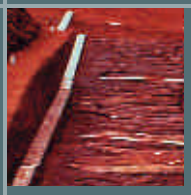

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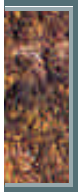

INTRODUCTION

It is the policy of the Forest Service that forest development should not disturb sites of archaeological importance. Forest development should ensure their preservation and protection and enable access for further study.

The FORESTRY AND ARCHAEOLOGY GUIDELINES have been developed through extensive consultation with a wide range of relevant parties. They set out sound and practical measures based on the principles of Sustainable Forest Management (SFM), and are firmly rooted in the best available information. The guidelines will be kept under review to facilitate amendment in the light of new research findings.

To ensure the successful implementation of SFM in Ireland, it is important that forest owners adhere to the guidelines and undertake all work in a way which is compatible with the protection of the environment.

The guidelines describe a range of measures intended to cover all situations relating to forestry and archaeology. Not all of the measures outlined will be applicable to every site. However, it is the responsibility of forest owners to identify and apply those measures which are appropriate to their particular forest.

The FORESTRY AND ARCHAEOLOGY GUIDELINES apply to all grant-aided projects and to all activities associated with a Felling Licence. Any breach may result in the forfeit of grant aid and premium payment or the withdrawal of a Felling Licence.

It is essential that all forest workers and machine operators involved in any forest operation are made aware of and understand the guidelines, all relevant environmental issues relating to the site, and working practices which minimise environmental disturbance. All operators should have contact telephone numbers onsite for all relevant agencies (Local Authorities, Regional Fisheries Boards, Dúchas The Heritage Service, National Museum of Ireland, Garda Síochána, etc.) in case of accidental damage to aquatic zones, archaeological sites, important wildlife habitats and other environmental features.

Archaeological sites and monuments are part of our national heritage. They provide valuable information about our history and represent an important educational and recreational resource. There is a wealth of information to be gathered from such sites, both those visible above the ground and those which leave no surface trace but remain buried. The Appendix reviews the different site and monument types encountered in our rural landscape.

Outwardly insignificant or unimpressive sites can be rich from an archaeological perspective.

Ireland has been inhabited since approximately 7,000 BC. The countryside is rich in the physical remains of human activity over the millennia, from the more obvious stone tombs, crannógs, standing stones and medieval castles, to the less well known toghers (ancient timber roadways), fulachta fiadh (ancient cooking places) and house sites occasionally uncovered during ploughing, drainage, road making or turf cutting. Other ancient sites are only visible from the air as crop marks or low earthworks.

Unlawful interference with or damage to an archaeological monument can result in a maximum fine of £50,000 and/or five years imprisonment (National Monuments Acts and Amendments 1930-1994).

Megalithic tomb within a forest plantation.

The FORESTRY AND ARCHAEOLOGY GUIDELINES have been compiled to assist non-archaeologists involved in forest development to identify archaeological sites, and set out the procedures which should be followed to avoid site disturbance.

Finds of archaeological objects must be reported to:
The Director, National Museum of Ireland, Kildare Street, Dublin 2 (tel. 01-6777444 / fax 01-6766116). The Garda Síochána must also be notified when human remains are discovered.

Professional advice on archaeological sites is available from:
The Director, National Monuments and Historic Properties Service, Dúchas The Heritage Service, 51 St. Stephen's Green, Dublin 2 (tel. 01-6473000 / fax 01-6621767 / e-mail duchas@indigo.ie / website www.heritageireland.ie).

POTENTIAL IMPACT OF THE FOREST CYCLE ON ARCHAEOLOGY

Careless or unplanned forest development at various stages of the forest cycle can adversely impact on both under- and overground archaeology.

The protection of archaeological sites and monuments during forest operations will be achieved by:
- identifying the site and its full extent; and
- creating a protective exclusion zone around the site, within which no work or activity takes place.

It is essential that this exclusion zone is identified to all operators at allstages of the forest cycle.

Soil preparation and excavation

The preparation of the ground prior to afforestation or road construction may disturb underground as well as overground archaeology.

Drainage

The drainage of wet soils is usually required prior to planting. Digging drains and sediment traps may destroy or disturb archaeological remains. Furthermore, organic remains preserved in the anaerobic conditions of wetlands (e.g. structural timbers, wooden artefacts) will begin to decay as the soil dries out.

Harvesting

Harvesting operations, in which restricted visibility, falling trees and the movement of heavy machinery are all combined, create the potential for disturbance of archaeological sites which themselves are often difficult to recognise in a forest setting. The use of large machinery can cause structural damage to such sites (e.g. the levelling of ringfort banks, the removal of old roads, trackways or ancient territorial boundaries). This threat can, however, be eliminated through thorough planning and due care during the course of operations.

Harvesting operations can also improve the situation of the many sites and monuments occurring in forested areas. Current grant approval requires that an unplanted exclusion zone be created around archaeological sites at establishment. In instances where, in the past, this practice was not adopted, harvesting presents an ideal opportunity to open up and provide access to sites previously concealed by forest cover.

ARCHAEOLOGY AND THE LAW

Archaeological sites in Ireland are legally protected from unauthorised interference or damage by the **National Monuments Acts and Amendments 1930-1994**.

The 1994 Amendment established the **Record of Monuments and Places (RMP)**. This contains an index and map of monuments and other archaeological features which are registered, and others likely to be of significance but not yet registered. The RMP is updated continuously.

A full archaeological survey of the country is carried out by the **National Monuments and Historic Properties Service** of Dúchas The Heritage Service.

All sites listed in the RMP are protected under the National Monuments legislation.

Landowners must inform themselves of the existence of a recorded monument on their land.

If the landowner plans to undertake work “at or in relation to” an archaeological site, he/she must give two months notification to the National Monuments and Historic Properties Service.

PROCEDURES

The Forest Service **Forest Inventory and Planning System (FIPS)** downloads the data on the RMP regularly. This information identifies RMP sites which lie within or near (within 30 m of) areas proposed for grant aid or Felling Licence and for which consultation with the National Monuments and Historic Properties Service is necessary before grant approval or a Felling Licence may be issued. The National Monuments and Historic Properties Service will advise on measures to protect the monument. Normally an area of at least 15 m back from the edge of the archaeological site must be left unplanted as an exclusion zone, together with an access path to the site. A larger clearing may be required if an archaeological site is deemed to be particularly sensitive.

SITES OF ARCHAEOLOGICAL INTEREST

In the event of a site being of archaeological interest, the following guidelines will apply.

Exclusion zones

Grant approvals will preclude the planting, cultivation or other associated works on sensitive sites, within an appropriate exclusion zone around them, and on existing access routes. These exclusion zones must not: be incorporated into ridelines or firebreaks; have fence stakes or strainers driven into them; or be used for storage or for any purpose which could damage the site. All machine traffic should be excluded from these areas.

Outer boundaries of exclusion zones must be clearly defined

The boundaries of an exclusion zone must be clearly defined on the ground **before any work commences**, so that the outer edge of the exclusion zone is clear to all personnel. For afforestation and reforestation operations, this must be done by erecting a fence comprising two strands of wire on the outer edge of the exclusion zone. On harvesting sites, fencing, brightly coloured paintmarks on trees or brightly coloured tape must be used.

Know the full extent of the archaeological site

It is essential that the full extent of the archaeological site is known so that the exclusion zone is correctly identified.

Access

Existing access routes to an archaeological site must not be planted and must be left open for pedestrian access throughout the rotation. If there is no existing access route, leave an unplanted 4 m wide route suitable for pedestrian access from the direction of the nearest public road, forest road or track.

Archaeological objects found during operations

Any archaeological object found during operations must be reported immediately to the Garda Síochána or the National Museum of Ireland. It must also be left undisturbed, as it is important that objects can be related to their surroundings. A minimum exclusion zone of 20 m must be created until the site of the find has been investigated. Also, it is advisable to switch operations to some other part of the property until the investigation is complete.

Harvesting in relation to archaeological sites

The removal of scrub or the harvesting of trees from or near an archaeological site should follow an archaeological prescription following notification to the National Monuments and Historic Properties Service. Where practical, this work should take place when the soil is dry. Otherwise, particular attention should be paid to the provision of brash mats for all ground traffic. See FOREST HARVESTING AND THE ENVIRONMENT GUIDELINES.

Road building and harvesting operations

Sites which are protected during planting must not be disturbed during subsequent operations such as road building or harvesting. During these operations, the exclusion zone must be clearly marked on the ground (as described above) and machine operators and other personnel advised accordingly.

PREVIOUSLY UNRECORDED ARCHAEOLOGICAL SITES
Discovery at the pre-approval stage

Over-reliance on the RMP can lead to the destruction of unrecorded sites not yet included in the record. It is therefore essential to remember that the data on the RMP are only preliminary and that they are updated continuously as new sites are discovered. Local knowledge and careful site inspection can be valuable in identifying areas of possible archaeological importance not previously recorded.

Where any such area is identified, maps of the proposed afforestation will be forwarded to the National Monuments and Historic Properties Service for its observations. Within one month, the National Monuments and Historic Properties Service will advise the Forest Service whether or not the site is of archaeological importance. If the site is of importance, it will also be confirmed whether:

1. the site is to be formally registered, in which case no planting may take place within the designated area; **or**
2. planting will be permitted provided a rescue excavation is undertaken by a qualified archaeologist at the developer's expense (if this work is not undertaken, the site must be left undisturbed); **or**
3. the site is of possible interest and pre-planting work may proceed, provided particular care is taken.

Artefacts can indicate the presence of an archaeological site and often provide essential information about its age.

Discovery as work progresses

Previously unidentified archaeological sites may be exposed during the course of forest activity, especially during soil preparation. Artefact scatters, objects such as pottery, stone and bronze axes, quern stones and flint artefacts, foundations of buried structures, burials, trackways, etc. which are uncovered at this stage should be left undisturbed and the relevant authorities (the National Museum of Ireland, the Garda Síochána and National Monuments and Historic Properties Service) notified immediately. A minimum exclusion zone of 20 m must be created until the site of the find has been investigated. Also, it is advisable to switch operations to some other part of the property until the investigation is complete.

The presence of a spread of black soil or charcoal and burnt and heat-shattered stone is likely to indicate the presence of a levelled fulacht fiadh or other human activity in the past.

NON-ARCHAEOLOGICAL SITES

Many of our more recent buildings and man-made structures are disappearing from the landscape. They are also records of our past and should be treated as if they were protected archaeological sites. These include old farmhouses, cottages and adjoining buildings, limekilns, deserted settlements and all types of mills and mill-races. Non-archaeological features, such as Mass paths, drovers routes, may bushes, Mass rocks, Mass bushes, pier and stone entrances, creamery stands, old street areas, stiles and townland boundaries, should have an exclusion zone, ideally 5 m wide. Where possible, stone walls should also be retained.

CONTACT DETAILS

The National Monuments Acts and Amendments 1930-1994 provide for penalties of fines and/or imprisonment for breaches of provisions. Forestry grants are also liable to be surrendered for breaches of any of the measures detailed in the FORESTRY AND ARCHAEOLOGY GUIDELINES.

National Museum of Ireland
Kildare Street, Dublin 2.
Tel. 01-6777444
Fax 01-6766116

National Monuments and Historic Properties Service
Dúchas The Heritage Service,
Department of the Arts, Heritage, Gaeltacht and the Islands,
51 St. Stephen's Green,
Dublin 2.
Tel. 01-6473000
Fax 01-6621767

County Museums and Libraries
Telephone numbers for County Museums and Libraries may be found listed under the relevant Local Authority in the telephone directory.

Heritage Officers and Conservation Officers
Heritage and Conservation Officers may be contacted through the relevant Local Authority. Many Local Authorities are now also employing archaeologists. Contact your Local Authority for further information.

Archaeology Departments
Archaeology departments may be contacted through the relevant university.

Archaeological Units and Companies
Contact numbers for archaeological units and companies may be located in the yellow pages of the telephone directory.

APPENDIX
A REVIEW OF ARCHAEOLOGICAL SITE TYPES

Ireland has an exceptionally rich and diverse range of archaeological sites. These date from the arrival of people to the island (about 9,000 years ago), through the beginnings of agriculture and the use of metal, to more recent remains such as churches, castles, mills and limekilns. Some of these are easily recognisable as upstanding monuments. Others have disappeared from the landscape and now only survive beneath the current ground surface.

Even where structures survive, they form only one part of the site. Much of the information about the day-to-day lives of the people, their culture, pastimes and rituals, lies buried beneath the ground. In many cases, the ruins of a monument serve as a reminder that other structures once existed close-by. For example, a castle might have had associated features such as an enclosing wall, or bawn, and other buildings which have long since disappeared. The people who cooked at fulachta fiadh (see below) may have lived close to the cooking site in huts which are no longer visible above ground. The foundations of these structures often lie obscured from view until they are disturbed through ploughing, digging, soil erosion or archaeological excavation.

Some sites were originally constructed of a perishable material, e.g. wooden houses and churches. Once the structure decays only the foundations remain below the modern surface. In some cases, the only remains will be in the form of artefacts.

Although countless sites have been completely levelled in the past, many of these still retain important information beneath the surface and are as valuable to the archaeological record as the monuments that are visible throughout the countryside. These will only be discovered through the vigilance and care of those working on the land. In all cases, such discoveries must be reported to the authorities.

A selection of the most common monuments is briefly described below. Further information and advice on archaeological sites can be obtained from any of the archaeological authorities listed in the FORESTRY AND ARCHAEOLOGY GUIDELINES.

Ringforts

Ringforts are the most widespread and distinctive field monument in Ireland. They appear as circular or roughly circular areas enclosed by earthen banks and fosses, or ditches. A ringfort can have as many as three enclosing banks, thereby increasing its defences. Levelled ringforts, however, may no longer have an obvious bank or ditch visible at ground level. In this form, they might only be recognisable as differential grass growth or as cropmarks in the vegetation visible only from the air.

The diameter of these monuments varies between 25-50 m. Archaeological excavation has shown that most ringforts were farmsteads built in Early Christian times (6th-10th centuries AD). The earthworks acted as a defence against wild animals or foe. In some cases, especially where there is more than one bank, the earthworks may have been a representation of the wealth or social status of the inhabitants. Ringforts are usually found on well-drained land and are also known as *raths* or *liosanna*.

Cashels

These are similar to ringforts, except that the surrounding bank is constructed from stone.

Souterrains

Souterrains (from the French words *sous*, meaning 'under', and *terre*, meaning 'earth') are underground chambers cut into the rock or earth and entered through a narrow opening at ground level. They are often found within ringforts or cashels and generally date from the Early Christian period. Some are thought to have been used as domestic storage places, while others might have been temporary habitations or refuges. These sites are often discovered when the ground collapses during bulldozing or ploughing, revealing a void in the ground where the roof of the chamber has caved in.

Hillforts

As the name implies, hillforts are large hilltop enclosures which were occupied. They date from the Later Bronze Age through to the Iron Age (approximately 700 BC-300 AD). Some examples have as many as three enclosing ramparts and cover an area of up to 15 ha. In many cases, their defences are now eroded or obscured from view by trees or vegetation, but traces of the enclosures can usually be seen from the air.

Fulachta fiadh

Fulachta fiadh, meaning 'the cooking pit of the deer', are ancient cooking places which survive as

The surviving ramparts of many hillforts are best viewed from the air.

small mounds of burnt and shattered stone and charcoal. A levelled fulacht fiadh will appear as a spread of black soil and heat-shattered stone. The cooking took place in a pit or trough dug into the ground and lined with stone, wood or clay. Water was boiled in the trough by adding stones heated in a nearby fire. Once used, these were then discarded around the trough, forming the characteristic horseshoe-shaped mound. Excavations have shown that most fulachta fiadh date to the Bronze Age (2,000-900 BC). Fulachta fiadh are often located in low-lying and/or boggy land, close to a water source. Over 4,500 examples are known and some of these occur in groups or have hut sites located nearby.

Ancient trackways or toghers

Ancient trackways or toghers, built of timber planks or logs bound together, are often uncovered during turf-cutting or peat extraction. They date back as far as 5,000 years and were usually laid down to provide a route across marshy or boggy land. Usually only small portions of the original length survive, but some examples are over 1 km long. The waterlogged anaerobic condition of bogland preserves organic material such as wood.

Ancient trackway exposed during excavation at Corlea Bog, Co. Longford.

Megalithic tombs

Megalithic derives its name from the Greek words *mega*, meaning 'large', and *lithos*, meaning 'stone'. These burial monuments are a characteristic feature of the Irish landscape, dating from the beginning of agriculture (Neolithic) to the Early Bronze Age (3,500-1,500 BC). There are four main types of monuments: court tombs, portal tombs, wedge tombs and passage tombs. All were constructed using large stones to form a burial chamber or chambers. They comprise walls of upright stones and a large capstone or corbel stones as a roof. The burials, whether inhumed or cremated, were placed in these chambers and were often accompanied by grave goods such as flint arrowheads and pottery vessels.

Megalithic tombs occur throughout the countryside, particularly in upland areas. In some cases they have been damaged and may appear as a heap of large stones. They can also lie hidden in bogland, only to be uncovered during drainage or peat extraction.

Megalithic tombs are often known locally as 'dolmens', 'the giant's grave' or 'Diarmuid and Gráinne's bed'. Such names indicate the presence of a megalithic tomb.

Megalithic tombs occur throughout the countryside and are particularly vulnerable to damage from forest operations.

Urn burial in stone cist.

Standing stones are usually associated with burial or ritual sites.

Other burial sites

Many prehistoric burial sites have no above-ground remains. These include a type of burial known as a cist grave. These are small stone-lined graves which contain the remains of either a cremated burial or an inhumed body. A pottery vessel may have been placed in the grave with the burial. Cist burials may be found in isolation or grouped together in a cemetery. A mound of stones (tumulus) is occasionally placed over the grave, but normally there are no surface indications of the grave.

Sometimes the burial ground is marked by a low circular bank 5-10 m in diameter, which is known as a ring-barrow. Other types of burials are urn burials, where cremated human bone was placed in a large pottery vessel (urn) and buried in the ground. Many of these cist and urn burials have no surface traces and are only discovered during ground disturbance.

Standing stones, stone circles and stone alignments

Upright stones arranged singly or in pairs, in lines of more than two, or in a circle, are commonly known as standing stones, stone alignments and stone circles. The stones themselves can vary from 50 cm to over 2 m in height. These monuments, while similar in appearance, may or may not date from the same period. Some mark ritual sites while others are burial markers or perhaps even territorial markers. Stone circles and alignments are often associated with ancient rituals and ceremonies.

Standing stones are also known as *galláns*, *dalláns*, *leachtanna* and long stones. In some cases it can be difficult to distinguish a single standing stone from naturally occurring stones or those which have been placed in modern times as scratching stones for cattle. Nonetheless, it is essential that they are left undisturbed and regarded as archaeological monuments until their status is confirmed by an archaeologist.

Rock art

Found on rock outcrops, small boulders or standing stones, rock art describes particular designs which were achieved through hammering or incising out decorative motifs with a stone point. The most common design is the cupmark, which is often enclosed by several circles. This art type is thought to date to the Bronze Age (2,000-900 BC).

Ogham stones

Ogham is a script comprising parallel lines and notches representing the Roman alphabet. It is possible that these stones were used as gravemarkers, inscription stones or territorial markers. The script appears on the vertical side of the stones and the incised lines usually spell out a person's name. The inscriptions are thought to have first appeared in the 2nd-3rd century AD.

Church sites and graveyards

Church sites date from as far back as the 5th century AD. The earlier churches were built of timber and therefore do not leave any traces on the ground. However, many of these were replaced by stone churches, most of which are now themselves destroyed or in ruins. Stone churches have a varying degree of survival, from grass-covered foundations to upstanding buildings. Earthen banks and ditches which enclosed many of the earlier churches often survive as curving field boundaries or cropmarks, some visible only from the air. Other associated features include burial grounds, holy wells and bullaun stones.

Burial grounds are usually found adjacent to or in the vicinity of churches. While they were originally associated with early churches, the old graveyards may have continued in use long after the church was abandoned. Some graveyards are known as *cillíní* or *ceallúnacha* and are recognised by rows of low uninscribed gravestones. Ancient monastic enclosures or disused ringforts were also used as graveyards.

Holy wells are often associated with ecclesiastical or monastic sites. The practice of visiting holy wells dates back to pagan times. The majority of holy wells are in fact springs which may now have stone or concrete surrounds and are often found in wooded areas.
Most of the wells are associated with having medicinal properties or cures. They may be the only visible evidence of a church site in the area.

Bullaun stones refer to man-made hollows or basins cut into rocks or rock outcrops. While their exact function is unknown, they are usually associated with early church sites. They sometimes have curative properties associated with them.

Medieval earthworks and buildings (12th-16th century)

The motte and bailey is one example of a medieval earthwork built in Early Anglo-Norman times, around the 12th century AD. They can still survive as a large flat-topped mound. The enclosure or 'bailey' would have housed a wooden tower and palisade. Moated sites were the farmsteads of the first Norman settlers in Ireland. These sites comprise a rectangular enclosing bank surrounded by a deep water-filled ditch. They were constructed for the same defensive purpose as mottes and baileys.

Post-medieval and industrial sites, like this limekiln, must also be protected.

Post-medieval buildings (1700-present)

Not all archaeological monuments are 'ancient', and many of our more recent buildings are disappearing from the landscape without ever having been studied or recorded. Post-medieval and relatively modern buildings of concern to the archaeologist include old farmhouses, cottages and their adjoining buildings, limekilns, deserted settlements and all types of mills and mill-races.

Townland boundaries and placenames

It is important to preserve and maintain townland boundaries as these may also have marked ancient land divisions. Townland and placenames are also significant as they can indicate the presence of archaeological sites in an area. *Lios*, *rath*, *dún* and *caiseal*, all meaning 'fort', often indicate that the townland was named after a ringfort or hillfort. For example, the townland of Rathgall, Co. Wicklow, was named after a large hillfort. *Cill*, *kil* and *teampall* can often indicate the existence of an ancient church, e.g. Kildare meaning 'church of the oak tree'. Also, placenames such as Knockainey, Co. Limerick (meaning the 'hill of Áine', a pagan goddess), and Knocksauna (meaning the 'hill of Samhain'), can be indicative of ancient sacred places.

Stone tools are sometimes the only obvious remains from prehistoric sites.

Artefact scatters

Archaeological artefacts will often be uncovered in the course of ground disturbance. Objects such as pottery, stone and bronze axes, quern stones and flint artefacts should not be disturbed once uncovered, as they may indicate an archaeological site in the area. The relevant authorities must be notified if any such discoveries are made, and the finding of objects reported to the National Museum of Ireland.

The Forest Service gratefully acknowledges the contribution of Rose M. Cleary, Archaeological Services Unit, Department of Archaeology, National University of Ireland, Cork, to the development of the FORESTRY AND ARCHAEOLOGY GUIDELINES, made through the preparation of a commissioned report. Copies of this report can be obtained from the Forest Service, Department of the Marine and Natural Resources, Leeson Lane, Dublin 2.

Photos: All photos Department of Archaeology, NUIC, except Barry Masterson (page 8) and Barry Raftery (page 9).

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