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**APPENDIX 12
Appropriate Assessment**

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South Tipperary County Council



South Tipperary County Council

Appropriate Assessment of the South Tipperary County Development Plan 2009-2015

Table of Contents

Executive Summary

Introduction 1

Methodology 2

Stage 1: Information Required 5

Stage 2: Impact Prediction 9

Stage 3: Conservation Objectives 10

Stage 4: Mitigation Measures 12

Outcomes 12

Appendices

Appendix 1: Screening Report

Appendix 2: Detailed description of the Natura 2000 sites

Appendix 3: Appropriate Assessment Report

Executive Summary

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) formed a basis for the designation of Special Areas of Conservation. Similarly, Special Protection Areas are legislated for under the Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds). Collectively, SACs and SPAs are referred to as Natura 2000 sites. In general terms they are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community.

Under Article 6(3) of the Habitats Directive an Appropriate Assessment must be undertaken for any plan or program that is likely to have a significant effect on the conservation objectives of a Natura 2000 site.

An Appropriate Assessment is an evaluation of the potential impacts of a plan on the conservation objectives of a Natura 2000 site, and the development, where necessary, of mitigation or avoidance measures to preclude negative effects. Principally the purpose of an Appropriate Assessment is to identify the possible effects of implementing a Plan on the conservation status of designated Natura 2000 sites within the Plan area.

The County Development Plan 2009-2015 has two main purposes, firstly to provide a framework of acceptable uses within the County, defining acceptable forms of development and where it should be directed and secondly to provide a detailed basis for the promotion and control of development. The County Development Plan 2009-2015 is therefore the guiding document for development within the county over a 6 years after the adoption of the Plan. In accordance with the Directive on Strategic Environmental Assessment (2001/42/EC), the plan has been subject to an environmental assessment. The assessment concluded that in broad terms the plan is likely to have a neutral impact on the environment.

The County contains a number of important habitats designated as either Special Areas of Conservation (SACs) or Special Protection Areas (SPA). These sites are:

- Special Areas of Conservation:
 - Galtee Mountains
 - Philipston Marsh
 - Anglesey Road
 - Lower River Suir
 - River Barrow and River Nore
 - Lower River Shannon
 - Blackwater River (Cork/Waterford)
 - Moanour Mountain

- Special Protection Areas:
 - Slievefelim to Silvermines Mountains

Through an evaluation of the sites conservation status, the principal threats to the long term conservation of the sites can be summarized as the following:

- Disturbance;
- Land drainage;
- Afforestation; and
- Water Quality.

It is primarily the responsibility of NPWS to ensure that designated sites are protected from significant damage through consultation and discussions with landowners. However the local authority regulates and controls development within its functional area and therefore a potential exists to adversely impact on Natura 2000 sites through inappropriate development either within or close to designated sites. Such development either in isolation or in combination with other similar developments can potentially lead to significant adverse impacts on the environment with long term consequences. Such impacts may be through direct habitat loss (rural housing, agricultural development, afforestation etc) or through point source emissions leading to a deterioration in water quality (proliferation of individual wastewater treatment facilities, inappropriate industrial development, intensification of agricultural use etc).

Furthermore the local authority provides sanitation services such as waste water treatment within its functional area. The implementation of the County Development Plan 2009-2015 and the planned increased in population will increase the loading on the existing wastewater infrastructure. In the absence

of adequate treatment discharges from such plants can potentially increase the nutrient loading on receiving waters with direct, long term and adverse consequences for the aquatic environment.

It is therefore reasonably concluded that the implementation of the County Development Plan 2009-2015 has the potential to cause long term, direct and indirect adverse impacts on the protection and conservation of Natura 2000 sites. However during the preparation of the County Development Plan careful consideration was given to the protection of Natura 2000 sites and following implementation of the proposed mitigation measures, the potential impact will be lessened or indeed eliminated where practical.

For example a comprehensive set of policies and objectives are contained within the plan which are aimed specifically at protecting the rich and diverse natural environment within the County Development Plan area. Principally however the Council has provided specific policy in relation to the protection and preservation of sites of ecological interest, whether aquatic or terrestrial. Policy AEH 6 states:

It is the policy of the Council to maintain the quality of designated environmental sites and when assessing proposals will provide for the protection, conservation and enhancement of wildlife habitats and designated sites.

The Appropriate Assessment has shown that there is a potential for adverse impacts on the integrity of NATURA 2000 sites as a result of the South Tipperary County Development Plan 2009-2015. However, the measures that have been formulated and proposed for inclusion in the Development Plan, as set out above, and including in particular policy AEH6, mitigate this potential, provided that upon adoption they are fully implemented and adhered to as Council policy. Thus, the plan, which includes the mitigation measures, will not adversely affect the integrity of any NATURA 2000 site.

Introduction

The preservation, protection and improvement of the quality of the environment, including the conservation of natural habitats and wild fauna and flora, are essential objectives of general interest pursued by the European Union.

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) formed a basis for the designation of Special Areas of Conservation. These sites are afforded protection because of their habitat type or the presence of important flora or fauna species. The aim of the Directive is to ensure the long term protection and conservation of the biodiversity within each site.

Similarly, Special Protection Areas are legislated for under the Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds). Primarily the Directive seeks to protect wild bird species, both Annex 1 and regularly occurring migratory species through the conservation of their natural habitats.

Collectively, SACs and SPAs are referred to as Natura 2000 sites. In general terms they are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community.

Appropriate Assessment

Under Article 6(3) of the Habitats Directive an Appropriate Assessment must be undertaken for any plan or program that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. Article 6 paragraph 3 states:

Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

In summary, an Appropriate Assessment is an evaluation of the potential impacts of a plan on the conservation objectives of a Natura 2000 site, and the development, where necessary, of mitigation or avoidance measures to preclude negative effects. Principally the purpose of an Appropriate Assessment is to identify the possible effects of implementing a Plan on the conservation status of designated Natura 2000 sites within the Plan area.

In a situation where it is not possible to fully demonstrate that adverse effects on the site integrity would occur, options must be explored so that any risk of damaging designated sites is avoided. Where avoidance is not possible, it is recommended that mitigation measures should be examined which compensate for any negative effects likely to occur, whether directly or indirectly.

South Tipperary County Council has prepared a Development Plan for implementation over the period 2009-2015 for the County. In accordance with Article 6(3) of the Habitats Directive, South Tipperary County Council is undertaking an Appropriate Assessment of the effect of the implementation of the County Development Plan 2009-2015 on Natura 2000 sites. Furthermore a Strategic Environmental Assessment (SEA) has been conducted in order to assess the environmental effects of the Plan's implementation. This report should be read in conjunction with the SEA Environmental Report.

Methodology

This Appropriate Assessment for the County Development Plan 2009-2015 has been prepared in accordance with "Assessment of Plans and Projects significantly affecting Natura 2000 Sites – Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC" published in 2001. Regard has also been had to the following:

- Circular Letter SEA 1/08 & NPWS 1/08 (Department of the Environment, Heritage and Local Government);
- The Status of EU Protected Habitats and Species in Ireland (National Parks and Wildlife Service 2008);
- Environment in Focus (Environmental Protection Agency 2007).

There are four distinct stages to undertaking an Appropriate Assessment as outlined in current EU guidance and these have been applied to the Assessment for the County Development Plan 2009-2015. They are:

1. Screening;
2. Appropriate Assessment;
3. Assessment of Alternatives; and
4. Where no alternatives exist, an assessment of compensatory issues.

Stage 1: Screening

This stage examines the likely effects the County Development Plan 2009-2015, either alone or in combination with other projects or plans, upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not be significant. This assessment comprises 4 steps:

- 1) Determining whether the County Development Plan 2009-2015 is directly connected with or necessary to the management of the site;
- 2) Describing the County Development Plan 2009-2015 and the description and characterisation of other projects or plans that in combination have the potential for a having significant effects on Natura 2000 sites;
- 3) Identifying the potential effects on the Natura 2000 site; and
- 4) Assessing the significance of any effects on the Natura 2000 site.

The approach adopted during the screening stage has been to apply the precautionary principle and it was determined, based on the extent of the plan area and the nature of the plan, an Appropriate Assessment is necessary. Furthermore the EU guidance states if a plan "*to which the SEA directive applies, then the 'significance' used to screen EIS or SEA plans is likely to also screen projects for an appropriate assessment*". Under Irish Guidelines on Strategic Environmental Assessments, an SEA is mandatory for all County Development Plans. Therefore by applying the guidance above it was decided to prepare this Appropriate Assessment of the County Development Plan 2009-2015. The Screening Report is included as Appendix 1 to this report.

Stage 2: Appropriate Assessment

The second stage is the Appropriate Assessment and under EU guidance there are four key steps, and while being interlinked, require a subjective individual appraisal to ensure each section is fully developed in the required context. They are:

- a) Information required;
- b) Impact prediction;
- c) Conservation objectives; and
- d) Mitigation measures

Information Required

The first step in this assessment is to identify the conservation objectives of the sites and to identify those aspects of the County Development Plan 2009-2015 (alone or in combination with other plans) that will affect those objectives. These objectives have been compiled from standard data sheets obtained from the NPWS.

Impact Prediction

The elements that make up the ecological structure and function of a site are not easily measured, therefore predicting the likely impacts of the County Development Plan 2009-2015 on a Natura 2000 site

can be difficult. EU guidance recommends that predicting impacts should be done within a structured framework and completed as objectively as possible. Thus the type of impacts must be identified and presented as direct and indirect effects; short to long term effects; construction, operational and decommissioning effects; and isolated, interactive and cumulative effects.

Conservation Objectives

Once the effects of the County Development Plan 2009-2015 have been identified or predicted, it is necessary to assess whether there will be adverse effects on the integrity of the site as defined by the conservation objectives and status of the site. The precautionary principle ensures the focus of the assessment is undertaken objectively; demonstrating where applicable that there will be no impact on the integrity of Natura 2000 sites and where this cannot be demonstrated a finding of a resultant adverse impact must be assumed. Where information is unavailable it is advised to assume a negative or adverse impact will result. Furthermore where it cannot be demonstrated that there will be no adverse effects on the site, it is necessary to devise mitigation measures to avoid, where possible, any adverse effects.

Mitigation Measures

Mitigation measures must be assessed against the adverse effects the County Development Plan 2009-2015 is likely to cause, either alone or in combination with other plans. The onus is on the local authority to determine the level of mitigation required, taking account of suggestions from the NPWS as well as others with environmental mandates. The aim of the mitigation measures is to aspire to the top of the mitigation hierarchy, i.e. avoidance at source. To assess the mitigation measures, the Guidelines state the following tasks must be completed:

- list the measures to be introduced;
- explain how the measures will avoid the adverse impacts on the site; and
- explain how the measures will reduce the adverse impacts on the site.

Furthermore for each of the listed mitigation measures the following should be provided:

- Evidence of how they will be secured and implemented and by whom;
- Evidence of the degree of confidence in their likely success;
- Timescale relative to the plan and how they will be implemented; and
- Evidence of how the measures will be monitored, and, should mitigation failure be identified, how that failure will be rectified.

(This report assesses the implementation of the County Development Plan 2009-2015 on Natura 2000 to this stage of the process – the following stages are to be undertaken and completed, where appropriate in due course).

Outcomes

Following the completion of the appropriate assessment, it is considered best practice to produce an appropriate assessment report which:

- describes the County Development Plan 2009-2015 in sufficient detail for the public to understand its size, scale and objectives;
- describes the baseline conditions of the Natura 2000 site;
- identifies the adverse effects of the plan on the Natura 2000 site;
- Explains how those effects will be avoided through mitigation; and
- Sets out a timescale and identifies the mechanisms through which the mitigation measures will be secured, implemented and monitored.

Following the consultation period, and despite the application of mitigation measures, if the competent authority considers that residual adverse impacts remain, then the plan may not proceed until Stage 3 assessment has been completed and it has objectively concluded that there is an absence of alternative solutions.

Stage 3: Assessment of Alternative Solutions

This stage examines ways of implementing the plan so that, where possible any adverse impacts on the integrity of the Natura 2000 sites can be avoided. Before a plan can proceed it must be objectively concluded that no alternative solutions exist. It rests with the competent authority to make the necessary comparisons between these alternative solutions. Importantly economic criteria cannot over rule ecological sensitivities. The examination of alternative solutions requires therefore that the conservation objectives of the Natura 2000 site will outweigh any consideration of costs, delays or other aspects of an alternative solution.

There are two steps to this aspect of the assessment process.

Step 1: Identifying alternative solutions.

Step 2: Assess alternative solutions

This Stage 3 will be invoked where adverse impacts are noted and cannot be mitigated against.

Stage 4: Where no alternatives exist, an assessment of compensatory issues.

Provision is made in the Directive to consider compensatory measures where it is clearly established and demonstrated that a specific proposal is required in the overriding public interest. This stage will only be required where no alternative, as discussed in Stage 3, can be found.

Stage 1: Information Required

Information about the County Development Plan 2009-2015

Characteristics of the County Development Plan 2009-2015

Under the Planning and Development Act, 2000, each planning authority must prepare a development plan for its functional area every 6 years. The County Development Plan will be the new statutory plan for the South Tipperary area for the period 2009-2015.

The plan has two main purposes, firstly to provide a framework of acceptable uses within the County, defining acceptable forms of development and where it should be directed and secondly to provide a detailed basis for the promotion and control of development. The County Development Plan is therefore the guiding document for development within the county over the next 6 years.

Area of the Plan

South Tipperary lies within Munster and is bounded by the Counties of Waterford, Kilkenny, Cork and Limerick. The area covers some 2,258km² (872 square miles).

Specifications of the Plan

The plan outlines the local authority's policies and objectives for a suite of issues including:

- Economy;
- Infrastructure;
- Location and pattern of development;
- Water services;
- Amenity, Heritage and Environment;
- Social and community.

Characteristics of other approved plans which may cause interactive or cumulative impacts

South Tipperary shares its boundary with a number of midland counties as noted above. Furthermore a number of Natura 2000 sites are located in more than one county. Similar development plans are in existence throughout the region, accordingly these plans acting alone or in combination can have a cumulative impact on Natura 2000 sites located within South Tipperary.

Planned or contemplated nature conservation initiatives

The Minister for the Environment, Heritage and Local Government is currently co-ordinating the development of Ireland's 2nd National Biodiversity Plan. The preparation and implementation of the Plan will be the responsibility of a range of Government Departments and Agencies. The production of national biodiversity strategies is an obligation under the Convention on Biological Diversity, which Ireland ratified in 1996. Ireland produced the first National Biodiversity Plan in 2002, to meet this commitment and the new Plan will seek to build on the progress achieved since 2002.

Furthermore a series of River Basin Management Plans are currently being prepared and are due for publication later this year. South Tipperary is located within 3 such districts, South Eastern, the Shannon and the South Western share region. The Plans are likely to have far reaching consequences for water management and protection of resources throughout the country.

Relationship between the plan and the Natura 2000 sites

The County contains a number of important habitats designated as either Special Areas of Conservation (SACs) or Special Protection Areas (SPA). The location and distribution of these sites is shown on Figures 1 and 2.

These sites are:

- Special Areas of Conservation:
 - Galtee Mountains
 - Philipston Marsh
 - Anglesey Road

- Lower River Suir
 - River Barrow and River Nore
 - Lower River Shannon
 - Blackwater River (Cork/Waterford)
 - Moanour Mountain
- Special Protection Areas:
 - Slievefelim to Silvermines Mountains

The information requirements of the authorisation body

In accordance with the Directive on Strategic Environmental Assessment (2001/42/EC), the plan has been subject to an environmental assessment. The assessment concluded that in broad terms the plan is likely to have a neutral impact on the environment.

Information about the sites

This aspect of the assessment has been prepared using existing and available information from the National Parks and Wildlife Service. Where possible, and in accordance with the EU guidelines, the following aspects have been addressed for each site:

- Reasons for site designation
- Conservation objectives of the site
- Baseline condition of the site
- Key attribute of any Annex 1 habitats of Annex II species
- Physical and chemical condition of the site
- Dynamics of the habitats, species and their ecology
- Aspects of the site sensitive to change
- Structural and functional relationships that create and maintains the site's integrity
- Seasonal influences
- Other conservation issues.

Given the importance to the Conservation Objectives of each site these are summarised at the end of this section. Full and detailed descriptions of each of the sites are provided in Appendix 2.

Galtee Mountains SAC- Site Code: 000646

Situated in east Limerick and South Tipperary, the Galtee Mountains are Ireland's highest range of inland mountains. Heath is the main habitat type with both dry heath and alpine heath found within the site. Upland Mat-grass (*Nardus stricta*) grassland occurs on steep slopes, particularly in the west. Blanket bog is more localised and occurs mainly at high altitudes. The north-facing cliffs are of primary importance as they support arctic-alpine communities with some rare plant species. The Rare Small-white orchid (*Pseudorchis albida*), Mountain Rock-cress (*Cardaminopsis petraea*) and Alpine Saw-wort (*Saussurea alpina*) have been recorded from the site. These species are included in the Red Data Book and the former are legally protected under the Flora Protection Order (1987). Other typical mountain plants are also found on the site. The site also supports breeding Peregrine, a species listed on Annex I of the EU Birds Directive. Overgrazing by sheep, Afforestation and frequent burning are considered significant threats to some areas of heath and grassland.

Philipston Marsh SAC- Site Code: 001847

Philipston Marsh is a small marsh near Philipston House, south of Cappagh White in Co. Tipperary. It represents one of only two examples of calcareous fen and mire vegetation in the Mulkear River catchment and is thus a rare habitat in this locality. Philipston Marsh is a candidate SAC for the presencer of the transition mire, a habitat listed on Annex I of the E.U. Habitats Directive. This area supports a species-rich mosaic of fen and transition mire plant communities, amongst which are found several uncommon species, including Broadleaved Cottongrass (*Eriophorum latifolium*), Marsh Helleborine (*Epipactis palustris*), Fen Bedstraw (*Galium uliginosum*), Lesser Tussock-sedge (*Carex diandra*) and Longstalked Yellow-sedge (*C. lepidocarpa*).

Anglesey Road SAC- Site Code: 002125

Anglesey Road is a steep-sided valley which extends approximately 1.8 km along the Multeen River to the north of Hollyford village. Among the common grasses are Bents (*Agrostis* spp.), Crested Dog's-tail (*Cynosurus cristatus*), Sheep's Fescue (*Festuca ovina*) and Wavy Hair-grass (*Deschampsia flexuosa*). On the steep valley sides and in stream gullies scrub comprised of Willow (*Salix* spp.), Downy Birch (*Betula pubescens*), Rowan (*Sorbus aucuparia*), Hazel (*Corylus avellana*), Hawthorn and Ash (*Fraxinus excelsior*) have developed. Anglesey Road is of particular importance for the good quality examples of species rich, unimproved upland grassland found. This habitat is becoming increasingly rare in Ireland and Europe and is listed on Annex I of the EU Habitats Directive.

Lower River Suir SAC- Site Code: 002137

This site consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal influences extend as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford and many tributaries including Clodiagh in Co. Tipperary. The site is a candidate SAC selected for the presence of the priority habitats on Annex I of the E.U. Habitats Directive - alluvial wet woodlands and Yew Wood. The site is also selected as a candidate SAC for floating river vegetation, Atlantic salt meadows, mediterranean salt meadows, old oak woodlands and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The following species are listed on Annex II of the directive are also present - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon and Otter. The legally protected (Flora (Protection) Order, 1999) Meadow Barley (*Hordeum secalinum*) and Opposite-leaved Pondweed (*Groenlandia densa*) also occur within the site. The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), and Otter (*Lutra lutra*). This is one of only three known spawning grounds in the country for Twaite Shad. Parts of the site have also been identified as of ornithological importance for a number of Annex I (EU Birds Directive) bird species, including Greenland White-fronted Goose, Golden Plover, Whooper Swan, and Kingfisher.

River Barrow and River Nore SAC- Site Code: 002162

This site consists of the freshwater stretches of the Barrow/Nore River catchments as far upstream as the Slieve Bloom Mountains and it also includes the tidal elements and an estuary. The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter, *Vertigo moulinsiana* and the plant Killarney Fern. This is the only site in the world for the hard water form of the Pearl Mussel *M. m. durrovensis* and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) also occurs in estuarine stretches of the site. The site is of ornithological importance for a number of E.U. Birds Directive Annex I species including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bartailed Godwit, Peregrine and Kingfisher. The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable.

Lower River Shannon SAC- Site Code: 002165

The Lower River Shannon SAC extends for some 120 km from Killaloe to Loop Head/ Kerry Head. The site includes the Shannon, Feale, Mulkear and Fergus Estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The site has been selected as a SAC for the presence of lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on

Annex II of the same directive – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic Salmon and Otter. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country.

Blackwater River (Cork/Waterford) SAC - Site Code: 002170

The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. The extent of the Blackwater and its tributaries in this site flows through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. The site is a candidate SAC selected for alluvial wet woodlands and Yew wood, both priority habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, estuaries, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, perennial vegetation of stony banks and old Oak woodlands, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter and the plant, Killarney Fern. Several important Habitats Directive Annex II animal species are also present, including Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*L. fluviatilis*), Twaite Shad (*Alosa fallax fallax*), Freshwater Pearl-mussel (*Margaritifera margaritifera*), Otter (*Lutra lutra*) and Salmon (*Salmo salar*). The Awbeg supports a population of White-clawed Crayfish (*Austropotamobius pallipes*). This threatened species has been recorded from a number of locations and its remains are also frequently found in Otter spraints, particularly in the lower reaches of the river. Several bird species listed on Annex I of the E.U. Birds Directive are found on the site, including Long-eared Owl and Barn Owl.

Moanour Mountain SAC- Site Code: 002257

Situated approximately 7 km south west of Tipperary town, this site lies on the north-western slope of Moanour Mountain, an outlying ridge of the Galtee Mountains. It lies entirely above the 220 m contour line, with a maximum height of 335 m. The site represents probably the only part of this mountainous ridge that retains semi-natural vegetation, the remainder having been afforested. The lower western part of the site is dominated species-rich *Nardus* grassland, a habitat that is listed on Annex I of the E.U. Habitats Directive with priority status. This is characterised by the presence of Heath Bedstraw (*Galium saxatile*), Sheep's Fescue (*Festuca ovina*), Tormentil (*Potentilla erecta*) and Mat Grass (*Nardus stricta*), as well as such species as Common Bent (*Agrostis capillaris*), Greenribbed Sedge (*Carex binervis*) and Pill Sedge (*C. pilulifera*). Bryophytes are well represented, with a range of bog mosses (*Sphagnum capillifolium*, *S. cuspidatum*, *S. compactum*). At the summit of Moanour Mountain, the wet heath habitat grades in places to shallow blanket bog.

Slievefelim to Silvermines Mountains SPA - Site Code: 004165

The Slievefelim to Silvermines Mountains SPA is an extensive upland site located in Counties Tipperary and Limerick. Much of the site is over 200 m in altitude and rises to 694 m at Keeper Hill. The site consists of a variety of upland habitats, though approximately half is afforested. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). Roughly one-quarter of the site is unplanted blanket bog and heath, with both wet and dry heath present. The remainder of the site is mostly rough grassland that is used for hill farming. The site is of special conservation interest for Hen Harrier. This SPA is one of the strongholds for Hen Harrier in the country. A survey in 2005 resulted in four confirmed breeding pairs and one possible breeding pair, whereas nine pairs had been recorded in the 1998-2000 period. These numbers represent 3% of the national total. The site is also a traditional breeding site for a pair of Peregrine. Red Grouse are found on some of the unplanted areas of bog and heath. The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity. Overall, the site provides excellent nesting and foraging habitat for breeding Hen Harrier and is among the top five sites in the country for the species.

Stage 2: Impact Prediction

Through an evaluation of the sites conservation status from information obtained from the National Parks and Wildlife Service, the principal threats to the long term conservation of the sites can be summarized as the following:

- Disturbance;
- Land drainage;
- Afforestation; and
- Water Quality.

It is primarily the responsibility of NPWS to ensure that designated sites are protected from significant damage through consultation and discussions with landowners. Where a landowner is considering making changes that might affect a wildlife habitat in a designated area, he/she must consult the local conservation ranger beforehand. Such activities are known as 'Notifiable Actions' and are actions or operations that might be damaging to protected sites and can only be carried out with the permission of the Minister for the Environment, Heritage and Local Government.

Issues of land use practices within protected areas is therefore an issue for the National Park and Wildlife Service, in conjunction with other state departments and agencies such as the Department of Agriculture, Fisheries and Food and the Forest Service for example. Therefore in a broad sense the threats identified above are outside the direct control of the local authority.

However the local authority regulates and controls development within its functional area and therefore a potential exists to adversely impact on Natura 2000 sites through inappropriate development either within or close to designated sites. Such development either in isolation or in combination with other similar developments can potentially lead to significant adverse impacts on the environment with long term consequences. Such impacts may be through direct habitat loss (rural housing, agricultural development, afforestation etc) or through point source emissions leading to a deterioration in water quality (proliferation of individual waster water treatment facilities, inappropriate industrial development, intensification of agricultural use etc).

Furthermore the local authority provides sanitation services such as waste water treatment within its functional area. The implementation of the County Development Plan 2009-2015 and the planned increased in population will increase the loading on the existing wastewater infrastructure. In the absence of adequate treatment discharges from such plants can potentially increase the nutrient loading on receiving waters with direct, long term and adverse consequences for the aquatic environment.

It is therefore reasonably concluded that the implementation of the County Development Plan 2009-2015 has the potential to cause long term, direct and indirect adverse impacts on the protection and conservation of Natura 2000 sites. Given this result it is necessary for the local authority to propose and implement adequate mitigation measures to counteract this finding.

Stage 3: Conservation Objectives

The conservation objectives for each of the Natura 2000 sites is provided in the table below. The objectives are based on the overall conservation value of the individual sites.

Special Areas of Conservation		Conservation Objectives
Site Code: 000646	Galtee Mounatins	To ensure there is no net loss of area or change to the structure, biodiversity or distribution pattern of the highly sensitive communities within the site. To ensure the legal protection of those plant species protected under the Flora Protection Order (1987).
Site Code: 001847	Philipston Marsh	To ensure there is no net loss of area or change to this transition mire, its abundant marl plant community and biodiversity.
Site Code: 002125	Anglesey Road	To ensure there is no net loss of area or change to the unimproved upland grassland (Annex I habitat); its structure and its microhabitats.
Site Code: 002137	Lower River Suir	To ensure there is no net loss of area or change to the structure, biodiversity or distribution pattern of the highly sensitive communities within the site. To ensure the conservation of Annex I habitats and Annex II species present. To ensure the legal protection of those plant species protected under the Flora Protection Order (1987) and to protect species found within the Red Data Book of threatened species.
Site Code: 002162	River Barrow and River Nore	To ensure there is no net loss of area or change to the structure, biodiversity or abundance of various habitats within the site. To ensure the legal protection of those plant species protected under the Flora Protection Order (1987). To ensure the conservation of Annex I habitats and Annex II species present and to protect species found within the Red Data Book of threatened species.
Site Code: 002165	Lower River Shannon	To ensure there is no net loss of area or change to the structure, biodiversity or distribution pattern of the highly sensitive communities within the site. To ensure the conservation of Annex I habitats and Annex II species present. To protect species found within the Red Data Book of threatened species.
Site Code: 002170	Blackwater River	To ensure there is no net loss of area or change to the structure or biodiversity within the site.
Site Code: 002257	Moanour Mountain	To ensure there is no net loss of area or change to the Annex I habitat, the <i>Nardus</i> grassland, its abundant plant community and biodiversity.
Special Protection Areas		
Site Code: 0004165	Slievefelim to Silvermines Mountains	To ensure there is no net loss of area or change to the structure or biodiversity within the site and the retention and protection of the nationally important bird species (Hen Harrier, Peregrine, Merlin and Red Grouse).

Following the establishment of the conservation objectives of the sites an assessment of the potential impact on the integrity of the sites is undertaken. For the purposes of simplification each site has been assessed individually, however the findings are grouped to form one 'Integrity Checklist'. This is presented below.

Integrity of site checklist (Box 10 of the Guidelines)	
Conservation objectives	
<i>Does the project or plan have the potential to:</i>	Yes/No
Cause delays in progress towards achieving the conservation objectives of the site?	No
Interrupt progress towards achieving the conservation objectives of the site?	No
Disrupt those factors that help to maintain the favourable conditions of the site?	Yes
Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?	Yes
Other indicators	
<i>Does the project or plan have the potential to:</i>	
Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?	Yes
Change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?	Yes
Interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?	Yes
Reduce the area of key habitats?	Yes
Reduce the population of key species?	Yes
Change the balance between key species?	Yes
Reduce diversity of the site?	Yes
Result in disturbance that could affect population size or density or the balance between key species?	Yes
Result in fragmentation?	Yes
Result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?	Yes

In conclusion it can be shown, using the precautionary principle, that the implementation of the County Development Plan 2009-2015 has the potential to adversely impact on the integrity of the Natura 2000 sites. The potential exists to;

- reduce the area of Natura 2000 sites by loss or fragmentation through inappropriate or insensitive development;
- cause fundamental and deleterious changes in the chemistry of the soil and water environment;
- interfere with water flows and flood dynamics; and
- create unnecessary disturbance through inappropriate development with adverse effects on fauna species.

Stage 4: Mitigation Measures

At the outset of the County Development Plan's preparation it was recognized that the protection and future conservation of designated sites under EU legislation would be an important issue for the Local authority to address, both directly and indirectly. Furthermore the Strategic Environmental Assessment restated the need and importance to protect these sites in the long term interests of sustainability.

As a result a comprehensive set of policies and objectives are contained within the plan which are aimed specifically at protecting the rich and diverse natural environment within the County Development Plan area.

In accordance with EU guidelines a 'Mitigation Measures' table has been prepared outlining;

- o the measures proposed;
- o how the measures will avoid or reduce the adverse effects on the integrity of the sites; and
- o how and by whom they will be implemented.

Principally however the Council has provided specific policy in relation to the protection and preservation of sites of ecological interest, whether aquatic or terrestrial. Policy AEH 6 states:

It is the policy of the Council to maintain the quality of designated environmental sites and when assessing proposals will provide for the protection, conservation and enhancement of wildlife habitats and designated sites.

For the purposes of this assessment a detailed table of measures are proposed and provided in the attached table. Furthermore an assessment of the degree of confidence in their likely success, the timescale for implementation and the monitoring of their implementation is also provided in accordance with the Habitats Directive.

Outcomes

The Appropriate Assessment has shown that there is a potential for adverse impacts on the integrity of Natura 2000 sites as a result of the South Tipperary County Development Plan 2009-2015. However, the measures that have been formulated and proposed for inclusion in the Development Plan, as set out above, and including in particular policy AEH6, mitigate this potential, provided that upon adoption they are fully implemented and adhered to as Council policy. Thus, the plan, which includes the mitigation measures, will not adversely affect the integrity of any Natura 2000 site.

Mitigation Measures - Part A

No:	List measures to be introduced.	Explain how the measures will avoid the adverse effects on the integrity of site.	Explain how the measure will reduce the adverse effects on the integrity of the site	Provide evidence of how they will be implemented and by whom
1	<p>AEH 9 Waste Water Treatment and Disposal: It is the policy of the Council to implement the Urban Waste Water Regulations, the relevant River Basin Management Plans and EU requirements, and will take account of the drainage system and the quality and quantity of receiving waters in the area when assessing development proposals. Proposals will be required to comply with the development management standards set out in Chapter 9 of the County Development Plan</p>	If it cannot be shown conclusively that the criteria outlined in this objective cannot be met, planning permission will not be forthcoming. In the medium to long term this will result in improved water quality.	NA	This will be implemented by the Local authority through the planning consent process.
2	<p>INF5 Water Supply and Waste Water: It is the policy of the Council to facilitate the provision and upgrading of the water supply and sewerage schemes throughout the county in accordance with the settlement strategy identified in Chapter 3 and as finances permit and will require;</p> <ul style="list-style-type: none"> • Proposed developments to connect to the public water mains and public sewers where available or likely to be available. • Financial contributions in accordance with the Development Contribution Scheme for water services from developers towards existing and/or future developments. • Bonds to be submitted by developers to ensure the satisfactory completion and maintenance of water services infrastructure until such time as the Council takes them in charge. 	NA	Upgrading of treatment works will result in a reduction in the nutrient loading on receiving waters. This will benefit the receiving environment and the biodiversity associated with riverine systems.	This will be implemented by the Local authority through the planning consent process.
3	<p>INF6 Surface Water: The Council will seek the implementation of rainwater harvesting, SUDS and best practice guidance for the collection and reuse or disposal and treatment of surface water. Such systems will be required to conserve water, protect water quality and regulate the rate of surface water runoff so as not to cause or exacerbate flooding on the relevant site or elsewhere.</p>	NA	The regulation and control of runoff will have beneficial consequences for the receiving environment such as rivers and streams. Such measures will restrict sediment movement with positive results in terms of turbidity and eutrophication of the receiving waters.	This will be implemented by the Local authority through the planning consent process and any upgrading works proposed to the sewer network during the lifetime of the plan.

Mitigation Measures - Part A

No:	List measures to be introduced.	Explain how the measures will avoid the adverse effects on the integrity of site.	Explain how the measure will reduce the adverse effects on the integrity of the site	Provide evidence of how they will be implemented and by whom
4	INF7 Flood Risk Assessment: The Council will require a comprehensive Flood Risk Assessment for proposals in an area at risk of flooding, adjoining same or where cumulative impacts may result in a flood risk elsewhere.	Flooding is a natural process and the biodiversity of floodplains relies on seasonal flooding. Restricting the development of floodplains will ensure the long term preservation of such sensitive sites.	NA	The development control process is the principal mechanism for ensuring the implementation of this objective.
5	INF15 Agricultural Waste: The Council will require all agricultural organic waste to be recovered by landspreading and will seek improvement in the management of all agricultural organic waste by requiring the provision of a satisfactory nutrient management plan where intensive agricultural development is proposed.	The proper management and storage of agricultural waste will result in a reduction in nutrient runoff both to surface and groundwater systems. The result will be an improvement in overall water quality.	NA	This will be implemented by the local authority working with the Department of Agriculture, Food and Fisheries.
6	AEH7 Water Environment: It is the policy of the Council to preserve an undisturbed edge or buffer zone between new developments and river corridors and other water bodies in order to maintain the natural functions of existing ecosystems and to encourage increased public access and enhance water-related recreation opportunities.	NA	Maintaining appropriate buffer zones will prevent undue disturbance to river corridors with benefits to wildlife and also limiting the potential for sediments to migrate into the	This will be implemented by the Local authority and the NPWS.
7	AEH8 Groundwater Protection: It is the policy of the Council to protect groundwater resources and drinking water catchments having regard to the South Tipperary Ground Water Protection Scheme 1998 (as amended) and Environmental Protection Agency guidelines applicable at the time.	Groundwater resource protection will have long term benefits both for the resource and the base flow of surface water systems.	NA	Groundwater contamination can arise through a number of activities such as poorly operating waste water treatment facilities, and inappropriate landspreading of waste. Such measures have been discussed above, the planning authority will control the proliferation of individual treatment facilities through the planning process.

Mitigation Measures - Part A

No:	List measures to be introduced.	Explain how the measures will avoid the adverse effects on the integrity of site.	Explain how the measure will reduce the adverse effects on the integrity of the site	Provide evidence of how they will be implemented and by whom
8	ECON12 Extractive Industry: The Council will support sustainable extractive industries where such operations ensure that existing environmental quality and amenity is protected and which comply with the development management standards of the County Development Plan.	NA	The extraction of materials from beneath the earth's surface can lead to localised environmental issues. However through the implementation of appropriate measures as outlined in EPA and Department Guidelines such problems can be reduced significantly.	The Department Guidelines provide an extensive checklist for the assessment of quarry proposals. The local authority will comply and expect prospective applicants to comply with these guidelines.
9	AEH14 South Tipperary Heritage Plan: It is the policy of the Council to implement the key objectives and associated actions identified in the South Tipperary Heritage Plan 2004-2008 and any revision thereof.	The implementation of the Heritage Plan will ensure better understanding of the natural and built environment with long term benefits to the County.	NA	The implementation of these objectives will assist and provide for a more detailed understanding of the natural heritage within the county, particularly its variety and spatial distribution throughout the county. This information will become invaluable in assessing applications for development in the future.
	SEAH01: As opportunities arise, the Council will develop a database of heritage assets throughout the County.	The development of a database of heritage assets in the county will assist in ensuring the long term protection of those assets.	NA	
10	DM1 Development Standards: It is the policy of the Council to require all development to comply with the relevant standards identified in Chapter 9 Development Management of the County Development Plan.	The implementation of development standards can only serve to benefit the environment and will assist the local authority in achieving sustainable development within the county.	Na	The local authority have produced a comprehensive set of development standards, the adherence to which will have benefits for the environment and will assist the local authority in achieving sustainable development throughout the lifetime of the plan.

Mitigation Measures - Part B

List mitigation measures (Part A)	Provide evidence of the degree of confidence in their likely success	Provide timescale, relative to the project or plan, when they will be implemented	Explain the proposed monitoring scheme and how any mitigation failure will be addressed
1	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is likely to succeed is good -high.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.
2	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is likely to succeed is good -high.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.
3	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is likely to succeed is good -high.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.
4	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.
5	The likely of this objective been achieved is good.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.
6	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is likely to succeed is good -high.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.
7	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is likely to succeed is good -high.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.
8	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is likely to succeed is good -high.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.

Mitigation Measures - Part B

List mitigation measures (Part A)	Provide evidence of the degree of confidence in their likely success	Provide timescale, relative to the project or plan, when they will be implemented	Explain the proposed monitoring scheme and how any mitigation failure will be addressed
9	The likely of this objective been achieved is good to high, the local authority will continue to work with the NPWS to achieve this objective.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	The local authority will undertake habitat mapping of the county, finances permitting during the lifetime of the plan. This will allow for monitoring of this aspect of the plan.
10	The planning consent process allows for the control of development which may impact negatively on the resources within the county. The degree of confidence which this is likely to succeed is good -high.	This will be carried out for a 6 year period, commencing on adoption of the Plan.	Monitored through the planning application process.

Appendices

Appendix 1

Screening Report

1. Description of the plan

The County Development Plan will be the new statutory plan for the sustainable development of South Tipperary from 2009-2015. The plan has two main purposes, firstly to provide a framework of acceptable uses within the County, defining acceptable forms of development and where it should be directed and secondly to provide a detailed basis for the promotion and control of development. The County Development Plan is therefore the guiding document for development within the county over the next 6 years. South Tipperary lies within Munster and is bounded by the Counties of Waterford, Kilkenny, Cork and Limerick. The area covers some 2,258km² (872 square miles). The central position of the County comprises a plain formed by valleys of the Suir and its tributaries, the Multeen, Ara, Aherlow, Anner and Tar. This plain is fringed by the Comeragh and Knockmealdown mountains to the south, the Galtee Mountains to the west, the Hollyford and Slieveardagh Hills to the north and Slievenamon to the east. The River Suir flows through the County in a south - southeast direction.

2. Description of the Natura 2000 sites

There are nine Natura 2000 sites situated within the development plan boundaries. These comprise of eight Special Areas of Conservation (SACs) and one Special Protection Areas (SPAs). These include;

Galtee Mountains SAC

Situated in east Limerick and South Tipperary, the Galtee Mountains are Ireland's highest range of inland mountains. Heath is the main habitat type with both dry heath and alpine heath found within the site. Upland Mat-grass (*Nardus stricta*) grassland occurs on steep slopes, particularly in the west. Blanket bog is more localised and occurs mainly at high altitudes. The north-facing cliffs are of primary importance as they support arctic-alpine communities with some rare plant species. The Rare Small-white orchid (*Pseudorchis albida*), Mountain Rock-cress (*Cardaminopsis petraea*) and Alpine Saw-wort (*Saussurea alpina*) have been recorded from the site. These species are included in the Red Data Book and the former are legally protected under the Flora Protection Order (1987). Other typical mountain plants are also found on the site. The site also supports breeding Peregrine, a species listed on Annex I of the EU Birds Directive. Overgrazing by sheep, Afforestation and frequent burning are considered significant threats to some areas of heath and grassland.

Philipston Marsh SAC

Philipston Marsh is a small marsh near Philipston House, south of Cappagh White in Co. Tipperary. It represents one of only two examples of calcareous fen and mire vegetation in the Mulkear River catchment and is thus a rare habitat in this locality. Philipston Marsh is a candidate SAC for the presence of the transition mire, a habitat listed on Annex I of the E.U. Habitats Directive. This area supports a very species-rich mosaic of fen and transition mire plant communities, amongst which are found several uncommon species, including Broadleaved Cottongrass (*Eriophorum latifolium*), Marsh Helleborine (*Epipactis palustris*), Fen Bedstraw (*Galium uliginosum*), Lesser Tussock-sedge (*Carex diandra*) and Longstalked Yellow-sedge (*C. lepidocarpa*).

Anglesey Road SAC

Anglesey Road is a steep-sided valley which extends approximately 1.8 km along the Multeen River to the north of Hollyford village. Among the common grasses are Bents (*Agrostis* spp.), Crested Dog's-tail (*Cynosurus cristatus*), Sheep's Fescue (*Festuca ovina*) and Wavy Hair-grass (*Deschampsia flexuosa*). On the steep valley sides and in stream gullies scrub comprised of Willow (*Salix* spp.), Downy Birch (*Betula pubescens*), Rowan (*Sorbus aucuparia*), Hazel (*Corylus avellana*), Hawthorn and Ash (*Fraxinus excelsior*) have developed. Anglesey Road is of particular importance for the good quality examples of species rich, unimproved upland grassland found. This habitat is becoming increasingly rare in Ireland and Europe and is listed on Annex I of the EU Habitats Directive.

Lower River Suir SAC

This site consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal influence extends as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford and many tributaries including Clodiagh in Co. Tipperary. The site is a candidate SAC selected for the presence of the priority habitats on Annex I of the E.U. Habitats Directive - alluvial wet woodlands and Yew Wood. The site is also selected as a candidate SAC for floating river vegetation, Atlantic salt meadows, mediterranean salt meadows, old oak woodlands and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The following species listed on Annex II of the directive are present - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic salmon and Otter. The legally protected (Flora (Protection) Order, 1999) Meadow Barley (*Hordeum secalinum*) and Opposite-leaved Pondweed (*Groenlandia densa*) also occur within the site.

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), and Otter (*Lutra lutra*). This is one of only three known spawning grounds in the country for Twaite Shad. Parts of the site have also been identified as of ornithological importance for a number of Annex I (EU Birds Directive) bird species, including Greenland White-fronted Goose (10), Golden Plover (1490), Whooper Swan (7) and Kingfisher.

River Barrow and River Nore SAC

This site consists of the freshwater stretches of the Barrow/Nore River catchments as far upstream as the Slieve Bloom Mountains and it also includes the tidal elements and an estuary. The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic salmon, Otter, *Vertigo moulinsiana* and the plant Killarney Fern. This is the only site in the world for the hard water form of the Pearl Mussel *M. m. durrovensis* and one of only a handful of spawning grounds in the country for Twaite Shad.

The freshwater stretches of the River Nore main channel is a designated salmonid river. The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) also occurs in estuarine stretches of the site. The site is of ornithological importance for a number of E.U. Birds Directive Annex I species including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bartailed Godwit, Peregrine and Kingfisher. The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and *Rhododendron ponticum*. The water quality of the site remains vulnerable.

Lower River Shannon SAC

The Lower Shannon SAC extends 120 km from Killaloe to Loop Head/ Kerry Head. The site thus encompasses the Shannon, Feale, Mulkear and Fergus Estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The site has been selected as a SAC for the presence of lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic salmon and Otter.

A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.

Blackwater River SAC

The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. The extent of the Blackwater and its tributaries in this site, flows through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. The site is a candidate SAC selected for alluvial wet woodlands and Yew wood, both priority habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, estuaries, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, perennial vegetation of stony banks and old Oak woodlands, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter and the plant, Killarney Fern.

The site is also important for the presence of several Habitats Directive Annex II animal species, including Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*L. fluviatilis*), Twaite Shad (*Alosa fallax fallax*), Freshwater Pearl-mussel (*Margaritifera margaritifera*), Otter (*Lutra lutra*) and Salmon (*Salmo salar*). The Awbeg supports a population of White-clawed Crayfish (*Austropotamobius pallipes*). This threatened species has been recorded from a number of locations and its remains are also frequently found in Otter spraints, particularly in the lower reaches of the river. The freshwater stretches of the Blackwater and Bride Rivers are designated salmonid rivers. Several bird species listed on Annex I of the E.U. Birds Directive are found on the site, including Long-eared Owl and Barn Owl.

Moanour Mountain SAC

Situated approximately 7 km south west of Tipperary town, this site lies on the north-western slope of Moanour Mountain, an outlying ridge of the Galtee Mountains. It lies entirely above the 220 m contour line, with a maximum height of 335 m. The site represents probably the only part of this mountainous ridge that retains semi-natural vegetation, the remainder having been afforested. The lower western part of the site is dominated species-rich *Nardus* grassland, a habitat that is listed on Annex I of the E.U. Habitats Directive with priority status. This is characterised by the presence of Heath Bedstraw (*Galium saxatile*), Sheep's Fescue (*Festuca ovina*), Tormentil (*Potentilla erecta*) and Mat Grass (*Nardus stricta*), as well as such species as Common Bent (*Agrostis capillaris*), Greenribbed Sedge (*Carex binervis*) and Pill Sedge (*C. pilulifera*). Bryophytes are well represented, with a range of bog mosses (*Sphagnum capillifolium*, *S. cuspidatum*, *S. compactum*). At the summit of Moanour Mountain, the wet heath habitat grades in places to shallow blanket bog.

Slievefelim to Silvermines SPA

The Slievefelim to Silvermines Mountains SPA is an extensive upland site located in Counties Tipperary and Limerick. Much of the site is over 200 m in altitude and rises to 694 m at Keeper Hill. The site consists of a variety of upland habitats, though approximately half is afforested. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). Roughly one-quarter of the site is unplanted blanket bog and heath, with both wet and dry heath present. The remainder of the site is mostly rough grassland that is used for hill farming. The site is of special conservation interest for Hen Harrier. This SPA is one of the strongholds for Hen Harrier in the country. A survey in 2005 resulted in four confirmed and one possible breeding pairs, whereas nine pairs had been recorded in the 1998-2000 period.

These numbers represent 3% of the national total. The site is also a traditional breeding site for a pair of Peregrine. Red Grouse is found on some of the unplanted areas of bog and heath. The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity. Overall, the site provides excellent nesting and foraging habitat for breeding Hen Harrier and is among the top five sites in the country for the species.

Assessment Criteria

3. Individual elements of the Plan (either alone or in combination with other plans or projects) likely to give rise to impacts on Natura 2000 sites

The South Tipperary Development Plan 2009-2015 provides the strategy for ongoing development of South Tipperary. The Plan will be the guiding document for future development within the county over the coming 6 year period. The Plan in broad terms seeks to achieve the sustainable development of the County over the plan period, with equal emphasis on economic and social development as well as environmental protection.

In order to achieve this the Plan sets out a series of policies and objectives relating to all types of economic and social development as well as specific policies and objectives relating to the protection and conservation of natural resources. To this end the Development Plan seeks to protect vulnerable habitats, water resources, views, landscapes and historic features.

4. Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:

<ul style="list-style-type: none"> ▪ Size and scale; ▪ Land-take; ▪ Distance from Natura 2000 site or key features of the site; ▪ Resource requirements; ▪ Emissions; ▪ Excavation requirements; 	<p>As stated the Plan contains specific policy in regard to the protection of the environment, however without strict adherence to the mitigation policies and objectives for both biodiversity and water quality, there are potential impacts on Natura 2000 sites. The potential exists for adverse short to medium to long term impacts, both directly and indirectly on the vulnerable and protected habitats within the county. However for this to occur would ultimately represent uncontrolled development which is contrary to the stated aims of the local authority. All development requiring planning permission will be assessed in terms of its environmental impact and against the tenets of the Development Plan.</p>
<ul style="list-style-type: none"> ▪ Transportation requirements; ▪ Duration of construction, operation etc.; 	
<ul style="list-style-type: none"> ▪ Others 	
<p>Thus the plan will guide development with careful consideration given to the sustainable development of the County. Development considered contrary to the aims of the plan or deemed inappropriate in terms of siting, size, emissions etc will not be permitted.</p>	
<p>Thus the plan will guide development with careful consideration given to the sustainable development of the County. Development considered contrary to the aims of the plan or deemed inappropriate in terms of siting, size, emissions etc will not be permitted.</p>	
<p>Thus the plan will guide development with careful consideration given to the sustainable development of the County. Development considered contrary to the aims of the plan or deemed inappropriate in terms of siting, size, emissions etc will not be permitted.</p>	

5. Describe any likely changes to the site arising as a result of:

<ul style="list-style-type: none"> ▪ Reduction of habitat area; ▪ Disturbance of key species; ▪ Habitat or species fragmentation; 	<p>South Tipperary County Council is not in ownership of Natura 2000 sites present in the County as these are largely state or privately owned. Thus the role of the local authority is to control new development which is achievable through the implementation of the Development Plan. Thus the Plan will in so far as it possibly can seek to ensure that the habitats present in the County are maintained, that the areas are not reduced, that key species present are not unduly disturbed, that fragmentation of both the habitats and/or species does not result through the actions of the local authority; that no reduction in species density occurs and finally that the key indicators of conservation value are and remain unaltered.</p>
<ul style="list-style-type: none"> ▪ Reduction in species density; ▪ Changes in key indicators of conservation value; 	
<p>Climate change.</p>	
<p>Climate change.</p>	

6. Describe any likely impacts on the Natura 2000 site as a whole in terms of:

<ul style="list-style-type: none"> ▪ Interference with the key relationships that define the structure of the site 	<p>Without strict adherence to the mitigation policies and objectives for both biodiversity and water, there are the following potential impacts on Natura 2000 sites. Development control issues are discussed above, however as the consent authority the Council has direct influence on the management of water discharges either through local authority operated facilities or through the control of privately operated systems such as septic tanks or group proprietary systems. Thus there is, if not properly controlled or monitored a potential to impact on water quality through excess discharges of effluent material.</p>
<ul style="list-style-type: none"> ▪ Interference with the key relationships that define the function of the site 	

7. Provide indicators of significance as a result of the identification of effects set out above in terms of:

<ul style="list-style-type: none"> ▪ Loss; ▪ Fragmentation; ▪ Disruption; ▪ Disturbance; ▪ Change to key elements of the site. 	Without strict adherence to the mitigation policies and objectives for both biodiversity and water quality there is a potential to adversely impact on the Natura 2000 sites through disruption, fragmentation or changes to the key elements of the site. Such indicators should include water quality indices, WWTP discharge monitoring etc.
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8. Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.

The Council will control physical development within and close to Natura 2000 sites through the planning process. Thus direct impacts on these sites will be avoided. However, the local authority may indirectly and negatively impact on such sites through the discharge of effluent from municipal and proprietary waste water treatment systems, therefore it is concluded that a potential to impact negatively does exist and an Appropriate Assessment should be undertaken.

Appendix 2

Natura 2000 Sites

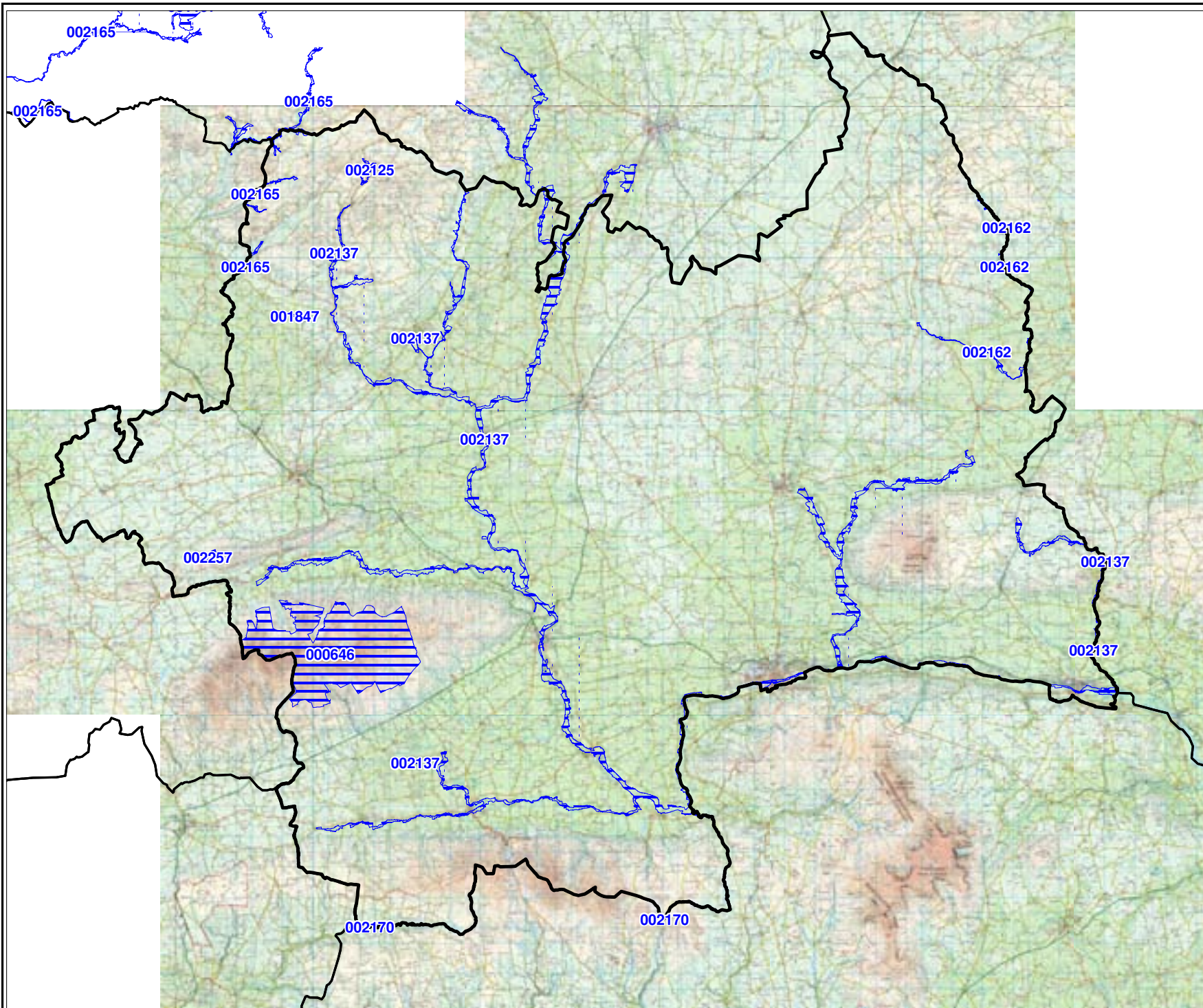
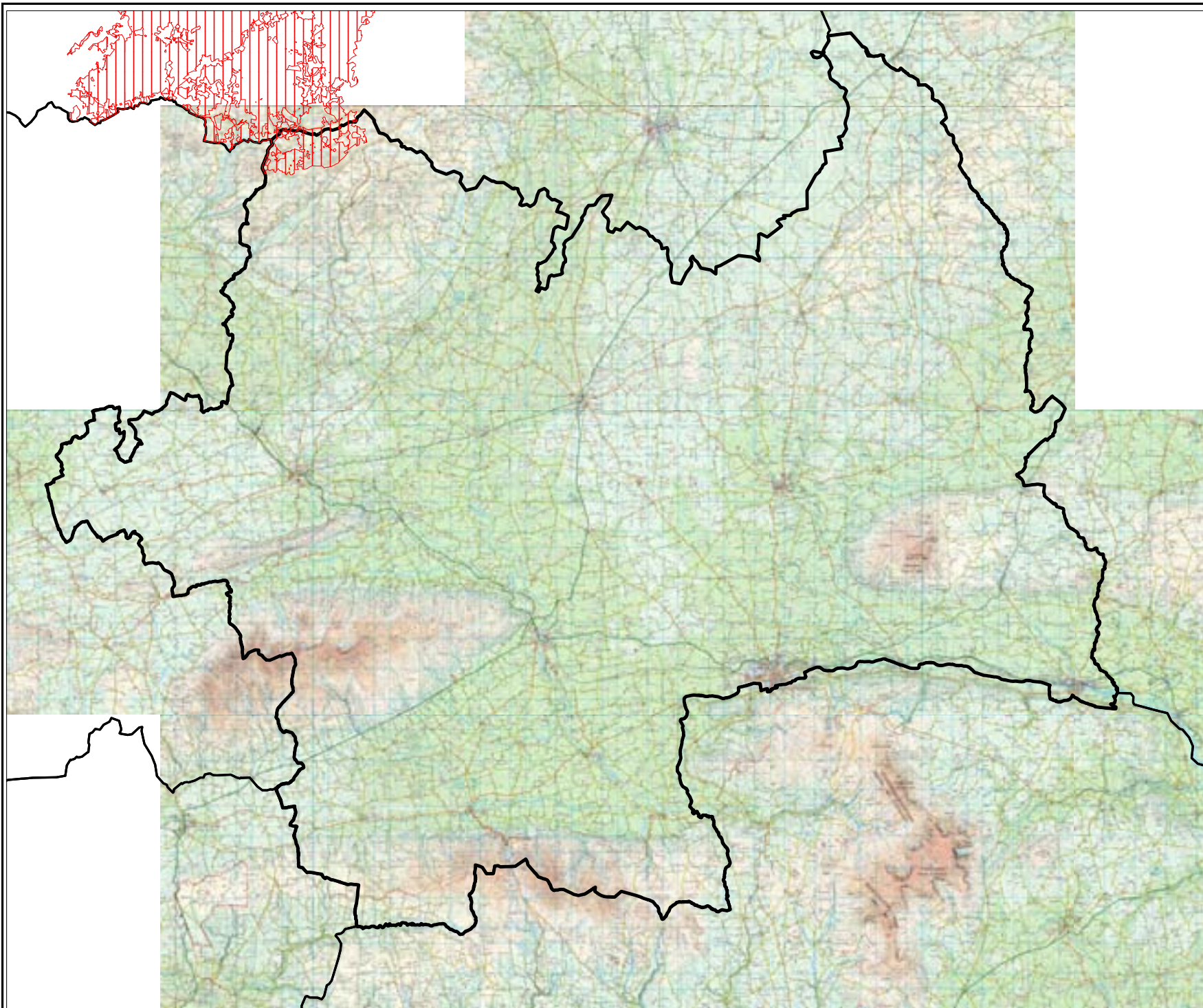


Figure 1: Distribution of Special Areas of Conservation within South Tipperary.





**Figure 2: Location of
Special Protection
Area within South
Tipperary.**



SITE SYNOPSIS

SITE NAME: ANGLESEY ROAD

SITE CODE: 002125

Anglesey Road is a steep-sided valley which extends approximately 1.8 km along the Multeen River to the north of Hollyford village. Most of the site lies between 210 and 270 m above sea level.

Unimproved, species-rich upland grassland is the main habitat found. Among the common grasses are Bents (*Agrostis* spp.), Crested Dog's-tail (*Cynosurus cristatus*), Sheep's Fescue (*Festuca ovina*) and Wavy Hair-grass (*Deschampsia flexuosa*). Localised patches of heathy grassland contain Heather (*Calluna vulgaris*) and Bilberry (*Vaccinium myrtillus*). Bracken (*Pteridium aquilinum*) cover is extensive and there are scattered shrubs of Hawthorn (*Crataegus monogyna*).

On the steep valley sides and in stream gullies scrub comprised of Willow (*Salix* spp.), Downy Birch (*Betula pubescens*), Rowan (*Sorbus aucuparia*), Hazel (*Corylus avellana*), Hawthorn and Ash (*Fraxinus excelsior*) has developed.

Agricultural improvement and afforestation are the main threats to the site.

Anglesey Road is a comparatively small site which contains a range of habitat types and species. It is of particular importance for the good quality examples of species-rich, unimproved upland grassland found. This habitat is becoming increasingly rare in Ireland and Europe and is listed on Annex I of the EU Habitats Directive.

9.11.2001

SITE SYNOPSIS

SITE NAME: BLACKWATER RIVER (CORK/WATERFORD)

SITE CODE: 002170

The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. In times of heavy rainfall the levels can fluctuate widely by more than 12 feet on the gauge at Careysville. The peaty nature of the terrain in the upper reaches and of some of the tributaries gives the water a pronounced dark colour. The site consists of the freshwater stretches of the River Blackwater as far upstream as Ballydesmond, the tidal stretches as far as Youghal Harbour and many tributaries, the larger of which includes the Licky, Bride, Flesk, Chimneyfield, Finisk, Araglin, Awbeg (Buttevant), Clyda, Glen, Allow, Dalua, Brogeen, Rathcool, Finnow, Owentaraglin and Awnaskirtaun. The extent of the Blackwater and its tributaries in this site, flows through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. Towns along, but not in the site, include Rathmore, Millstreet, Kanturk, Banteer, Mallow, Buttevant, Doneraile, Castletownroche, Fermoy, Ballyduff, Rathcormac, Tallow, Lismore, Cappoquin and Youghal.

The Blackwater rises in boggy land of east Kerry, where Namurian grits and shales build the low heather-covered plateaux. Near Kanturk the plateaux enclose a basin of productive Coal Measures. On leaving the Namurian rocks the Blackwater turns eastwards along the northern slopes of the Boggeraghs before entering the narrow limestone strike vale at Mallow. The valley deepens as first the Nagles Mountains and then the Knockmealdowns impinge upon it. Interesting geological features along this stretch of the Blackwater Valley include limestone cliffs and caves near the villages and small towns of Killavullen and Ballyhooly; the Killavullen caves contain fossil material from the end of the glacial period. The associated basic soils in this area support the growth of plant communities which are rare in Cork because in general the county's rocks are acidic. At Cappoquin the river suddenly turns south and cuts through high ridges of Old Red Sandstone. The Araglin valley is predominantly underlain by sandstone, with limestone occurring in the lower reaches near Fermoy.

The site is a candidate SAC selected for alluvial wet woodlands and Yew wood, both priority habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, estuaries, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, perennial vegetation of stony banks and old Oak woodlands, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter and the plant, Killarney Fern.

Wet woodlands are found where river embankments, particularly on the River Bride, have broken down and where the channel edges in the steep-sided valley between Cappoquin and Youghal are subject to daily inundation. The river side of the embankments was often used for willow growing in the past (most recently at Cappoquin) so that the channel is lined by narrow woods of White and Almond-leaved Willow (*Salix alba* and *S. triandra*) with isolated Crack Willow (*S. fragilis*) and Osier (*S. viminalis*). Grey Willow (*S. cinerea*) spreads naturally into the sites and occasionally, as at Villierstown on the Blackwater and Sapperton on the Bride, forms woods with a distinctive mix of woodland and marsh plants, including Gypsywort (*Lycopus europaeus*), Guelder Rose (*Viburnum opulus*), Bittersweet (*Solanum dulcamara*) and various mosses and algae. These wet woodlands form one of the most extensive tracts of the wet woodland habitat in the country.

A small stand of Yew (*Taxus baccata*) woodland, a rare habitat in Ireland and the EU, occurs within the site. This is on a limestone ridge at Dromana, near Villierstown. While there are some patches of the wood with a canopy of Yew and some very old trees, the quality is generally poor due to the dominance of non-native and invasive species such as Sycamore, Beech and Douglas Fir (*Pseudotsuga menziesii*). However, the future prospect for this Yew wood is good as the site is proposed for restoration under a Coillte EU Life Programme. Owing to its rarity, Yew woodland is listed with priority status on Annex I of the EU Habitats Directive.

Marshes and reedbeds cover most of the flat areas beside the rivers and often occur in mosaic with the wet woodland. Common Reed (*Phragmites australis*) is ubiquitous and is harvested for thatching. There is also much Marsh Marigold (*Caltha palustris*) and, at the edges of the reeds, the Greater and Lesser Pond-sedge (*Carex riparia* and *C. acutiformis*). Hemlock Water-dropwort (*Oenanthe crocata*), Wild Angelica (*Angelica sylvestris*), Reed Canary-grass (*Phalaris arundinacea*), Meadowsweet (*Filipendula ulmaria*), Nettle (*Urtica dioica*), Purple Loosestrife (*Lythrum salicaria*), Marsh Valerian (*Valeriana officinalis*), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*).

At Banteer there are a number of hollows in the sediments of the floodplain where subsidence and subterranean drainage have created isolated wetlands, sunk below the level of the surrounding fields. The water rises and falls in these holes depending on the watertable and several different communities have developed on the acidic or neutral sediments. Many of the ponds are ringed about with Grey Willows, rooted in the mineral soils but sometimes collapsed into the water. Beneath the densest stands are woodland herbs like Yellow Pimpernel (*Lysimachia nemorum*) with locally abundant Starwort (*Callitriche stagnalis*) and Marsh Ragwort (*Senecio palustris*). One of the depressions has Silver Birch (*Betula pendula*), Ash (*Fraxinus excelsior*), Crab Apple (*Malus sylvestris*) and a little Oak (*Quercus robur*) in addition to the willows.

Floating river vegetation is found along much of the freshwater stretches within the site. The species list is quite extensive and includes Pond Water-crowfoot (*Ranunculus peltatus*), Water-crowfoot (*Ranunculus* spp.), Canadian Pondweed (*Elodea canadensis*), Broad-leaved Pondweed (*Potamogeton natans*), Pondweed (*Potamogeton* spp.), Water Milfoil (*Myriophyllum* spp.), Common Club-rush (*Scirpus*

lacustris), Water-starwort (*Callitriche* spp.), Lesser Water-parsnip (*Berula erecta*) particularly on the Awbeg, Water-cress (*Nasturtium officinale*), Hemlock Water-dropwort, Fine-leaved Water-dropwort (*O. aquatica*), Common Duckweed (*Lemna minor*), Yellow Water-lily (*Nuphar lutea*), Unbranched Bur-reed (*Sparganium emersum*) and the moss *Fontinalis antipyretica*.

The grassland adjacent to the rivers of the site is generally heavily improved, although liable to flooding in many places. However, fields of more species-rich wet grassland with species such as Yellow-flag (*Iris pseudacorus*), Meadow-sweet, Meadow Buttercup (*Ranunculus acris*) and rushes (*Juncus* spp.) occur occasionally. Extensive fields of wet grassland also occur at Annagh Bog on the Awbeg. These fields are dominated by Tufted Hair-grass (*Deschampsia cespitosa*) and rushes.

The Blackwater Valley has a number of dry woodlands; these have mostly been managed by the estates in which they occur, frequently with the introduction of Beech (*Fagus sylvatica*) and a few conifers, and sometimes of Rhododendron (*Rhododendron ponticum*) and Laurel. Oak woodland is well developed on sandstone about Ballinatrav, with the acid Oak woodland community of Holly (*Ilex aquifolium*), Bilberry (*Vaccinium myrtillus*), Greater Woodrush (*Luzula sylvatica*) and Buckler Ferns (*Dryopteris affinis*, *D. aemula*) occurring in one place. Irish Spurge (*Euphorbia hyberna*) continues eastwards on acid rocks from its headquarters to the west but there are many plants of richer soils, for example Wood Violet (*Viola reichenbachiana*), Goldilocks (*Ranunculus auricomus*), Broad-leaved Helleborine (*Epipactis helleborine*) and Red Campion (*Silene dioica*). Oak woodland is also found in Rincrew, Carrigane, Glendine, Newport and Dromana. The spread of Rhododendron is locally a problem, as is over-grazing. A few limestone rocks stand over the river in places showing traces of a less acidic woodland type with Ash, False Brome (*Brachypodium sylvaticum*) and Early-purple Orchid (*Orchis mascula*).

In the vicinity of Lismore, two deep valleys cut in Old Red Sandstone join to form the Owenashad River before flowing into the Blackwater at Lismore. These valleys retain something close to their original cover of Oak with Downy Birch (*Betula pubescens*), Holly and Hazel (*Corylus avellana*) also occurring. There has been much planting of Beech (as well as some of coniferous species) among the Oak on the shallower slopes and here both Rhododendron and Cherry Laurel (*Prunus laurocerasus*) have invaded the woodland.

The Oak wood community in the Lismore and Glenmore valleys is of the classical upland type, in which some Rowan (*Sorbus aucuparia*) and Downy Birch occur. Honeysuckle (*Lonicera periclymenum*) and Ivy (*Hedera helix*) cover many of the trees while Greater Woodrush, Bluebell (*Hyacinthoides non-scripta*), Wood Sorrel (*Oxalis acetosella*) and, locally, Bilberry dominate the ground flora. Ferns present on the site include Hard Fern (*Blechnum spicant*), Male Fern (*Dryopteris filix-mas*), Buckler Ferns (*D. dilatata*, *D. aemula*) and Lady Fern (*Athyrium filix-femina*). There are many mosses present and large species such as *Rhytidiadelphus* spp., *Polytrichum formosum*, *Mnium hornum* and *Dicranum* spp. are noticeable. The lichen flora is important and includes 'old forest' species which imply a continuity of woodland here since ancient times. Tree Lungwort (*Lobaria* spp.) is the most conspicuous and is widespread.

The Araglin valley consists predominantly of broadleaved woodland. Oak and Beech are joined by Hazel, Wild Cherry (*Prunus avium*) and Goat Willow (*Salix caprea*). The ground flora is relatively rich with Pignut (*Conopodium majus*), Wild Garlic (*Allium ursinum*), Garlic Mustard (*Alliaria petiolata*) and Wild Strawberry (*Fragaria vesca*). The presence of Ivy Broomrape (*Orobanche hederæ*), a local species within Ireland, suggests that the woodland, along with its attendant Ivy is long established.

Along the lower reaches of the Awbeg River, the valley sides are generally cloaked with mixed deciduous woodland of estate origin. The dominant species is Beech, although a range of other species are also present, e.g. Sycamore (*Acer pseudoplatanus*), Ash and Horse-chestnut (*Aesculus hippocastanum*). In places the alien invasive species, Cherry Laurel, dominates the understorey. Parts of the woodlands are more semi-natural in composition, being dominated by Ash with Hawthorn (*Crataegus monogyna*) and Spindle (*Euonymus europæa*) also present. However, the most natural areas of woodland appear to be the wet areas dominated by Alder and willows (*Salix* spp.). The ground flora of the dry woodland areas features species such as Pignut, Wood Avens (*Geum urbanum*), Ivy and Soft Shield-fern (*Polystichum setiferum*), while the ground flora of the wet woodland areas contains characteristic species such as Remote Sedge (*Carex remota*) and Opposite-leaved Golden-saxifrage (*Chrysosplenium oppositifolium*).

In places along the upper Bride, scrubby, semi-natural deciduous woodland of Willow, Oak and Rowan occurs with abundant Great Woodrush in the ground flora.

The Bunaglanna River passes down a very steep valley, flowing in a north-south direction to meet the Bride River. It flows through blanket bog to heath and then scattered woodland. The higher levels of moisture here enable a vigorous moss and fern community to flourish, along with a well-developed epiphyte community on the tree trunks and branches.

At Banteer a type of wetland occurs near the railway line which offers a complete contrast to the others. Old turf banks are colonised by Royal Fern (*Osmunda regalis*) and Eared Willow (*Salix aurita*) and between them there is a sheet of Bottle Sedge (*Carex rostrata*), Marsh Cinquefoil (*Potentilla palustris*), Bogbean (*Menyanthes trifoliata*), Marsh St. John's-wort (*Hypericum elodes*) and the mosses *Sphagnum auriculatum* and *Aulacomnium palustre*. The cover is a scraw with characteristic species like Marsh Willowherb (*Epilobium palustre*) and Marsh Orchid (*Dactylorhiza incarnata*).

The soil high up the Lismore valleys and in rocky places is poor in nutrients but it becomes richer where streams enter and also along the valley bottoms. In such sites Wood Speedwell (*Veronica montana*), Wood Anemone (*Anemone nemorosa*), Enchanter's Nightshade (*Circaea lutetiana*), Barren Strawberry (*Potentilla sterilis*) and Shield Fern occur. There is some Wild Garlic, Three-nerved Sandwort (*Moehringia trinervia*) and Early-purple Orchid (*Orchis mascula*) locally, with Opposite-leaved Golden-saxifrage, Meadowsweet and Bugle in wet places. A Hazel stand at the base of the Glenakeeffe valley shows this community well.

The area has been subject to much tree felling in the recent past and re-sprouting stumps have given rise to areas of bushy Hazel, Holly, Rusty Willow (*Salix cinerea* subsp. *oleifolia*) and Downy Birch. The ground in the clearings is heathy with Heather (*Calluna vulgaris*), Slender St John's-wort (*Hypericum pulchrum*) and the occasional Broom (*Cytisus scoparius*) occurring.

The estuary and the other Habitats Directive Annex I habitats within it form a large component of the site. Very extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. The main expanses occur at the southern end of the site with the best examples at Kinsalebeg in Co. Waterford and between Youghal and the main bridge north of it across the river in Co. Cork. Other areas occur along the tributaries of the Licky in east Co. Waterford and Glendine, Newport, Bride and Killahaly Rivers in Waterford west of the Blackwater and large tracts along the Tourig River in Co. Cork. There are narrow bands of intertidal flats along the main river as far north as Camphire Island. Patches of green algae (filamentous, *Ulva* species and *Enteromorpha* sp.) occur in places, while fucoid algae are common on the more stony flats even as high upstream as Glenassy or Coneen.

The area of saltmarsh within the site is small. The best examples occur at the mouths of the tributaries and in the townlands of Foxhole and Blackbog. Those found are generally characteristic of Atlantic salt meadows. The species list at Foxhole consists of Common Saltmarsh-grass (*Puccinellia maritima*), small amounts of Greater Sea-spurrey (*Spergularia media*), Glasswort (*Salicornia* sp.), Sea Arrowgrass (*Triglochin maritima*), Annual Sea-blite (*Suaeda maritima*) and Sea Purslane (*Halimione portulacoides*) - the latter a very recent coloniser - at the edges. Some Sea Aster (*Aster tripolium*) occurs, generally with Creeping Bent (*Agrostis stolonifera*). Sea Couch-grass (*Elymus pycnanthus*) and small isolated clumps of Sea Club-rush (*Scirpus maritimus*) are also seen. On the Tourig River additional saltmarsh species found include Lavender (*Limonium* spp.), Sea Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Scurvy-grass (*Cochlearia officinalis*) and Sea Plantain (*Plantago maritima*). Oraches (*Atriplex* spp.) are found on channel edges.

The shingle spit at Ferrypoint supports a good example of perennial vegetation of stony banks. The spit is composed of small stones and cobbles and has a well developed and diverse flora. At the lowest part, Sea Beet (*Beta vulgaris*), Curled Dock (*Rumex crispus*) and Yellow-horned Poppy (*Glaucium flavum*) occur with at a slightly higher level Sea Mayweed (*Tripleurospermum maritimum*), Cleavers (*Galium aparine*), Rock Samphire (*Crithmum maritimum*), Sandwort (*Honkenya peploides*), Spear-leaved Orache (*Atriplex prostrata*) and Babington's Orache (*A. glabriuscula*). Other species present include Sea Rocket (*Cakile maritima*), Herb Robert (*Geranium robertianum*), Red Fescue (*Festuca rubra*) and Kidney Vetch (*Anthyllis vulneraria*). The top of the spit is more vegetated and includes lichens and bryophytes (including *Tortula ruraliformis* and *Rhytidiadelphus squarrosus*).

The site supports several Red Data Book plant species, i.e. Starved Wood Sedge (*Carex depauperata*), Killarney Fern (*Trichomanes speciosum*), Pennyroyal (*Mentha pulegium*), Bird's-nest Orchid (*Neottia nidus-avis*), Golden Dock (*Rumex maritimus*) and Bird Cherry (*Prunus padus*). The first three of these are also protected under the

Flora (Protection) Order 1999. The following plants, relatively rare nationally, are also found within the site: Toothwort (*Lathraea squamaria*) associated with woodlands on the Awbeg and Blackwater; Summer Snowflake (*Leucojum aestivum*) and Flowering Rush (*Butomus umbellatus*) on the Blackwater; Common Calamint (*Calamintha ascendens*), Red Campion (*Silene dioica*), Sand Leek (*Allium scorodoprasum*) and Wood Club-rush (*Scirpus sylvaticus*) on the Awbeg.

The site is also important for the presence of several Habitats Directive Annex II animal species, including Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*L. fluviatilis*), Twaite Shad (*Alosa fallax fallax*), Freshwater Pearl-mussel (*Margaritifera margaritifera*), Otter (*Lutra lutra*) and Salmon (*Salmo salar*). The Awbeg supports a population of White-clawed Crayfish (*Austropotamobius pallipes*). This threatened species has been recorded from a number of locations and its remains are also frequently found in Otter spraints, particularly in the lower reaches of the river. The freshwater stretches of the Blackwater and Bride Rivers are designated salmonid rivers.

The Blackwater is noted for its enormous run of salmon over the years. The river is characterised by mighty pools, lovely streams, glides and generally, a good push of water coming through except in very low water. Spring salmon fishing can be carried out as far upstream as Fermoy and is very highly regarded especially at Careysville. The Bride, main Blackwater upstream of Fermoy and some of the tributaries are more associated with grilse fishing.

The site supports many of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. The bat species Natterer's Bat, Daubenton's Bat, Whiskered Bat, Brown Long-eared Bat and Pipistrelle, are to be seen feeding along the river, roosting under the old bridges and in old buildings.

Common Frog, a Red Data Book species that is also legally protected (Wildlife Act, 1976), occurs throughout the site. The rare bush cricket, *Metrioptera roselii* (Orthoptera: Tettigoniidae), has been recorded in the reed/willow vegetation of the river embankment on the Lower Blackwater River. The Swan Mussel (*Anodonta cygnea*), a scarce species nationally, occurs at a few sites along the freshwater stretches of the Blackwater.

Several bird species listed on Annex I of the E.U. Birds Directive are found on the site. Some use it as a staging area, others are vagrants, while others use it more regularly. Internationally important numbers of Whooper Swan (average peak 174, 1994/95-95/96) and nationally important numbers Bewick's Swan (average peak 35, 1994/95-95/96) use the Blackwater Callows. Golden Plover occur in regionally important numbers on the Blackwater Estuary (average peak 885, 1984/85-86/87) and on the River Bride (absolute max. 2141, 1994/95). Staging Terns visit the site annually (Sandwich Tern (>300) and Arctic/Common Tern (>200), average peak 1974-1994). The site also supports populations of the following: Red Throated Diver, Great Northern Diver, Barnacle Goose, Ruff, Wood Sandpiper and Greenland White-fronted Goose. Three breeding territories for Peregrine Falcon are known along the Blackwater Valley. This, the Awbeg and the Bride River are also thought to support at

least 30 pairs of Kingfisher. Little Egret now breed at the site (12 pairs in 1997, 19 pairs in 1998) and this represents about 90% of the breeding population in Ireland.

The site holds important numbers of wintering waterfowl. Both the Blackwater Callows and the Blackwater Estuary Special Protection Areas (SPAs) hold internationally important numbers of Black-tailed Godwit (average peak 847, 1994/95-95/96 on the callows, average peak 845, 1974/75-93/94 in the estuary). The Blackwater Callows also hold Wigeon (average peak 2752), Teal (average peak 1316), Mallard (average peak 427), Shoveler (average peak 28), Lapwing (average peak 880), Curlew (average peak 416) and Black-headed Gull (average peak 396) (counts from 1994/95-95/96). Numbers of birds using the Blackwater Estuary, given as the mean of the highest monthly maxima over 20 years (1974-94), are Shelduck (137 +10 breeding pairs), Wigeon (780), Teal (280), Mallard (320 + 10 breeding pairs), Goldeneye (11-97), Oystercatcher (340), Ringed Plover (50 + 4 breeding pairs), Grey Plover (36), Lapwing (1680), Knot (150), Dunlin (2293), Snipe (272), Black-tailed Godwit (845), Bar-tailed Godwit (130), Curlew (920), Redshank (340), Turnstone (130), Black-headed Gull (4000) and Lesser Black-backed Gull (172). The greatest numbers (75%) of the wintering waterfowl of the estuary are located in the Kinsalebeg area on the east of the estuary in Co. Waterford. The remainder are concentrated along the Tourig Estuary on the Co. Cork side.

The river and river margins also support many Heron, non-breeding Cormorant and Mute Swan (average peak 53, 1994/95-95/96 in the Blackwater Callows). Heron occurs all along the Bride and Blackwater Rivers - 2 or 3 pairs at Dromana Rock; *c.* 25 pairs in the woodland opposite; 8 pairs at Ardsallagh Wood and *c.* 20 pairs at Rincrew Wood have been recorded. Some of these are quite large and significant heronries. Significant numbers of Cormorant are found north of the bridge at Youghal and there are some important roosts present at Ardsallagh Wood, downstream of Strancally Castle and at the mouth of the Newport River. Of note are the high numbers of wintering Pochard (e.g. 275 individuals in 1997) found at Ballyhay quarry on the Awbeg, the best site for Pochard in County Cork.

Other important species found within the site include Long-eared Owl, which occurs all along the Blackwater River, and Barn Owl, a Red Data Book species, which is found in some old buildings and in Castlehyde west of Fermoy. Reed Warbler, a scarce breeding species in Ireland, was found for the first time in the site in 1998 at two locations. It is not known whether or not this species breeds on the site, although it is known to nearby to the south of Youghal. Dipper occurs on the rivers.

Landuse at the site is mainly centred on agricultural activities. The banks of much of the site and the callows, which extend almost from Fermoy to Cappoquin, are dominated by improved grasslands which are drained and heavily fertilised. These areas are grazed and used for silage production. Slurry is spread over much of this area. Arable crops are grown. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the populations of Habitats Directive Annex II animal species within it. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the Blackwater and its tributaries and there are a number of Angler Associations, some with a number of

beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. Other recreational activities such as boating, golfing and walking are also popular. Water skiing is carried out at Villierstown. Parts of Doneraile Park and Anne's Grove are included in the site: both areas are primarily managed for amenity purposes. There is some hunting of game birds and Mink within the site. Ballyhay quarry is still actively quarried for sand and gravel. Several industrial developments, which discharge into the river, border the site.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, dredging of the upper reaches of the Awbeg, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel.

Overall, the River Blackwater is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively; furthermore it is of high conservation value for the populations of bird species that use it. Two Special Protection Areas, designated under the E.U. Birds Directive, are also located within the site - Blackwater Callows and Blackwater Estuary. Additionally, the importance of the site is enhanced by the presence of a suite of uncommon plant species.

SITE SYNOPSIS

SITE NAME: GALTEE MOUNTAINS

SITE CODE: 000646

Situated in east Limerick and south Tipperary, the Galtee Mountains are Ireland's highest range of inland mountains. Galtymore has an elevation of 920 m and the main ridge, mostly above 700 m, extends approximately 10 km from east to west. The underlying geology comprises sandstones and shales.

Heath is the main habitat type within the site and Heather (*Calluna vulgaris*) dominates the vegetation. Areas of both dry heath and alpine heath are found. Upland Mat-grass (*Nardus stricta*) grassland occurs on steep slopes, particularly in the west. Blanket bog is more localised and occurs mainly at high altitudes. Erosion is severe on many ridges and cols where deep peat deposits (up to 2 m) have accumulated. The north-facing cliffs are of primary importance as they support arctic-alpine communities with some rare plant species. Other typical mountain plants found on the site include Dwarf Willow (*Salix herbacea*), Viviparous Fescue (*Festuca vivipara*), Stiff Sedge (*Carex bigelowii*), Fir Clubmoss (*Huperzia selago*) and Crowberry (*Empetrum nigrum*).

The Rare Small-white orchid (*Pseudorchis albida*), Mountain Rock-cress (*Cardaminopsis petraea*) and Alpine Saw-wort (*Saussurea alpina*) have been recorded from the site. These species are included in the Red Data Book and the former are legally protected under the Flora Protection Order (1987).

The site supports breeding Peregrine, a species listed on Annex I of the EU Birds Directive.

Overgrazing by sheep and frequent burning are causing potentially serious damage to some areas of heath and grassland. Afforestation threatens the lower slopes and valleys.

13.1.1997

SITE SYNOPSIS

SITE NAME : LOWER RIVER SHANNON

SITE CODE : 002165

This very large site stretches along the Shannon valley from Killaloe to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus Estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The Shannon and Fergus flow through Carboniferous limestone as far as Foynes, but west of Foynes Namurian shales and flagstones predominate (except at Kerry Head, which is formed from Old Red Sandstone). The eastern sections of the Feale catchment flow through Namurian Rocks and the western stretches through Carboniferous Limestone. The Mulkear flows through Lower Palaeozoic Rocks in the upper reaches before passing through Namurian Rocks, followed by Lower Carboniferous Shales and Carboniferous Limestone. The Mulkear River itself, immediately north of Pallas Green, passes through an area of Rhyolites, Tuffs and Agglomerates. Rivers within the sub-catchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarne. Rivers within the sub-catchment of the Mulkear include the Killeenagarrieff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia.

The site is a candidate SAC selected for lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic Salmon and Otter.

The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. They form a unit stretching from the upper tidal limits of the Shannon and Fergus Rivers to the mouth of the Shannon estuary (considered to be a line across the narrow strait between Kilcredaun Point and Kilconly Point). Within this main unit there are several tributaries with their own 'sub-estuaries' e.g. the Deel River, Mulkear River, and Maigne River. To the west of Foynes, a number of small estuaries form indentations in the predominantly hard coastline, namely Poulasherry Bay, Ballylongford Bay, Clonderalaw Bay and the Feale or Cashen River Estuary.

Both the Fergus and inner Shannon estuaries feature vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. The smaller estuaries also feature mudflats, but have their own unique characteristics, e.g. Poulasherry Bay is stony and unusually rich in species and biotopes. Plant species are typically scarce on the mudflats, although there are some Eel-grass beds (*Zostera* spp.) and patches of green

algae (e.g. *Ulva* sp. and *Enteromorpha* sp.). The main macro-invertebrate community, which has been noted from the inner Shannon and Fergus estuaries, is a *Macoma-Scrobicularia-Nereis* community.

In the transition zone between mudflats and saltmarsh, specialised colonisers of mud predominate: swards of Common Cord-grass (*Spartina anglica*) frequently occur in the upper parts of the estuaries. Less common are swards of Glasswort (*Salicornia europaea* agg.). In the innermost parts of the estuaries, the tidal channels or creeks are fringed with species such as Common Reed (*Phragmites australis*) and Club-rushes (*Scirpus maritimus*, *S. tabernaemontani* and *S. triquetrus*). In addition to the nationally rare Triangular Club-rush (*Scirpus triquetrus*), two scarce species are found in some of these creeks (e.g. Ballinacurra Creek): Lesser Bulrush (*Typha angustifolia*) and Summer Snowflake (*Leucojum aestivum*).

Saltmarsh vegetation frequently fringes the mudflats. Over twenty areas of estuarine saltmarsh have been identified within the site, the most important of which are around the Fergus Estuary and at Ringmoylan Quay. The dominant type of saltmarsh present is Atlantic salt meadow occurring over mud. Characteristic species occurring include Common Saltmarsh Grass (*Puccinellia maritima*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea-milkwort (*Glaux maritima*), Sea Plantain (*Plantago maritima*), Red Fescue (*Festuca rubra*), Creeping Bent (*Agrostis stolonifera*), Saltmarsh Rush (*Juncus gerardi*), Long-bracted Sedge (*Carex extensa*), Lesser Sea-spurrey (*Spergularia marina*) and Sea Arrowgrass (*Triglochin maritima*). Areas of Mediterranean salt meadows, characterised by clumps of Sea Rush (*Juncus maritimus*) occur occasionally. Two scarce species are found on saltmarshes in the vicinity of the Fergus Estuary: a type of robust Saltmarsh-grass (*Puccinellia foucaudii*), sometimes placed within the compass of Common Saltmarsh-grass (*Puccinellia maritima*) and Hard-grass (*Parapholis strigosa*).

Saltmarsh vegetation also occurs around a number of lagoons within the site. The two which have been surveyed as part of a National Inventory of Lagoons are Shannon Airport Lagoon and Cloonconeen Pool. Cloonconeen Pool (4-5 ha) is a natural sedimentary lagoon impounded by a low cobble barrier. Seawater enters by percolation through the barrier and by overwash. This lagoon represents a type which may be unique to Ireland since the substrate is composed almost entirely of peat. The adjacent shore features one of the best examples of a drowned forest in Ireland. Aquatic vegetation in the lagoon includes typical species such as Beaked Tasselweed (*Ruppia maritima*) and green algae (*Cladophora* sp.). The fauna is not diverse, but is typical of a high salinity lagoon and includes six lagoon specialists (*Hydrobia ventrosa*, *Cerastoderma glaucum*, *Lekanesphaera hookeri*, *Palaemonetes varians*, *Sigara stagnalis* and *Enochrus bicolor*). In contrast, Shannon Airport Lagoon (2 ha) is an artificial saline lake with an artificial barrier and sluiced outlet. However, it supports two Red Data Book species of Stonewort (*Chara canescens* and *Chara cf. connivens*).

Most of the site west of Kilcredaun Point/Kilconly Point is bounded by high rocky sea cliffs. The cliffs in the outer part of the site are sparsely vegetated with lichens, Red Fescue, Sea Beet (*Beta vulgaris*), Sea Campion (*Silene maritima*), Thrift and Plantains (*Plantago* spp.). A rare endemic Sea Lavender (*Limonium recurvum* subsp.

pseudotranswallinum) occurs on cliffs near Loop Head. Cliff-top vegetation usually consists of either grassland or maritime heath. The boulder clay cliffs further up the estuary tend to be more densely vegetated, with swards of Red Fescue and species such as Kidney Vetch (*Anthyllis vulneraria*) and Bird's-foot Trefoil (*Lotus corniculatus*).

The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and also in areas extremely sheltered from wave action. Characteristically, exposed sediment communities are composed of coarse sand and have a sparse fauna. Species richness increases as conditions become more sheltered. All shores in the site have a zone of sand hoppers at the top and below this each of the shores has different characteristic species giving a range of different shore types in the pcSAC.

The intertidal reefs in the Shannon Estuary are exposed or moderately exposed to wave action and subject to moderate tidal streams. Known sites are steeply sloping and show a good zonation down the shore. Well developed lichen zones and littoral reef communities offering a high species richness in the sublittoral fringe and strong populations of *Paracentrotus lividus* are found. The communities found are tolerant to sand scour and tidal streams. The infralittoral reefs range from sloping platforms with some vertical steps to ridged bedrock with gullies of sand between the ridges to ridged bedrock with boulders or a mixture of cobbles, gravel and sand. Kelp is very common to about 18m. Below this it becomes rare and the community is characterised by coralline crusts and red foliose algae.

Other coastal habitats that occur within the site include the following:

- stony beaches and bedrock shores - these shores support a typical zonation of seaweeds (*Fucus* spp., *Ascophyllum nodosum* and kelps).
- shingle beaches - the more stable areas of shingle support characteristic species such as Sea Beet, Sea Mayweed (*Matricaria maritima*), Sea Campion and Curled Dock (*Rumex crispus*).
- Sandbanks which are slightly covered by sea water at all times – there is a known occurrence of sand/gravel beds in the area from Kerry Head to Beal Head.
- sand dunes - a small area of sand dunes occurs at Beal Point. The dominant species is Marram Grass (*Ammophila arenaria*).

Flowing into the estuaries are a number of tidal rivers.

Freshwater rivers have been included in the site, most notably the Feale and Mulkear catchments, the Shannon from Killaloe to Limerick (along with some of its tributaries, including a short stretch of the Kilmastulla River), the Fergus up as far as Ennis, and the Cloon River. These systems are very different in character: the Shannon being broad, generally slow-flowing and naturally eutrophic; the Fergus being smaller and alkaline; while the narrow, fast-flowing Cloon is acid in nature. The Feale and Mulkear catchments exhibit all the aspects of a river from source to mouth. Semi-natural habitats, such as wet grassland, wet woodland and marsh occur by the rivers, however, improved grassland is most common. One grassland type of particular

conservation significance, *Molinia* meadows, occurs in several parts of the site and the examples at Worldsend on the River Shannon are especially noteworthy. Here are found areas of wet meadow dominated by rushes and sedges and supporting a diverse and species-rich vegetation, including such uncommon species as Blue-eyed Grass (*Sisyrinchium bermudiana*) and Pale Sedge (*Carex pallescens*).

Floating river vegetation characterised by species of Water-crowfoot (*Ranunculus* spp.), Pondweeds (*Potamogeton* spp.) and the moss *Fontinalis antipyretica* are present throughout the major river systems within the site. The rivers contain an interesting bryoflora with *Schistidium alpicola* var. *alpicola* recorded from in-stream boulders on the Bilboa, new to county Limerick.

Alluvial woodland occurs on the banks of the Shannon and on islands in the vicinity of the University of Limerick. The woodland is up to 50m wide on the banks and somewhat wider on the largest island. The most prominent woodland type is gallery woodland where White Willow (*Salix alba*) dominates the tree layer with occasional Alder (*Alnus glutinosa*). The shrub layer consists of various willow species with sally (*Salix cinerea* ssp. *oleifolia*) and what appear to be hybrids of *S. alba* x *S. viminalis*. The herbaceous layer consists of tall perennial herbs. A fringe of Bulrush (*Typha* sp.) occurs on the riverside of the woodland. On slightly higher ground above the wet woodland and on the raised embankment remnants of mixed oak-ash-alder woodland occur. These are poorly developed and contain numerous exotic species but locally there are signs that it is invading open grassland. Alder is the principal tree species with occasional Oak (*Quercus robur*), Elm (*Ulmus glabra*, *U. procera*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and the shrubs Guelder-rose (*Viburnum opulus*) and willows. The ground flora is species-rich.

Woodland is infrequent within the site, however Cahiracon Wood contains a strip of old Oak woodland. Sessile Oak (*Quercus petraea*) forms the canopy, with an understorey of Hazel and Holly (*Ilex aquifolium*). Great Wood-rush (*Luzula sylvatica*) dominates the ground flora. Less common species present include Great Horsetail (*Equisetum telmateia*) and Pendulous Sedge (*Carex pendula*).

In the low hills to the south of the Slievefelim mountains, the Cahernahallia River cuts a valley through the Upper Silurian rocks. For approximately 2km south of Cappagh Bridge at Knockanavar, the valley sides are wooded. The woodland consists of Birch (*Betula* spp.), Hazel, Oak, Rowan (*Sorbus aucuparia*), some Ash (*Fraxinus excelsior*) and Willow (*Salix* spp.). Most of the valley is not grazed by stock, and as a result the trees are regenerating well. The ground flora feature prominent Greater wood-rush and Bilberry (*Vaccinium myrtillus*) with a typical range of woodland herbs. Where there is more light available, Bracken (*Pteridium aquilinum*) features.

The valley sides of the Bilboa and Gortnageragh Rivers, on higher ground north east of Cappamore, support patches of semi-natural broadleaf woodland dominated by Ash, Hazel, Oak and Birch. There is a good scrub layer with Hawthorn, Willow, Holly and Blackthorn (*Prunus spinosa*) common. The herb layer in these woodlands is often open with a typically rich mixture of woodland herbs and ferns. Moss species diversity is high. The woodlands are ungrazed. The hazel is actively coppiced in places.

There is a small area of actively regenerating cut away raised bog at Ballyrorheen. It is situated approx. 5km north west of Cappamore Co. Limerick. The bog contains some wet areas with good moss (*Sphagnum*) cover. Species of particular interest include the Cranberry (*Vaccinium oxycoccos*) and the White Sedge (*Carex curta*) along with two other regionally rare mosses including *S. fimbriatum*. The site is being invaded by Birch (*Betula pubescens*) scrub woodland. Both commercial forestry and the spread of rhododendron has greatly reduced the overall value of the site.

A number of plant species that are Irish Red Data Book species occur within the site - several are protected under the Flora (Protection) Order, 1999:

- Triangular Club-rush (*Scirpus triquetrus*) - in Ireland this protected species is only found in the Shannon Estuary, where it borders creeks in the inner estuary.
- Opposite-leaved Pondweed (*Groenlandia densa*) - this protected pondweed is found in the Shannon where it passes through Limerick City.
- Meadow Barley (*Hordeum secalinum*) - this protected species is abundant in saltmarshes at Ringmoylan and Mantlehill.
- Hairy Violet (*Viola hirta*) - this protected violet occurs in the Askeaton/Foynes area.
- Golden Dock (*Rumex maritimus*) - noted as occurring in the River Fergus Estuary.
- Bearded Stonewort (*Chara canescens*) - a brackish water specialist found in Shannon Airport lagoon.
- Convergent Stonewort (*Chara connivens*) - presence in Shannon Airport Lagoon to be confirmed.

Overall, the Shannon and Fergus Estuaries support the largest numbers of wintering waterfowl in Ireland. The highest count in 1995-96 was 51,423 while in 1994-95 it was 62,701. Species listed on Annex I of the E.U. Birds Directive which contributed to these totals include: Great Northern Diver (3; 1994/95), Whooper Swan (201; 1995/96), Pale-bellied Brent Goose (246; 1995/96), Golden Plover (11,067; 1994/95) and Bar-tailed Godwit (476; 1995/96). In the past, three separate flocks of Greenland White-fronted Goose were regularly found but none were seen in 1993/94.

Other wintering waders and wildfowl present include Greylag Goose (216; 1995/96), Shelduck (1,060; 1995/96), Wigeon (5,976; 1995/96); Teal (2,319; 1995-96); Mallard (528; 1995/96), Pintail (45; 1995/96), Shoveler (84; 1995/96), Tufted Duck (272; 1995/96), Scaup (121; 1995/96), Ringed Plover (240; 1995/96), Grey Plover (750; 1995/96), Lapwing (24,581; 1995/96), Knot (800; 1995/96), Dunlin (20,100; 1995/96), Snipe (719, 1995/96), Black-tailed Godwit (1062; 1995/96), Curlew (1504; 1995/96), Redshank (3228; 1995/96), Greenshank (36; 1995/96) and Turnstone (107; 1995/96). A number of wintering gulls are also present, including Black-headed Gull (2,216; 1995/96), Common Gull (366; 1995/96) and Lesser Black-backed Gull (100; 1994/95). This is the most important coastal site in Ireland for a number of the waders including Lapwing, Dunlin, Snipe and Redshank. It also provides an important staging ground for species such as Black-tailed Godwit and Greenshank.

A number of species listed on Annex I of the E.U. Birds Directive breed within the site. These include Peregrine Falcon (2-3 pairs), Sandwich Tern (34 pairs on Rat Island, 1995), Common Tern (15 pairs: 2 on Sturamus Island and 13 on Rat Island, 1995), Chough (14-41 pairs, 1992) and Kingfisher. Other breeding birds of note include Kittiwake (690 pairs at Loop Head, 1987) and Guillemot (4010 individuals at Loop Head, 1987)

There is a resident population of Bottle-nosed Dolphin in the Shannon Estuary consisting of at least 56-68 animals (1996). This is the only known resident population of this E.U. Habitats Directive Annex II species in Ireland. Otter, a species also listed on Annex II of this directive, is commonly found on the site.

Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Allosa fallax fallax*) and Salmon (*Salmo salar*). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon while the Mulkear catchment excels as a grilse fishery though spring fish are caught on the actual Mulkear River. The Feale is important for both types. Twaite Shad is not thought to spawn within the site. There are few other river systems in Ireland which contain all three species of Lamprey.

Two additional fish of note, listed in the Irish Red Data Book, also occur, namely Smelt (*Osmerus eperlanus*) and Pollan (*Coregonus autumnalis pollan*). Only the former has been observed spawning in the Shannon.

Freshwater Pearl-mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs abundantly in parts of the Cloon River.

There is a wide range of landuses within the site. The most common use of the terrestrial parts is grazing by cattle and some areas have been damaged through over-grazing and poaching. Much of the land adjacent to the rivers and estuaries has been improved or reclaimed and is protected by embankments (especially along the Fergus Estuary). Further, reclamation continues to pose a threat as do flood relief works (e.g. dredging of rivers). Gravel extraction poses a major threat on the Feale.

In the past, Cord-grass (*Spartina* sp.) was planted to assist in land reclamation. This has spread widely, and may oust less vigorous colonisers of mud and may also reduce the area of mudflat available to feeding birds.

Domestic and industrial wastes are discharged into the Shannon, but water quality is generally satisfactory - except in the upper estuary, reflecting the sewage load from Limerick City. Analyses for trace metals suggest a relatively clean estuary with no influences by industrial discharges apparent. Further industrial development along the Shannon and water polluting operations are potential threats.

Fishing is a main tourist attraction on the Shannon and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The River Feale is a designated Salmonid Water under the

E.U. Freshwater Fish Directive. Other uses of the site include commercial angling, oyster farming, boating (including dolphin-watching trips) and shooting. Some of these may pose threats to the birds and dolphins through disturbance. Specific threats to the dolphins include underwater acoustic disturbance, entanglement in fishing gear and collisions with fast moving craft.

This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitat lagoon, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.

SITE SYNOPSIS

SITE NAME : LOWER RIVER SUIR

SITE CODE : 002137

This site consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford and many tributaries including the Clodiagh in Co. Waterford, the Lingaun, Anner, Nier, Tar, Aherlow, Multeen and Clodiagh in Co. Tipperary. The Suir and its tributaries flows through the counties of Tipperary, Kilkenny and Waterford. Upstream of Waterford city, the swinging meanders of the Suir criss-cross the Devonian sandstone rim of hard rocks no less than three times as they leave the limestone-floored downfold below Carrick. In the vicinity of Carrick-on-Suir the river follows the limestone floor of the Carrick Syncline. Upstream of Clonmel the river and its tributaries traverse Upper Palaeozoic Rocks, mainly the Lower Carboniferous Visean and Tournaisian. The freshwater stretches of the Clodiagh River in Co. Waterford traverse Silurian rocks, through narrow bands of Old Red Sandstone and Lower Avonian Shales before reaching the carboniferous limestone close to its confluence with the Suir. The Aherlow River flows through a Carboniferous limestone valley, with outcrops of Old Red Sandstone forming the Galtee Mountains to the south and the Slievenamuck range to the north. Glacial deposits of sands and gravels are common along the valley bottom, flanking the present-day river course.

The site is a candidate SAC selected for the presence of the priority habitats on Annex I of the E.U. Habitats Directive - alluvial wet woodlands and Yew Wood. The site is also selected as a candidate SAC for floating river vegetation, Atlantic salt meadows, Mediterranean salt meadows, old oak woodlands and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon and Otter.

Alluvial wet woodland is declining habitat in Europe as a result of drainage and reclamation. The best examples of this type of woodland in the site are found on the islands just below Carrick-on-Suir and at Fiddown Island. Species occurring here include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Grey Willow (*S. cinerea*), Osier (*S. viminalis*), with Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Angelica (*Angelica sylvestris*), Pendulus Sedge (*Carex pendula*), Meadowsweet (*Filipendula ulmaria*) and Valerian (*Valeriana officinalis*). The terrain is littered with dead trunks and branches and intersected with small channels which carry small streams to the river. The bryophyte and lichen floras appear to be rich and require further investigation. A small plot is currently being coppiced and managed by National Parks and Wildlife. In the drier areas the wet woodland species merge with other tree and shrub species including Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*). This adds further to the ecological interest of this site.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the flood-plain of the river is intact. Characteristic species of the habitat include Meadowsweet (*Filipendula ulmaria*), Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*).

Old oak woodlands are also of importance at the site. The best examples are seen in Portlaw Wood which lies on both sides of the Clodiagh River. On the south-facing side the stand is more open and the Oaks (mainly *Quercus robur*) are well grown and spreading. Ivy (*Hedera helix*) and Bramble (*Rubus fruticosus*) are common on the ground, indicating relatively high light conditions. Oak regeneration is dense, varying in age from 0-40 years and Holly (*Ilex aquifolium*) is fairly common but mostly quite young. Across the valley, by contrast, the trees are much more closely spaced and though taller are poorly grown on average. There are no clearings; large Oaks extend to the boundary wall. In the darker conditions, Ivy is much rarer and Holly much more frequent, forming a closed canopy in places. Oak regeneration is uncommon since there are as yet few natural clearings. The shallowness of the soil on the north-facing slope probably contributes to the poor tree growth there. The acid nature of the substrate has induced a “mountain” type Oakwood community to develop. There is an extensive species list present throughout including an abundance of mosses, liverworts and lichens. The rare lichen *Lobaria pulmonaria*, an indicator of ancient woodlands, is found.

Inchinquillib Wood consists of three small separate sloping blocks of woodland in a valley cut by the young Multeen River and its tributaries through acidic Old Red Sandstone, and Silurian rocks. Two blocks, both with an eastern aspect, located to the north of the road, are predominantly of Sessile oak (*Quercus petraea*) and Hazel, with Downy Birch (*Betula pubescens*), Ash and Holly. The ground flora is quite mixed with for example Wood sedge (*Carex sylvatica*), Bluebell (*Hyacinthoides non-scriptus*), Primrose (*Primula vulgaris*), Wood-sorrel (*Oxalis acetosella*), Pignut (*Conopodium majus*) and Hard fern (*Blechnum spicant*). The base poor nature of the underlying rock is, to some extent masked by the overlying drift. The third block, to the south of the road, and with a northern aspect, is a similar although less mature mixture of Sessile Oak, Birch and Holly, the influence of the drift is more marked, with the occurrence of Wood anemone (*Anemone nemorosa*) amongst the ground flora.

Floating river vegetation is evident in the freshwater stretches of the River Suir and along many of its tributaries. Typical species found include Canadian Pondweed (*Elodea canadensis*), Milfoil (*Myriophyllum* spp.), Fennel Pondweed (*Potamogeton pectinatus*), Curled Pondweed (*P. crispus*), Perfoliate Pondweed (*P. perfoliatus*), Pond Water-crowfoot (*Ranunculus peltatus*), other Crowfoots (*Ranunculus* spp.) and the moss *Fontinalis antipyretica*. At a couple of locations along the river, Opposite-leaved Pondweed (*Groenlandia densa*) occurs. This species is protected under the Flora (Protection) Order, 1999.

The Aherlow River is fast-flowing and mostly follows a natural unmodified river channel. Submerged vegetation includes the aquatic moss *Fontinalis antipyretica* and Stream Water-crowfoot (*Ranunculus pencillatus*), while shallow areas support species such as Reed Canary-grass (*Phalaris arundinacea*), Brooklime (*Veronica beccabunga*) and Water

Mint (*Mentha aquatica*). The river bank is fringed in places with Alder (*Alnus glutinosa*) and Willows (*Salix* spp.).

The Multeen River is fast flowing, mostly gravel-bottomed and appears to follow a natural unmodified river channel. Water Crowfoots occur in abundance and the aquatic moss *Fontinalis antipyretica* is also common. In sheltered shallows, species such as Water-cress (*Rorippa nasturtium-aquaticum*) and Water-starworts (*Callitriche* spp.) occur. The river channel is fringed for most of its length with Alder, Willow and a narrow strip of marshy vegetation.

Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the in-flowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint. The Atlantic and Mediterranean sub types are generally intermixed. The species list is extensive and includes Red Fescue (*Festuca rubra*), Oraches (*Atriplex* spp.), Sea Aster (*Aster tripolium*), Sea Couch Grass (*Elymus pycnanthus*), frequent Sea Milkwort (*Glaux maritima*), occasional Wild Celery (*Apium graveolens*), Parsley Water-dropwort (*Oenanthe lachenalii*), English Scurvygrass (*Cochlearia anglica*) and Sea Arrowgrass (*Triglochin maritima*). These species are more representative of the Atlantic sub-type of the habitat. Common Cord-grass (*Spartina anglica*), is rather frequent along the main channel edge and up the internal channels. The legally protected (Flora (Protection) Order, 1999) Meadow Barley (*Hordeum secalinum*) grows at the landward transition of the saltmarsh. Sea Rush (*Juncus maritimus*), an indicator of the Mediterranean salt meadows, also occurs.

Other habitats at the site include wet and dry grassland, marsh, reed swamp, improved grassland, coniferous plantations, deciduous woodland, scrub, tidal river, stony shore and mudflats. The most dominant habitat adjoining the river is improved grassland, although there are wet fields with species such as Yellow Flag (*Iris pseudacorus*), Meadow Sweet (*Filipendula ulmaria*), Rushes (*Juncus* spp.), Meadow Buttercup (*Ranunculus acris*) and Cuckoo Flower (*Cardamine pratensis*).

Cabragh marshes, just below Thurles, lie in a low-lying tributary valley into which the main river floods in winter. Here there is an extensive area of Common Reed (*Phragmites australis*) with associated marshland and peaty fen. The transition between vegetation types is often well displayed. A number of wetland plants of interest occur, in particular the Narrow-leaved Bulrush (*Typha angustifolia*), Bottle Sedge (*Carex rostrata*) and Blunt-flowered Rush (*Juncus subnodulosus*). The marsh is naturally eutrophic but it has also the nutritional legacy of the former sugar factory which discharged into it through a number of holding lagoons, now removed. Production is high which is seen in the size of such species as Celery-leaved Buttercup (*Ranunculus sceleratus*) as well as in the reeds themselves.

Throughout the Lower River Suir site are small areas of woodland other than those described above. These tend to be a mixture of native and non-native species, although there are some areas of semi-natural wet woodland with species such as Ash and Willow. Cahir Park Woodlands is a narrow tract of mixed deciduous woodland lying on the flat-

lying floodplain of the River Suir. This estate woodland was planted over one hundred years ago and it contains a large component of exotic tree species. However, due to original planting and natural regeneration there is now a good mix of native and exotic species. About 5km north west of Cashel, Ardmayle pond is a long, possibly artificial water body running parallel to the River Suir. It is partly shaded by planted Lime (*Tilia* hybrids), Sycamore (*Acer pseudoplatanus*) and the native Alder. Growing beneath the trees are shade tolerant species such as Remote sedge (*Carex remota*).

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), three species of Lampreys - Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*) and River Lamprey (*Lampetra fluviatilis*) and Otter (*Lutra lutra*). This is one of only three known spawning grounds in the country for Twaite Shad.

The site also supports populations of several other animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat (*Myotis daubentoni*), Natterer's Bat (*M. nattereri*), Pipistrelle (*Pipistrellus pipistrellus*), Pine Marten (*Martes martes*), Badger (*Meles meles*), the Irish Hare (*Lepus timidus hibernicus*), Smelt (*Osmerus eperlanus*) and the Frog (*Rana temporaria*). Breeding stocks of Carp are found in Kilsheelan Lake. This is one of only two lakes in the country which is known to have supported breeding Carp. Carp require unusually high summer water temperatures to breed in Ireland and the site may therefore support interesting invertebrate populations.

Parts of the site have also been identified as of ornithological importance for a number of Annex I (EU Birds Directive) bird species, including Greenland White-fronted Goose (10), Golden Plover (1490), Whooper Swan (7) and Kingfisher. Figures given in brackets are the average maximum counts from 4 count areas within the site for the three winters between 1994 and 1997. Wintering populations of migratory birds use the site. Flocks are seen in Coolfinn Marsh and also along the reedbeds and saltmarsh areas of the Suir. Coolfinn supports nationally important numbers of Greylag Geese on a regular basis. Numbers between 600 and 700 are recorded. Other species occurring include Mallard (21), Teal (159), Widgeon (26), Tufted Duck (60), Pintail (4), Pochard (2), Little Grebe (2), Black-tailed Godwit (20), Oystercatcher (16), Lapwing (993), Dunlin (101), Curlew (195), Redshank (28), Greenshank (4) and Green Sandpiper (1). Nationally important numbers of Lapwing (2750) were recorded at Faithlegg in the winter of 1996/97. In Cabragh marshes there is abundant food for surface feeding wildfowl which total at 1,000 or so in winter. Widgeon, Teal and Mallard are numerous and the latter has a large breeding population - with up to 400 in summer. In addition, less frequent species like Shoveler and Pintail occur and there are records for both Whooper and Bewick's swans. Kingfisher, a species that is listed on Annex I of the EU Birds Directive, occurs along some of the many tributaries throughout the site.

Landuse at the site consists mainly of agricultural activities including grazing, silage production, fertilising and land reclamation. The grassland is intensively managed and the rivers are therefore vulnerable to pollution from run-off of fertilisers and slurry. Arable crops are also grown. Fishing is a main tourist attraction on stretches of the Suir and some of its tributaries and there are a number of Angler Associations, some with a

number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. The Aherlow River is a designated Salmonid Water under the EU Freshwater Fish Directive. Other recreational activities such as boating, golfing and walking are also popular. Several industrial developments, which discharge into the river, border the site including three dairy related operations and a tannery.

The Lower River Suir contains excellent examples of a number of Annex I habitats, including the priority habitat Alluvial Forest. The site also supports populations of several Annex II animal species and a number of Red Data Book animal species. The presence of two legally protected plants (Flora (Protection) Order, 1999) and the ornithological importance of the river adds further to the ecological interest of this site.

17.05.2005

SITE SYNOPSIS

SITE NAME: MOANOUR MOUNTAIN

SITE CODE: 002257

Situated approximately 7 km south west of Tipperary town, this site lies on the north-western slope of Moanour Mountain, an outlying ridge of the Galtee Mountains. It lies entirely above the 220 m contour line, with a maximum height of 335 m. The site represents probably the only part of this mountainous ridge that retains semi-natural vegetation, the remainder having been afforested.

The lower western part of the site is dominated by acid grassland on mineral soil which corresponds to the habitat species-rich *Nardus* grassland, a habitat that is listed on Annex I of the E.U. Habitats Directive with priority status. This is characterised by the presence of Heath Bedstraw (*Galium saxatile*), Sheep's Fescue (*Festuca ovina*), Tormentil (*Potentilla erecta*) and Mat Grass (*Nardus stricta*), as well as such species as Common Bent (*Agrostis capillaris*), Green-ribbed Sedge (*Carex binervis*) and Pill Sedge (*C. pilulifera*).

The grassland merges in places with dry heath, with such species as Bell Heather (*Erica cinerea*), Ling (*Calluna vulgaris*) and Gorse (*Ulex europaeus* and *U. gallii*). As one moves upslope, the heath gets wetter and wet heath dominates the eastern part of the site. Species present include Purple Moor-grass (*Molinia caerulea*), Deergrass (*Trichophorum cespitosum*), Common Cottongrass (*Eriophorum angustifolium*), Cross-leaved Heath (*Erica tetralix*), Heath Rush (*Juncus squarrosus*), Lousewort (*Pedicularis sylvatica*) and Sundew (*Drosera rotundifolia*). Bryophytes are well represented, with a range of bog mosses (*Sphagnum capillifolium*, *S. cuspidatum*, *S. compactum*), as well as *Campylopus introflexus*, *Odontischisma sphagni* and *Gymnocolea inflata*. The lichen *Cladonia portentosa* occurs. At the summit of Moanour Mountain, the wet heath habitat grades in places to shallow blanket bog.

Landuse at the site consists of grazing by sheep.

While a relatively small site, it is of particular conservation importance for the presence of a good quality example of the E.U. Habitats Directive Annex I habitat, species-rich *Nardus* grassland.

19.10.2001

SITE SYNOPSIS

SITE NAME: PHILIPSTON MARSH

SITE CODE: 001847

Philipston Marsh is a small marsh near Philipston House, south of Cappagh White in Co. Tipperary. It represents one of only two examples of calcareous fen and mire vegetation in the Mulkear River catchment and is thus a rare habitat in this locality.

Philipston Marsh is a candidate SAC selected for transition mire, a habitat listed on Annex I of the E.U. Habitats Directive.

The marsh supports a dense reedbed of Common Reed (*Phragmites australis*) and patches of Willow (*Salix cinerea* subsp. *oleifolia*) scrub on its northern margins. The southern part is flushed with calcareous groundwater issuing from the base of a gentle slope. This area supports a very species-rich mosaic of fen and transition mire plant communities, amongst which are found several uncommon species, including Broad-leaved Cottongrass (*Eriophorum latifolium*), Marsh Helleborine (*Epipactis palustris*), Fen Bedstraw (*Galium uliginosum*), Lesser Tussock-sedge (*Carex diandra*) and Long-stalked Yellow-sedge (*C. lepidocarpa*). Typical rich-fen bryophytes, such as *Campylium stellatum*, *Drepanocladus revolvens*, *Ctenidium molluscum*, *Fissidens adianthoides*, *Philonotis calcarea*, *Palustriella commutata* etc., are largely confined to Philipston within the Mulkear River catchment.

This undisturbed fen and mire system supports an unusual and diverse assemblage of plant communities and is particularly important for its transition mire, a habitat listed on Annex I of the E.U. Habitats Directive.

SITE SYNOPSIS

SITE NAME: RIVER BARROW AND RIVER NORE

SITE CODE: 002162

This site consists of the freshwater stretches of the Barrow/Nore River catchments as far upstream as the Slieve Bloom Mountains and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Major towns along the edge of the site include Mountmellick, Portarlinton, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King’s Rivers on the Nore. Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also runs through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much of the shore.

The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter, *Vertigo moulinsiana* and the plant Killarney Fern.

Good examples of Alluvial Forest are seen at Rathsnagadan, Murphy’s of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Grey Willow (*S. cinerea*), Crack Willow (*S. fragilis*), Osier (*S. viminalis*), with Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Angelica (*Angelica sylvestris*), Thin-spiked Wood-sedge (*Carex strigosa*), Pendulous Sedge (*C. pendula*), Meadowsweet (*Filipendula ulmaria*), Valerian (*Valeriana officinalis*) and the Red Data Book species Nettle-leaved Bellflower (*Campanula trachelium*). Three rare invertebrates have been recorded in this habitat at Murphy’s of the River. These are: *Neoscia obliqua* (Diptera: Syrphidae), *Tetanocera freyi* (Diptera: Sciomyzidae) and *Dictya umbrarum* (Diptera: Sciomyzidae).

A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the EU Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, *Cratoneuron commutatum* var. *commutatum* and *Eucladium verticillatum*, have been recorded.

The best examples of old Oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the sixteenth century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved Bellflower and the moss *Leucodon sciuroides*. It has a typical bird fauna including Jay, Long-eared Owl and Raven. A rare invertebrate, *Mitostoma chrysomelas*, occurs in Abbeyleix and only two other sites in the country. Two flies *Chrysogaster virescens* and *Hybomitra muhlfeldi* also occur. The rare Myxomycete fungus, *Licea minima* has been recorded from woodland at Abbeyleix.

Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by Oak (*Quercus* spp.), Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Birch (*Betula pubescens*) with some Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*). All the trees are regenerating through a cover of Bramble (*Rubus fruticosus* agg.), Foxglove (*Digitalis purpurea*) Wood Rush (*Luzula sylvatica*) and Broad Buckler-fern (*Dryopteris dilatata*).

On the steeply sloping banks of the River Nore about 5 km west of New Ross, in County Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of a relatively undisturbed, relict Oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown a small, mature Oak-dominant woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (*Vaccinium myrtillus*), Heather (*Calluna vulgaris*), Hard Fern (*Blechnum spicant*), Cow-wheat (*Melampyrum* spp.) and Bracken (*Pteridium aquilinum*).

Borris Demesne contains a very good example of a semi-natural broad-leaved woodland in very good condition. There is quite a high degree of natural re-generation of Oak and Ash through the woodland. At the northern end of the estate Oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly Oak species. The woods have a well established understorey of Holly (*Ilex aquifolium*), and the herb layer is

varied, with Brambles abundant. Whitebeam (*Sorbus devoniensis*) has also been recorded.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the flood-plain of the river is intact. Characteristic species of the habitat include Meadowsweet (*Filipendula ulmaria*), Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*). Indian Balsam (*Impatiens glandulifera*), an introduced and invasive species, is abundant in places.

Floating River Vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include Water Starworts (*Callitriche* spp.), Canadian Pondweed (*Elodea canadensis*), Bulbous Rush (*Juncus bulbosus*), Milfoil (*Myriophyllum* spp.), *Potamogeton x nitens*, Broad-leaved Pondweed (*P. natans*), Fennel Pondweed (*P. pectinatus*), Perfoliated Pondweed (*P. perfoliatus*) and Crowfoots (*Ranunculus* spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996).

Dry Heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the slopes of the river bank consists of Bracken (*Pteridium aquilinum*) and Gorse (*Ulex europaeus*) species with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (*Galium saxatile*), Foxglove (*Digitalis purpurea*), Common Sorrel (*Rumex acetosa*) and Bent Grass (*Agrostis stolonifera*). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (*Orobanche rapum-genistae*) has been recorded. Where rocky outcrops are shown on the maps Bilberry (*Vaccinium myrtillus*) and Wood Rush (*Luzula sylvatica*) are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry grassland. These support a number of Clover species including the legally protected Clustered Clover (*Trifolium glomeratum*) - a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e. English Stonecrop (*Sedum anglicum*), Sheep's-bit (*Jasione montana*) and Wild Madder (*Rubia peregrina*). These rocks also support good lichen and moss assemblages with *Ramalina subfarinacea* and *Hedwigia ciliata*.

Dry Heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (*Molinia caerulea*) with Heather (*Calluna vulgaris*), Tormentil (*Potentilla erecta*), Carnation Sedge (*Carex panicea*) and Bell Heather (*Erica cinerea*).

Saltmeadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (*Phragmites*) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank;

Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*) (Flora Protection Order, 1987) are found. The very rare Divided Sedge (*Carex divisa*) is also found. Sea Rush (*Juncus maritimus*) is also present. Other plants recorded and associated with salt meadows include Sea Aster (*Aster tripolium*), Sea Thrift (*Armeria maritima*), Sea Couch (*Elymus pycnanthus*), Spear-leaved Orache (*Atriplex prostrata*), Lesser Sea-spurrey (*Spergularia marina*), Sea Arrowgrass (*Triglochin maritima*) and Sea Plantain (*Plantago maritima*).

Salicornia and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones.

The estuary and the other Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include *Arenicola marina*, *Nephtys hombergii*, *Scoloplos armiger*, *Lanice conchilega* and *Cerastoderma edule*.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (*Carex* spp.), Meadowsweet, Willowherb (*Epilobium* spp.) and rushes (*Juncus* spp.). Wet woodland also occurs. This area supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

The dunes which fringe the strand at Duncannon are dominated by Marram grass (*Ammophila arenaria*) towards the sea. Other species present include Wild Sage (*Salvia verbenaca*), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift (*Armeria maritima*), Rock Samphire (*Crithmum maritimum*) and Buck's-horn Plantain (*Plantago coronopus*).

Other habitats which occur throughout the site include wet grassland, marsh, reed swamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (*Trichomanes speciosum*), Divided Sedge (*Carex*

divisa), Clustered Clover (*Trifolium glomeratum*), Basil Thyme (*Acinos arvensis*), Hemp nettle (*Galeopsis angustifolia*), Borrer's Saltmarsh Grass (*Puccinellia fasciculata*), Meadow Barley (*Hordeum secalinum*), Opposite-leaved Pondweed (*Groenlandia densa*), Autumn Crocus (*Colchicum autumnale*), Wild Sage (*Salvia verbenaca*), Nettle-leaved Bellflower (*Campanula trachelium*), Saw-wort (*Serratula tinctoria*), Bird Cherry (*Prunus padus*), Blue Fleabane (*Erigeron acer*), Fly Orchid (*Ophrys insectifera*), Broomrape (*Orobanche hederæ*) and Greater Broomrape (*Orobanche rapum-genistæ*). Of these the first nine are protected under the Flora Protection Order 1999. Divided Sedge (*Carex divisa*) was thought to be extinct but has been found in a few locations in the site since 1990. In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge (*Carex strigosa*), Field Garlic (*Allium oleraceum*) and Summer Snowflake (*Leucojum aestivum*). Six rare lichens, indicators of ancient woodland, are found including *Lobaria laetevirens* and *L. pulmonaria*. The rare moss *Leucodon sciuroides* also occurs.

The site is very important for the presence of a number of EU Habitats Directive Annex II animal species including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), three Lamprey species - Sea (*Petromyzon marinus*), Brook (*Lampetra planeri*) and River (*Lampetra fluviatilis*), the marsh snail *Vertigo moulinsiana* and Otter (*Lutra lutra*). This is the only site in the world for the hard water form of the Pearl Mussel *M. m. durrovensis* and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat (*Myotis daubentoni*), Badger (*Meles meles*), Irish Hare (*Lepus timidus hibernicus*) and Frog (*Rana temporaria*). The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) occurs in estuarine stretches of the site. In addition to the Freshwater Pearl Mussel, the site also supports two other freshwater Mussel species, *Anodonta anatina* and *A. cygnea*.

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal roosting site in the reedbeds of the Barrow Estuary used by Swallows before they leave the country.

Landuse at the site consists mainly of agricultural activities – many intensive, principally grazing and silage production. Slurry is spread over much of this area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support

many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.

Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Pearl Mussel which is limited to a 10 km stretch of the Nore, add further interest to this site.

SITE SYNOPSIS

SITE NAME: SLIEVEFELIM TO SILVERMINES MOUNTAINS SPA

SITE CODE: 004165

The Slievefelim to Silvermines Mountains SPA is an extensive upland site located in Counties Tipperary and Limerick. Much of the site is over 200 m in altitude and rises to 694 m at Keeper Hill. Other peaks included in the site are Slieve Felim, Knockstanna, Knockappul, Mother Mountain, Knockteige, Cooneen Hill and Silvermine Mountain. The site is underlain mainly by sandstones of Silurian age. Several important rivers rise within the site, including the Mulkear, Bilboa and Clare.

The site consists of a variety of upland habitats, though approximately half is afforested. The coniferous forests include first and second rotation plantations, with both pre-thicket and post-thicket stands present. Substantial areas of clear-fell are also present at any one time. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). Roughly one-quarter of the site is unplanted blanket bog and heath, with both wet and dry heath present. The bog and heath vegetation includes such typical species as Ling Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*), Bell Heather (*Erica cinerea*), Common Cottongrass (*Eriophorum angustifolium*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Deergrass (*Scirpus cespitosus*) and Purple Moorgrass (*Molinia caerulea*). The remainder of the site is mostly rough grassland that is used for hill farming. This varies in composition and includes some wet areas with rushes (*Juncus* spp.) and some areas subject to scrub encroachment. Some stands of deciduous woodland also occur, especially within the river valleys.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier.

This SPA is one of the strongholds for Hen Harrier in the country. A survey in 2005 resulted in four confirmed and one possible breeding pairs, whereas nine pairs had been recorded in the 1998-2000 period. These numbers represent 3% of the national total. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the Birds Directive. The early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

The site is also a traditional breeding site for a pair of Peregrine. Merlin has been recorded within the site but further survey is required to determine its status. Both of these species are also listed on Annex I of the E.U. Birds Directive. Red Grouse is found on some of the unplanted areas of bog and heath – this is a species that has declined in Ireland and is now Red-listed.

The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity.

Overall, the site provides excellent nesting and foraging habitat for breeding Hen Harrier and is among the top five sites in the country for the species.

Appendix 3

Assessment Report

Appendix 3: Assessment Report

Appropriate Assessment Report

Assessment of the likely effects of the plan on the integrity of the site

The County Development Plan will be the new statutory plan for South Tipperary for 2009-2015. This plan, once adopted will supersede the previous plan 2003 – 2009. The plan has two main purposes, firstly to provide a framework of acceptable uses within the County, defining acceptable forms of development and where it should be directed and secondly to provide a detailed basis for the promotion and control of development. The County Development Plan is therefore the guiding document for development within the county over the next 6 years. A potential exists to adversely impact on Natura 2000 sites through inappropriate development either within or close to designated sites.

Such development either in isolation or in combination with other similar developments can potentially lead to significant adverse impacts on the environment with long term consequences. Such impacts may be through direct habitat loss (rural housing, agricultural development, afforestation etc) or through point source emissions leading to a deterioration in water quality (proliferation of individual wastewater treatment facilities, inappropriate industrial development, intensification of agricultural use etc).

Furthermore the local authority provides sanitation services such as waste water treatment. The implementation of the plan and the planned increase in population will increase the loading on the existing wastewater infrastructure. Without adequate treatment discharges from such plants can potentially increase the nutrient loading on receiving waters with direct, long term adverse consequences on the aquatic environment.

Set out the conservation objectives of the site

Galtee Mountains SAC

Situated in east Limerick and South Tipperary, the Galtee Mountains are Ireland's highest range of inland mountains. Heath is the main habitat type with both dry heath and alpine heath found within the site. Upland Mat-grass (*Nardus stricta*) grassland occurs on steep slopes, particularly in the west. Blanket bog is more localised and occurs mainly at high altitudes. The north-facing cliffs are of primary importance as they support arctic-alpine communities with some rare plant species. The Rare Small-white orchid (*Pseudorchis albida*), Mountain Rock-creep (*Cardaminopsis petraea*) and Alpine Saw-wort (*Saussurea alpina*) have been recorded from the site. These species are included in the Red Data Book and the former are legally protected under the Flora Protection Order (1987). Other typical mountain plants are also found on the site. The site also supports breeding Peregrine, a species listed on Annex I of the EU Birds Directive. Overgrazing by sheep, Afforestation and frequent burning are considered significant threats to some areas of heath and grassland.

Philipston Marsh SAC

Philipston Marsh is a small marsh near Philipston House, south of Cappagh White in Co. Tipperary. It represents one of only two examples of calcareous fen and mire vegetation in the Mulkear River catchment and is thus a rare habitat in this locality. Philipston Marsh is a candidate SAC for the presence of the transition mire, a habitat listed on Annex I of the E.U. Habitats Directive. This area supports a very species-rich mosaic of fen and transition mire plant communities, amongst which are found several uncommon species, including Broadleaved Cottongrass (*Eriophorum latifolium*), Marsh Helleborine (*Epipactis palustris*), Fen Bedstraw (*Galium uliginosum*), Lesser Tussock-sedge (*Carex diandra*) and Longstalked Yellow-sedge (*C. lepidocarpa*).

Anglesey Road SAC

Anglesey Road is a steep-sided valley which extends approximately 1.8 km along the Multeen River to the north of Hollyford village. Among the common grasses are Bents (*Agrostis* spp.), Crested Dog's-tail (*Cynosurus cristatus*), Sheep's Fescue (*Festuca ovina*) and Wavy Hair-grass (*Deschampsia flexuosa*). On the steep valley sides and in stream gullies scrub comprised of Willow (*Salix* spp.), Downy Birch (*Betula pubescens*), Rowan (*Sorbus aucuparia*), Hazel (*Corylus avellana*), Hawthorn and Ash (*Fraxinus excelsior*) have developed. Anglesey Road is of particular importance for the good quality examples of species rich, unimproved upland grassland found. This habitat is becoming increasingly rare in Ireland and Europe and is listed on Annex I of the EU Habitats Directive.

Appendix 3: Assessment Report

Lower River Suir SAC

This site consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal influence extends as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford and many tributaries including Clodiagh in Co. Tipperary. The site is a candidate SAC selected for the presence of the priority habitats on Annex I of the E.U. Habitats Directive - alluvial wet woodlands and Yew Wood. The site is also selected as a candidate SAC for floating river vegetation, Atlantic salt meadows, mediterranean salt meadows, old oak woodlands and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The following species listed on Annex II of the directive are present - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic salmon and Otter. The legally protected (Flora (Protection) Order, 1999) Meadow Barley (*Hordeum secalinum*) and Opposite-leaved Pondweed (*Groenlandia densa*) also occur within the site.

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), and Otter (*Lutra lutra*). This is one of only three known spawning grounds in the country for Twaite Shad. Parts of the site have also been identified as of ornithological importance for a number of Annex I (EU Birds Directive) bird species, including Greenland White-fronted Goose (10), Golden Plover (1490), Whooper Swan (7) and Kingfisher.

River Barrow and River Nore SAC

This site consists of the freshwater stretches of the Barrow/Nore River catchments as far upstream as the Slieve Bloom Mountains and it also includes the tidal elements and an estuary. The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic salmon, Otter, *Vertigo moulinsiana* and the plant Killarney Fern. This is the only site in the world for the hard water form of the Pearl Mussel *M. m. durrovensis* and one of only a handful of spawning grounds in the country for Twaite Shad.

The freshwater stretches of the River Nore main channel is a designated salmonid river. The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) also occurs in estuarine stretches of the site. The site is of ornithological importance for a number of E.U. Birds Directive Annex I species including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bartailed Godwit, Peregrine and Kingfisher. The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and *Rhododendron ponticum*. The water quality of the site remains vulnerable.

Lower River Shannon SAC

The Lower Shannon SAC extends 120 km from Killaloe to Loop Head/ Kerry Head. The site thus encompasses the Shannon, Feale, Mulkear and Fergus Estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The site has been selected as a SAC for the presence of lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic salmon and Otter.

A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country. Most of the estuarine part of the site has been designated a Special Protection Area (SPA), under the E.U. Birds Directive, primarily to protect the large numbers of migratory birds present in winter.

Appendix 3: Assessment Report

Blackwater River SAC

The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. The extent of the Blackwater and its tributaries in this site, flows through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. The site is a candidate SAC selected for alluvial wet woodlands and Yew wood, both priority habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, estuaries, tidal mudflats, Salicornia mudflats, Atlantic salt meadows, Mediterranean salt meadows, perennial vegetation of stony banks and old Oak woodlands, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter and the plant, Killarney Fern.

The site is also important for the presence of several Habitats Directive Annex II animal species, including Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*L. fluviatilis*), Twaite Shad (*Alosa fallax fallax*), Freshwater Pearl-mussel (*Margaritifera margaritifera*), Otter (*Lutra lutra*) and Salmon (*Salmo salar*). The Awbeg supports a population of White-clawed Crayfish (*Austropotamobius pallipes*). This threatened species has been recorded from a number of locations and its remains are also frequently found in Otter spraints, particularly in the lower reaches of the river. The freshwater stretches of the Blackwater and Bride Rivers are designated salmonid rivers. Several bird species listed on Annex I of the E.U. Birds Directive are found on the site, including Long-eared Owl and Barn Owl.

Moanour Mountain SAC

Situated approximately 7 km south west of Tipperary town, this site lies on the north-western slope of Moanour Mountain, an outlying ridge of the Galtee Mountains. It lies entirely above the 220 m contour line, with a maximum height of 335 m. The site represents probably the only part of this mountainous ridge that retains semi-natural vegetation, the remainder having been afforested. The lower western part of the site is dominated species-rich *Nardus* grassland, a habitat that is listed on Annex I of the E.U. Habitats Directive with priority status. This is characterised by the presence of Heath Bedstraw (*Galium saxatile*), Sheep's Fescue (*Festuca ovina*), Tormentil (*Potentilla erecta*) and Mat Grass (*Nardus stricta*), as well as such species as Common Bent (*Agrostis capillaris*), Greenribbed Sedge (*Carex binervis*) and Pill Sedge (*C. pilulifera*). Bryophytes are well represented, with a range of bog mosses (*Sphagnum capillifolium*, *S. cuspidatum*, *S. compactum*). At the summit of Moanour Mountain, the wet heath habitat grades in places to shallow blanket bog.

Slievefelim to Silvermines SPA

The Slievefelim to Silvermines Mountains SPA is an extensive upland site located in Counties Tipperary and Limerick. Much of the site is over 200 m in altitude and rises to 694 m at Keeper Hill. The site consists of a variety of upland habitats, though approximately half is afforested. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). Roughly one-quarter of the site is unplanted blanket bog and heath, with both wet and dry heath present. The remainder of the site is mostly rough grassland that is used for hill farming. The site is of special conservation interest for Hen Harrier. This SPA is one of the strongholds for Hen Harrier in the country. A survey in 2005 resulted in four confirmed and one possible breeding pairs, whereas nine pairs had been recorded in the 1998-2000 period.

These numbers represent 3% of the national total. The site is also a traditional breeding site for a pair of Peregrine. Red Grouse is found on some of the unplanted areas of bog and heath. The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity. Overall, the site provides excellent nesting and foraging habitat for breeding Hen Harrier and is among the top five sites in the country for the species.

Describe the elements of the plan (alone or in combination with other plans) that are likely to give rise to significant effects on the site (from the screening assessment)

South Tipperary shares its boundary with a number of midland counties as noted above. Furthermore a number of Natura 2000 sites are located in more than one county. Similar development plans are in existence throughout the region, accordingly these plans acting alone or in combination can have a cumulative impact on Natura 2000 sites located within South Tipperary.

Appendix 3: Assessment Report

The Minister for the Environment, Heritage and Local Government is currently co-ordinating the development of Ireland's 2nd National Biodiversity Plan. The preparation and implementation of the Plan will be the responsibility of a range of Government Departments and Agencies. The production of national biodiversity strategies is an obligation under the Convention on Biological Diversity, which Ireland ratified in 1996. Ireland produced the first National Biodiversity Plan in 2002, to meet this commitment and the new Plan will seek to build on the progress achieved since 2002.

Furthermore a series of River Basin Management Plans are currently being prepared and are due for publication later this year. South Tipperary is located within 3 such districts, South Eastern, the Shannon and the South Western share region. The Plans are likely to have far reaching consequences for water management and protection of resources throughout the country.

Appendix 3: Assessment Report

Set out the conservation objectives of the site	
Galtee Mountains SAC	To ensure there is no net loss of area or change to the structure, biodiversity or distribution pattern of the highly sensitive communities within the site. To ensure the legal protection of those plant species protected under the Flora Protection Order (1987).
Philipston Marsh SAC	To ensure there is no net loss of area or change to this transition mire, its abundant marl plant community and biodiversity.
Anglesey Road SAC	To ensure there is no net loss of area or change to the unimproved upland grassland (Annex I habitat); its structure and its microhabitats.
Lower River Suir SAC	To ensure there is no net loss of area or change to the structure, biodiversity or distribution pattern of the highly sensitive communities within the site. To ensure the conservation of Annex I habitats and Annex II species present. To ensure the legal protection of those plant species protected under the Flora Protection Order (1987) and to protect species found within the Red Data Book of threatened species.
River Barrow and River Nore SAC	To ensure there is no net loss of area or change to the structure, biodiversity or abundance of various habitats within the site. To ensure the legal protection of those plant species protected under the Flora Protection Order (1987). To ensure the conservation of Annex I habitats and Annex II species present and to protect species found within the Red Data Book of threatened species.
Lower River Shannon SAC	To ensure there is no net loss of area or change to the structure, biodiversity or distribution pattern of the highly sensitive communities within the site. To ensure the conservation of Annex I habitats and Annex II species present. To protect species found within the Red Data Book of threatened species.
Blackwater River SAC	To ensure there is no net loss of area or change to the structure or biodiversity within the site.
Moanour Mountain SAC	To ensure there is no net loss of area or change to the Annex I habitat, the <i>Nardus</i> grassland, its abundant plant community and biodiversity.
Slievefelim to Silvermines SPA	To ensure there is no net loss of area or change to the structure or biodiversity within the site and the retention and protection of the nationally important bird species (Hen Harrier, Peregrine, Merlin and Red Grouse)

Appendix 3: Assessment Report

Describe how the integrity of the site (determined by the structure and function and conservation objectives) is likely to be affected by the plan (eg loss of habitat, disturbance, disruption, chemical changes, hydrological changes and geological changes etc). Acknowledge uncertainties and any gaps in

- reduce the area of Natura 2000 sites, be loss or fragmentation through inappropriate or insensitive development;
- cause fundamental changes in the chemistry of the soil or water environment;
- interfere with water flows and flood dynamics; and
- create unnecessary disturbance through inappropriate development with adverse effects on fauna species.

Describe what mitigation measures are to be introduced to avoid or reduce the adverse impacts on the integrity of the site. Acknowledge uncertainties and any gaps in information.

AEH 6: It is the policy of the Council to maintain the quality of designated environmental sites and when assessing proposals will provide for the protection, conservation and enhancement of wildlife habitats and designated sites.

AEH 9 Waste Water Treatment and Disposal: It is the policy of the Council to implement the Urban Waste Water Regulations, the relevant River Basin Management Plans and EU requirements, and will take account of the drainage system and the quality and quantity of receiving waters in the area when assessing development proposals. Proposals will be required to comply with the development management standards set out in Chapter 9 of the County Development Plan

INF5 Water Supply and Waste Water: It is the policy of the Council to facilitate the provision and upgrading of the water supply and sewerage schemes throughout the county in accordance with the settlement strategy identified in Chapter 3 and as finances permit and will require;

- Proposed developments to connect to the public water mains and public sewers where available or likely to be available.
- Financial contributions in accordance with the Development Contribution Scheme for water services from developers towards existing and/or future developments.
- Bonds to be submitted by developers to ensure the satisfactory completion and maintenance of water services infrastructure until such time as the Council takes them in charge.

INF6 Surface Water: The Council will seek the implementation of rainwater harvesting, SUDS and best practice guidance for the collection and reuse or disposal and treatment of surface water. Such systems will be required to conserve water, protect water quality and regulate the rate of surface water runoff so as not to cause or exacerbate flooding on the relevant site or elsewhere.

INF7 Flood Risk Assessment: The Council will require a comprehensive Flood Risk Assessment for proposals in an area at risk of flooding, adjoining same or where cumulative impacts may result in a flood risk elsewhere.

INF15 Agricultural Waste: The Council will require all agricultural organic waste to be recovered by landspreading and will seek improvement in the management of all agricultural organic waste by requiring the provision of a satisfactory nutrient management plan where intensive agricultural development is proposed.

AEH7 Water Environment: It is the policy of the Council to preserve an undisturbed edge or buffer zone between new developments and river corridors and other water bodies in order to maintain the natural functions of existing ecosystems and to encourage increased public access and enhance water-related recreation opportunities.

AEH8 Groundwater Protection: It is the policy of the Council to protect groundwater resources and drinking water catchments having regard to the South Tipperary Ground Water Protection Scheme 1998 (as amended) and Environmental Protection Agency guidelines applicable at the time.

ECON12 Extractive Industry: The Council will support sustainable extractive industries where such operations ensure that existing environmental quality and amenity is protected and which comply with the development management standards of the County Development Plan.

Appendix 3: Assessment Report

AEH14 South Tipperary Heritage Plan: It is the policy of the Council to implement the key objectives and associated actions identified in the South Tipperary Heritage Plan 2004-2008 and any revision thereof.

SEAH01: As opportunities arise, the Council will develop a database of heritage assets throughout the County.

DM1 Development Standards: It is the policy of the Council to require all development to comply with the relevant standards identified in Chapter 9 Development Management of the County Development Plan.

Results of consultation

Name of agency(ies) or body (ies) consulted	Summary of response.
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Department of the Environment, Heritage and Local Government	Requested a conclusion to the draft report.
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