse? If yes, otters may rest there (couches). If the answer to Q4b is 'no', follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations. Standard Forest Service guidelines will ensure the protection of the aquatic zone and its buffer and of the otter.

9.0 Forestry Operations and Otters

If the forest operation/activity occurs within a Special Area of Conservation (SAC), the National Parks and Wildlife Service will be consulted and approval/licence will be

issued only following its agreement/comment. In addition, an Appropriate Assessment may be required for the operation/activity if it is likely to affect the conservation objectives of a Natura 2000 site.

The following steps should be taken if otters occur or are likely to occur (within the range and suitable habitat) on a site not within a SAC:

- 1 If an otter has been recorded on the site, does the site contain suitable habitat for an otter breeding or resting place? If 'no' follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations. If 'yes' proceed to Step 2.
- 2 Is it possible to conduct the forest activity/operation and not damage/destroy the otter resting or breeding places or potential places (hereafter referred to as otter habitat or likely habitat) - for example incorporate the area into the Area for Biodiversity Enhancement (ABE), re-route the road/ride to avoid the area, do not travel through the area when harvesting/thinning. See beneath for specific forest activity/operation measures. If 'yes' proceed to Step 3, if 'no' proceed to Step 4.
- 3 Avoidance: If it is possible to conduct the forest activity/operation and not damage/destroy the otter habitat/likely habitat, the applicant/site manager should:
 - a. Identify the area (i.e. habitat/likely habitat) in the relevant documentation to be submitted to the Forest Service (this area may form part of the ABE requirement) and
 - b. Clearly identify the area on the ground, if necessary, to ensure that the forest activity/operation does not impact on the habitat.As a result, the forest activity/operation will not damage/destroy otter breeding or resting place and the Forest Service will proceed with the approval/license application process.
- 4 Avoidance not possible: If it is not possible to conduct the forest activity/operation and not damage/destroy the otter habitat/likely habitat then:
 - a. If the otter or its habitat/likely habitat has not been confirmed an ecological survey must be carried out (see Section 8 "Detecting the Presence of Otters" above) to determine whether the species occurs or not and whether there is a breeding or resting place present. If the presence of both the species and its breeding/resting place is confirmed proceed to point 4(b), if the species and its breeding/resting place is not present, follow standard Forest Service guidelines provided there are no other environmental (ecological, archaeological, landscape) or silvicultural considerations.
 - b. If the occurrence of otter and its resting/breeding place has been confirmed then the Forest Service will not issue approval/licence for the area that is an otter resting or breeding place **or**
 - c. If the occurrence of otter has been confirmed and the activity/operation must proceed and there is a risk that a resting or breeding place of the species may be damaged or destroyed, then the applicant must seek a derogation licence from the Minister of the Environment, Heritage and Local Government under Regulation 25 of the Habitats Regulations (see Section 11 – Derogations). On receipt of this licence by the

applicant the Forest Service will consider the approval/licence application.

If during the course of forest activity evidence of otter is discovered, work should halt, the Forestry and Otter Guidelines should be implemented and the Forest Service notified immediately.

10.0 Specific Forest Activity/Operation Measures

Specific measures that may apply to each type of forest activity/operation are detailed below.

Afforestation.

- Retain area of woodland/dense scrub within 50m of watercourse as Area for Biodiversity Enhancement.
- Apply aquatic buffer zones as required by Forest Service Guidelines (minimum width of 10m).
- Avoid any mechanised operations within 50m of known holt or couch sites, where possible.
- Where possible fencing should allow movement from holt/couch to watercourse and should not prevent movement along the riparian corridor (otters will use watercourses/aquatic zones to circumvent fences).
- Sediment should not enter watercourses during forest activities. Adhere to the Forest Service Guidelines, especially Forestry and Water Quality Guidelines, The Code of Best Forest Practice – Ireland, the Forestry Schemes Manual and the Irish National Forest Standard.
- Locate any new paths or recreational infrastructure at least 50m/100m from likely holt sites.

Harvesting (thinning and clearfelling).

- Identify likely holt or couch sites within 50m of the watercourse. For example old trees, scrub, deadwood.
- Avoid any mechanised operations within 50m of known holt or couch sites, where possible.
- Retain native woodland/scrub cover in riparian zone where possible.
- Thinning/coppicing of the riparian corridor should occur over a number of years.
- Extract material away from the riparian corridor (rather than through the corridor) where possible.
- Plan extraction routes so that they do not disturb existing areas of scrub or deadwood, where possible.
- Stack timber away from the riparian corridor. Remove any timber that must be stacked within riparian corridor as soon as possible. Consider enhancing site for otters by leaving some stacks of timber undisturbed as potential resting sites within 50m of watercourse.
- Windrowing or treatment of brash within the riparian corridor should occur as soon as possible after felling (1 – 2 months) as after this time period otters may have started to use it.
- Sediment should not enter watercourses during forest activities. All grant aided, approved and licensed activities must adhere to the Forest Service

Guidelines, especially Forestry and Water Quality Guidelines and Forest Harvesting and the Environment Guidelines, The Code of Best Forest Practice – Ireland, the Forestry Schemes Manual and the Irish National Forest Standard.

Reforestation

- Apply aquatic buffer zones as per Forest Service Guidelines (minimum of 10m)
- Identify likely holt or couch sites within 50m of the watercourse. For example old trees, scrub, deadwood.
- Retain native woodland/scrub cover in riparian zone
- Where possible fencing should allow movement from holt/couch to watercourse and should not prevent movement along the riparian corridor (otters will use watercourses/aquatic zones to circumvent fences).
- Sediment should not enter watercourses during forest activities. All grant aided, approved and licensed activities must adhere to the Forest Service Guidelines, especially Forestry and Water Quality Guidelines, The Code of Best Forest Practice – Ireland, the Forestry Schemes Manual and the Irish National Forest Standard.
- Locate any new paths or recreational infrastructure at least 50m/100m from holt sites.

Road Development

- If possible do not locate roads, turning bays etc. in the riparian corridor.
- Do not locate roads, turning bays etc within 50m of holt site, where possible.
- Avoid, where possible, disturbance of scrub when constructing bridges.
- Sediment runoff – Sediment should not enter watercourses during forest activities. All grant aided, approved and licensed activities must adhere to the Forest Service Guidelines, especially Forestry and Water Quality Guidelines and Forest Harvesting and the Environment Guidelines, The Code of Best Forest Practice – Ireland, the Forestry Schemes Manual and the Irish National Forest Standard.

11.0 Derogations

Where a proposed development will affect a site known to be used by otters, consideration needs to be given to the likely impact on the population. Even when planning permission or other permissions are given, or the activity does not require such permission, the wildlife legislation continues to apply; otters and their breeding and resting places remain protected.

Article 16 of the Habitats Directive provides for derogations. These may be issued "provided there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status".

Applications for a derogation licence should be made in writing to: Species and Regulations Unit, National Parks and Wildlife Service, Main Street, Ballybay, Co Monaghan. It can take 4 weeks for an application to be processed. The application

should include otter survey results and the mitigation measures that will be implemented to minimize the impact on otters. Local NPWS conservation rangers may be able to advise on appropriate mitigating measures.

Note that if the proposed activity can be timed, organised and carried out so as to avoid committing offences under Irish wildlife legislation and the EU Habitats Regulations, then no derogation is required. Further information is available at: <http://www.npws.ie/en/WildlifePlanningtheLaw/Licences/>

12 Glossary

Couches - specially constructed above ground resting places used by otters, often found on islands or in dense cover.

Holts – underground burrows, where otters rest during the day, entrance to the holt is in the riverbank or commonly found among tree roots, especially those of ash, horse chestnut and sycamore, but scrub such as bramble is also important. In coastal areas in the UK holts consisting of burrows in peat have been reported. Otters will choose secluded or vegetated areas in which to build their holts and they sometimes use vacant fox earths or rabbit warrens instead of building their own holt from scratch. An otter may have several holts in its home range and holts may have up to six entrances, some of which may be underwater.

Natal holt – special holt where cubs are born. Usually in very undisturbed location, often in dense vegetation. Can be situated 100m or more from the water.

Otter trails - a smooth track way in the vegetation, which often cut across a headland at the coast or a bend in the river and may lead to a holt or a mud slide leading to the water.

Seats - noticeable points such as rocks or high mounds, which are generally important fishing or grooming sites e.g. floor of bridges, saddle of overhanging bankside trees or in-channel rocks. Often marked with spraints or prey remains.

Slides - chutes in mud where otters regularly slip into the water.

Spraints - slimy and black or brown with a fishy smell when fresh but they become paler with age and bone fragments may be distinguishable. A jelly-like substance produced by the anal glands, which gives a musky, almond like scent to the spraints, may be deposited at sprainting sites. Used to mark their territories, usually at noticeable points called 'seats'.

13.0 References

Bailey, M., Rochford, J., 2006. Otter Survey of Ireland 2004/2005. Irish Wildlife Manuals No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Chanin, P., 2003. Ecology of the European Otter. Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature, Peterborough.

Chapman, P.J. and Chapman, L.L. 1982. *Otter Survey of Ireland. 1980-81*. The Vincent Wildlife Trust, London.

Forestry Commission, 2007. Guidance on Managing Woodlands with Otter in England. Interim Guidance Version 1, Forestry Commission, England. [http://www.forestry.gov.uk/pdf/england-protectedspecies-otter.pdf/\\$FILE/england-protectedspecies-otter.pdf](http://www.forestry.gov.uk/pdf/england-protectedspecies-otter.pdf/$FILE/england-protectedspecies-otter.pdf)

Hayden, T. and Harrington, R., 2000. *Exploring Irish Mammals*. Town House and Country House Ltd., Dublin.

Heery, S. 2006, Coillte Guidelines on Habitats and Species of Conservation Concern in Ireland – Otter. Coillte, Newtownmountkennedy, Co. Wicklow.

Lunnon, R. and Reynolds, J. 1991. *Report on the National Otter Survey of Ireland 1990-91*. Unpublished Report to the Wildlife Branch, Office of Public Works, Dublin.

National Parks and Wildlife Service, 2007. Conservation Status Assessment Report: Background to the conservation assessment of the otter (*Lutra lutra*). Conservation Status Assessment Report. NPWS, Dublin.

National Parks and Wildlife Service, 2008. Species Action Plan – Otters. NPWS. <http://www.npws.ie/en/PublicationsLiterature/SpeciesActionPlans/>

National Parks and Wildlife Service, 2009. Threat Response Plan Otter *Lutra lutra*. Final draft. Department of Environment, Heritage and Local Government.

National Roads Authority, 200?. Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes. National Roads Authority, Dublin. <http://www.nra.ie/Publications/DownloadableDocumentation/Environment/file.5147.en.pdf>

National Roads Authority, 2009. Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. NRA, Dublin.

O'Neill L. (2008) *Population dynamics of the Eurasian otter in Ireland. Integrating density and demography into conservation planning*. PhD thesis. Trinity College, Dublin.

Whilde, A., 1993. Threatened Mammals, Birds, Amphibians and Fish in Ireland. Irish Red Data Book 2: Vertebrates. HMSO, Belfast.

Figure. 1. Screening chart to determine whether a forest activity has the potential to impact on otters (to be used in the absence of a confirmed record/sighting). If otters occur or are known to occur on the site the Forestry and Otter Guidelines must be followed.

