

Wicklow Indicative Forestry Strategy

WICKLOW COUNTY COUNCIL
2002



Foreword

Wicklow has a considerable legacy of estate forestry, with wooded estates contributing significantly to the character of the landscape. The county also has a very strong tradition of forest management, indeed Ireland's first forestry training centre was opened in Avondale almost a century ago.

Over the years forestry has undergone many changes and has become one of the major land uses in the county, with both positive and negative consequences. Wicklow County Council recognises that, if properly planned and managed, forestry has the potential to provide a significant contribution to the social environmental, and economic enhancement of the county.

This strategy aims to facilitate forestry development in a manner that is sustainable, and in harmony with the surrounding landscape. Its preparation marks a closer working relationship between Wicklow County Council and the Forest Service, which I am sure, will be of benefit to the county as a whole.

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County Manager

FOREWORD

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Forests interact in a significant way with both the visual appearance and the ecology of the earth's surface. Their presence or indeed absence also has a significant social, political and commercial influence.¹

1.0 Introduction

Ecological and social sustainability have become key concerns in terms of global, EU and national policy making. Years of overuse has led to demand far exceeding the supply of finite resources, a situation which has been the catalyst for environmental and subsequent human crisis. Europeans have long been aware of the necessity to create a sustainable means of harmonising the goals of economic progress with those of the social and environmental needs of its members, but only in the last number of years have their concerns been transferred into tangible and effective policies.

Land use in Ireland has become increasingly dominated by EU policy since its accession into the EEC in 1973, due to the high levels of incentives on offer to encourage certain land uses and discourage others. Forestry is at the cutting edge of economic development and sustainability in rural areas, but in order to safe-guard the environmental and social well-being of the locality, as well as maintaining its uniqueness of landscape character, it must be managed through the effective coupling of national and EU forestry and ancillary policy with appropriate local Forestry Strategies.

The Wicklow County Development Plan 1999 stresses the amenity value of woodland, but also refers to the damage that was caused to the landscape through poor forestry planning that occurred in the past. The Development Plan recognises the importance of forestry to the economy of the county and states that the Council will encourage the development of both state and private afforestation that is compatible with the sustainable development of the county, in accordance with the provisions of the Wicklow County Council Indicative Forestry Strategy 1998. Since the compilation of the 1998 Indicative Forestry Strategy, there has arisen a need to update the document. Many changes have come about in the Forestry Sector, as well as within Planning. This document seeks to amend the original Indicative Forestry Strategy to include these changes, and to merge the interests of commercial afforestation with that of the social and environmental needs of the county Wicklow community, while also complying with the planning objectives set out in the 1999 County Development Plan.

Forestry and woodland have a tremendously positive role to play in the social, environmental and economic enhancement of Wicklow, in terms of their ability to enrich the amenity, ecology and income value of the county. The many new policies and measures which have been introduced by the Forest Service and Departments of Agriculture, Food and Forestry and Marine and Natural Resources, respectively, follow and encourage Sustainable Forest Management (SFM) practices, and have been put in place to ensure that such positive and enriching benefits of afforestation are enforced. This document draws on these policies and measures as the basis for its strategy, and

¹ Divilly, P. in Divilly et al, 1995, *Forestry or Farmland, A Dilemma for Land Use and Management in Ireland*, Dublin: UCD Department of Geography, LLASS working paper No. 16, p. 1.

then applies them to the specific planning objectives that have been adopted by the elected members of Wicklow County Council. Any Indicative Strategy implemented and adopted by Wicklow County Council is statutorily obliged to be in accordance with these objectives.

Since the publication of the original *Indicative Forestry Strategy* in 1998, The Forest Service *Forestry and Landscape Guidelines* were updated in July 2000 and the County Development Plan was updated in 1999. Indeed changes have taken place in the day-to-day operations of forestry activities in the country, which plan sustainable forestry initiatives involving closer consultation with local communities. Much of the background work for the landscape components of the 1999 County Development Plan serve as the background for the original Indicative Forestry Strategy, and also as a basis for this current document.

Since 1998 an increased amount of planting has also been carried out by private sector groups and individuals on privately owned land, rather than by Coillte on its own land base. Coillte too has altered the scale of its planting through its Farmer Partnership Programme, involving planting on privately owned land. In practical terms this is likely to lead to smaller scale, more dispersed forestry plantations than has currently been the case.

Taking these changes into account, the new Forestry Strategy seeks to build on the foundations laid by that of 1998, and to incorporate the new changes that have come about over the last three years. It also expands the section on the legislative background contained in the 1998 strategy to give a more complete picture of the legislation that relates to Forestry issues, and sets forestry into the context of the overall sustainable development of County Wicklow.

This Indicative Forestry Strategy has been produced following consultation with the Forest Service. The Council wishes to acknowledge the contribution made by the Forest Service to the preparation of this strategy.

2.0 Policy, Regulatory and Supervisory

Government policy on the development of the forestry sector is set out in *Growing for the Future – A Strategic Plan for the Development of the Forestry Sector in Ireland* published in 1996 by the Department of Agriculture Food and Forestry. The overall aim is to develop forestry to a scale and in a manner that maximises its contribution to national economic and social well being on a sustainable basis and which is compatible with the protection of the environment. This foresees an increase in forest area from the current 9% to 17% by the year 2030² (an eventual planting target of 20,000 hectares per annum). Most of the targets set in this document, which aim to prevent the negative effects that can be caused by afforestation have been achieved. Examples include the reduction of the planning permission/EIS threshold for initial afforestation; notification to Local Authorities of all grant aided forestry applications in excess of 25 hectares; introduction of a series of Environmental Guidelines and the introduction of the *Code of Best Forest Practice* and the *Irish National Forest Standard*. The Native Woodland

² March 2001, Irish Forestry Industry Chain: Draft Submission to Indicative Forestry Strategy.

Scheme will further reinforce the positive benefits that can be gained through afforestation.

In January 1997, the Department of Environment and Local Government published *Draft Guidelines for Planning Authorities on Forestry Development*. These guidelines were born out of an agreement by the Minister for the Environment and the Minister for Agriculture Food and Forestry in April of 1996 to introduce regulations which reduced the threshold of initial afforestation and non-statutory procedures to give a consultative role to planning authorities in the case of grant aided forestry development over 25 hectares, as was recommended in the Strategy document above. The guidelines highlight both the positive and negative effects of afforestation. On the positive side, the guidelines draw attention to the effectiveness of forests as carbon sinks and their role in the reduction of soil erosion and the provision of additional income, employment and industry. On the negative side the document draws attention to the landscape, environmental and social problems that can be caused through poorly managed afforestation, such as visual intrusion, acidification of watercourses and reduction of biodiversity through single species planting. The draft guidelines were intended to help planning authorities, in conjunction with the Forest Service to ensure that commercial forestry is carried out in a sustainable manner, so that the benefits of increased forestry could be obtained without damage to the environment.

In addition, there have been a number of changes in policy, governing and influencing forestry since the drafting of the 1998 Indicative Strategy; these are summarised below: -

2.1 Forestry Legislation

Forest Guidelines: The Forest Service issued an updated series of guidelines in July 2000. These guidelines are based on the principles of Sustainable Forest Management (SFM) as outlined in Rio, Helsinki and the Third Ministerial Conference on the Protection of Forests in Europe in Lisbon. The guidelines apply to all grant-aided projects and to all activities associated with a felling license. They cover the following: -

Forest Harvesting and the Environment Guidelines, dealing with

- Soil conservation
- The protection of water quality, archaeological sites, biodiversity and the visual landscape
- The maintenance of forestry health and productivity

Forestry and Archaeology Guidelines, dealing with

- Preservation and protection of archaeological sites
- Maintenance of access to sites for future study

Forest Biodiversity Guidelines dealing with,

- The conservation and enhancement of ecosystem, species and genetic biodiversity

Forestry and the Landscape Guidelines, dealing with,

- Ensuring of a positive relationship between the forest and the character of a given landscape as a whole
- Optimising of aesthetic effect through the integration of forests with landscape

- Minimising visual conflict and loss of characteristics
- Mitigating adverse impacts of forest operations, including harvesting

Forestry and Water Quality Guidelines, dealing with,

- The maintenance and enhancement of water quality
- Mitigation against negative impact on water quality by forestry
- Maximising the positive effects of forestry on water courses, such as aquatic biodiversity enhancement and the creation of appropriate riparian ecosystems³

Forestry and Aerial Fertilisation Guidelines, dealing with

- Rates of application
- Timing of application
- Exclusion zones
- Storage of fertiliser

All of these guidelines underwent a consultation process, allowing the input of interested individuals and organisations.

Codes of Practice: The Forest Service published a comprehensive manual – *Code of Best Forest Practice* in September 2000. This sets out the best practice in relation to all forest operations and is also based on the principles of Sustainable Forest Management. The Code underwent a consultation process allowing input from individuals and interested parties. In addition, the industry is in the process of agreeing a Code of Practice for the Transport of Round Timber. The third draft is currently under consideration.⁴

Afforestation Grant and Premium Schemes: Compliance with the Guidelines outlined above is a condition for grant and premium approval. The Forest Service in September 2000 published new guidelines. They while setting out eligibility criteria, include for the first time a series of penalties covering:

- Failure to exclude areas ineligible for aid;
- Failure to identify unenclosed and enclosed areas correctly;
- Failure to comply with environmental guidelines;
- Failure to comply with specific supplementary environmental conditions;
- Failure to comply with conditions governing chemical and fertiliser application, silt traps, disposal of rubbish etc.
- Incorrect species selection;
- Failure to maintain fencing and control scrub / furze; and
- Dumping.⁵

National Standard: The Forest Service published in year 2000 the *Irish National Forest Standard*. This follows the recommendations of the Lisbon Conference and under each of the agreed six Criteria⁶, sets out the indicators which provide the basis for assessing

³ March 2001, Irish Forestry Industry Chain: Draft Submission to Indicative Forestry Strategy

⁴ *ibid.*

⁵ *ibid.*

⁶ See Appendix 2

actual forest by measuring sustainable forest management in relation to one aspect of a criterion.⁷

Sustainable Forest Management (SFM) integrates the principles of sustainable development with forestry management.

The concept of sustainable forest management has been discussed throughout the world following agreement on a statement of principles for the management, conservation and sustainable development of forests at the 1992 United Nations Conference on Environment and Development (UNCED, also referred to as the Rio or Earth Summit). Since then the concept has been defined by developing criteria and indicators that emphasise the economic, social and environmental dimensions of sustainable forest management.

While there is no single universally accepted definition of sustainable forest management, a definition was agreed at the Ministerial Council on the Protection of Forests in Europe (the Helsinki process):

*Sustainable forest management is the stewardship and use of forests and forest land in a way and at a rate that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels and does not cause damage to other ecosystems.*⁸

Forest Certification: There are two main movements for forest certification, compliance with the principles of Sustainable Forest Management – the Forest Stewardship Council (FSC) and the Pan European Forest Certification (PEFC). The FSC is a global initiative born out of the Rio Conference, while the PEFC is more recent and based in Europe. Certification is a voluntary market led process. Suppliers increasingly demand certified timber to assure customers that their products come from sustainably managed forests. The Irish Forestry Certification Initiative (IFCI) was established at an open meeting at the beginning of 1999. They have published their second draft of Forest Management Standards for the Republic of Ireland, which is currently under public consultation. In line with FSC rules, there are three chambers in the FSCI – social, environmental and economic. However, IFCI have got approval to include a fourth chamber – private forest owners. Coillte have recently had their forests certified to FSC standard.⁹

Forestry Acts: The main legislative instruments governing forestry are: -
Forestry Act 1946
Forestry Act 1956,
Forestry Act 1988, establishing Coillte.

⁷ March 2001, Irish Forestry Industry Chain: Draft Submission to Indicative Forestry Strategy

⁸ *ibid.*

⁹ *ibid.*

The Forest Service has established a review group to look at current forest legislation and make recommendations to update the legislation in line with European trends and Ireland's signatory to international agreements and accords.

2.2 Ancillary Legislation

Ancillary legislation not directly concerned with forests but having an impact through its provisions includes the following: -

- Environmental Impact Assessment (Amendment) Regulations – Statutory Instrument No. 101, 1996;
- Environmental Protection Agency Act 1992;
- EU Council Directive 79/409/EEC on the conservation of wild birds;
- EU (Conservation of Wild Birds) (Amendment) Regulation 1999;
- European Communities (Natural Habitats) Regulation 1997;
- EC (Natural Habitats) (Amendment) Regulation 1998;
- Litter Pollution Act 1997;
- Local Government (Planning and Development) Acts 1963-1996;
- Local Government (Planning and Development) Regulations - Statutory Instrument No. 100, 1996
- Local Government (Water Pollution) Acts 1977-90;
- Local Government (Special Amenity and Conservation Orders) Act 1976;
- National Monuments Acts 1930-1994;
- Occupiers Liability Act 1995;
- Planning and Development Act 2000;
- Road Traffic Acts 1933-1993;
- Roads Act 1993;
- Safety, Health and Welfare at Work Act 1989;
- Wildlife Act 1976;
- Wildlife Bill 1999.
- Wildlife(Amendment) Act, 2000¹⁰

European Communities (Environmental Impact Assessment) (Amendment) Regulations, 2001 (S.I. No. 538 of 2001) and Local Government (Planning and Development) (Amendment) Regulations 2001 (S.I. No. 539 of 2001).

These Regulations came into effect on 10th December 2001 and provide for the transposition of a package of measures agreed with the European Commission. The combined effect of both Regulations is that initial afforestation is taken out of the planning control system, to coincide with the introduction of a new statutory consent system by the Minister for Communications, Marine and Natural Resources. The forest consent system provides for an enhanced prescribed body¹¹ consultation process for afforestation that occurs in certain areas (e.g. where it may have a significant effect on water quality, designated habitats, archaeology, landscape etc.) and also provides for a public consultation process if the area is within a NHA, SAC, SPA or National Park, or

¹⁰ *ibid.*

¹¹ The prescribed bodies now include An Bord Failte and An Taisce in addition to the Local Authority, Duchas and the Fisheries Board.

within a prime scenic area in a County Development Plan or if the area contains an archaeological site or feature with intensive public usage.

In addition, the mandatory EIA threshold for forestry has been reduced from 70 hectares to 50 hectares while provision has been made for the possibility of sub-threshold EIA where a project is likely to have significant effects on the environment. An EIA is also required where it is proposed to replace broad-leaf high forest by conifer species where the area involved would exceed 10 hectares.

These provisions were achieved through amendments to article 13 of the 1994 Planning Regulations. The existing paragraph (b) of that article (relating to initial afforestation) has been deleted. As a consequence, the exemption for afforestation contained in section 4(1)(a) of the 1963 Act means that, from 10 December 2001, initial afforestation will be exempted development for the purposes of the Planning Acts.

Planning and Development Act, 2000:

As regards forestry activities other than initial afforestation, the new Planning and Development Act lists certain normal forest operations as exempted developments e.g. thinning, felling and replanting of trees, forests and woodlands, not including the replacement of broadleaf high forest by coniferous species. The 2000 Act also gives authority to the Local Authority, through the medium of the County Development Plan, to regulate or reserve the type of development that occurs on any specified land and to protect and preserve waters, flora, fauna, ecological diversity and all other features and objects of archaeological, geological, historical, scientific, ecological, natural beauty or recreational interest.

Planning Guidelines on Landscape and Landscape Assessment:

The DoELG issued a consultation draft in June 2000. This sets out the basis and methodology for the inclusion of landscape assessment in the planning process. A Landscape Assessment was carried out as part of the 1999 County Development Plan, providing the landscape categories that are incorporated into the Indicative Forestry Strategy. It is planned to amend this Landscape Assessment for the 2005 County development Plan, taking into consideration the new guidelines. This task will be a major undertaking, and will involve the integration of many other projects. The Forest Service supports the Landscape Character Assessment system and favours an approach that would result in a nationally consistent assessment. When completed, the Forest Service will have the opportunity to update its Landscape Guidelines to a set of more detailed and more graphically presented guidelines for each landscape area.

Draft Guidelines for Planning Authorities on Forestry Development:

In January 1997, the Department of Environment and Local Government published *Draft Guidelines for Planning Authorities on Forestry Development*. These guidelines were intended to aid planning authorities in the process of planting applications and in the inclusion of forestry development in their County Development Plans.

3.0 Background and Context

3.1 Forestry in County Wicklow

During the last 100 years or so, Wicklow has built up a stronger forestry tradition than most counties in Ireland. One of the first modern forestry centres was established at Avondale at the start of the 20th century, for example. Prior to this, woodlands such as those at Avoca and Glendalough, supported thriving industries based on coppicing, mostly supplying fuel to the nearby mine works, while oak from all over Wicklow was used for ship building and other construction work.¹²

A sizeable proportion of the forestry estate in Co. Wicklow consists of the remains of old demesne planting. In addition to being a forestry resource these are also of significant amenity value. Such plantations are located for the most part in the north east of the county. There has, however, been a significant shift in the amount and types of planting carried out in Wicklow over the last 100 years. Prior to the 20th century a large proportion of the planting was of hardwoods, often for amenity and decorative purposes, while from the middle of the 20th century planting has concentrated on exotic conifers, located chiefly in the uplands and lands of lesser agricultural value. At present approximately 21% of Wicklow is under forestry¹³. The differing percentages of the forest estate devoted to differing species is summarised in Table 1, while ownership of the forest resources of the county is summarised in table 2.

Table 1 Species by Area

Category	Area (ha)	% Forest Cover in Wicklow
Spruce	20104	9.93
Larch	794	0.39
Pine	2315	1.14
Pine/ Spruce mix	145	0.07
Other conifers	2897	1.43
Oak	903	0.45
Beech	172	0.08
Other Broad Leaf	1806	0.89
Mixed	2719	1.34
Other	28	0.02
Unclassified by Satellite Imagery	10662	5.27
TOTALS	42545	21.01 %

¹²Forestry : the management of predominately tree covered land (woodland), whether in large tracts (generally called forests) or smaller units (known by a variety of terms such as woods and copses).

¹³ Forest Service, 2001 forestry figures

Table 2 Ownership of Forest Lands in Wicklow.

Owner	Area (ha)	% Total Forest.
Coillte	28602	67
Dúchas	708	2
Private	13235	31
Total	42545	100

The planting which has occurred in the last 10 years or so has been mainly in the south and west of the county. Private planting, which hardly existed in the early 1980s, is now taking place at approximately 350 hectares per year.

3.2 The 1999 County Development Plan

The objective of a County Development Plan is promote development within a given county without harming the social and environmental well being of that county. The Wicklow County Council County Development Plan, 1999 sets out the Settlement; Industrial and Employment; Landscape; Natural and Built Environment; Forestry Land Use; Infrastructure; Tourism and Recreational; and Advertising structures policy and objectives for the county. The Local Authority, through the medium of the County Development Plan is responsible for protecting the quality of life of its citizens and the environment and heritage of which they are a part.

The importance of the forest industry to the economy of Wicklow is recognised and referred to in the 1999 County Development Plan as follows:

The Council recognises the importance of the forest industry, both state and private, to the economy of the county, and as such the council will encourage state and private afforestation that is compatible with the sustainable development of the county in accordance with the provisions of the Wicklow County Council Indicative Forestry Strategy, 1998. The provision of amenity and urban and recreational woodlands contribute to the amenity of the county. The council recognises the importance of afforestation to the local economy of Wicklow, to on-farm diversification, and particularly as an alternative income source for farmers.

The role that forestry plays in the economic development of the county, however will have to be balanced against it's impacts on landscape and the environment. It is through the medium of a Forestry Strategy that the Council seeks to balance the divergent requirements of forestry and other land uses, activities and concerns. It is particularly important to recognise the fact that forest cover in Wicklow is already in excess of national planting targets, and care must be taken not to supersaturate the landscape with forests at the expense of the environment or other land uses.

The Local Authority would welcome the development of a closer working relationship with forest agencies and companies, both public and private sector. It considers that the establishment of such an avenue of communication would contribute to the integration of forestry and other land use activities and schemes that would be of benefit to all.

3.3 Forestry and Employment

The potential employment and the role of forestry in rural development will vary by county, depending on the extent of forested area, the stage of maturity of existing trees and the number of processing or downstream industries located in the county. Wicklow has, relative to other counties, a very high percentage of forestry, and as a result supports many jobs in forestry and ancillary industries. In 2001, approximately 700 people were employed by the forest and timber industry in Co. Wicklow¹⁵. The importance of this employment to the economy of the county is recognised and its continuance is encouraged. There are a number of industries in Wicklow using timber from both conifer and broadleaf forests in the production of furniture and timber products. Saw milling industries, particularly in the south of the county process large amounts of timber and provide a valuable source of employment for the county. The 2 largest mills process 125,000 cubic metres per annum while a further 20 or so smaller mills process an average of 1,500 cubic metres per annum each.

Downstream industries based on coppicing¹⁴ are particularly encouraged, as these activities not only allow for wider biodiversity than clear felling, but can also support other environmentally friendly industries, such as the production of bio-fuels. This form of woodland management can also support local small-scale craft and cottage industries such as woodturning, basket weaving, wood sculpture and fence and furniture making, which in turn have a positive effect on the tourist and amenity value of the county.

3.4 Forestry and Agriculture

As a result of the uncertainty that currently exists in traditional agriculture, economic instability exists among communities once dependent upon such activity. Lack of a strong economic base leads to demographic instability, as a result of unemployment and subsequent emigration and migration, which needs to be counteracted if rural communities are to remain sustainable.¹⁵ Afforestation can help to combat these trends, as the many forestry incentives packages on offer by the EU and the Irish Government play a key role in the encouragement of afforestation as an alternative and supplement to traditional agricultural activity. Endorsement by the Irish Farmers Association of afforestation through the Farm Forestry Programme further highlights the emergence of forestry as a mainstream farming activity.

While forestry is recognised as an important supplement or indeed alternative to agriculture, it must none the less take place in a manner that respects the environment, landscape and social character of the given area, in compliance with existing forestry legislation and planning policy. REPS 2 allows the REPS planner to identify areas suitable for afforestation on farms. Provided that the areas identified are not merely

¹⁴ Coppicing involves periodic cutting of trees with regeneration by natural growth from the cut stumps or stools. Rotations vary between 5 and 30 years depending on the tree species and use being made of the wood. It must be noted that not all species are suitable for coppicing.

¹⁵ Wicklow Uplands Council Community based Forest Strategy

¹⁵ Bradford, M. G. and Kent, W.A., 1992, *Human Geography: Theories and Their Applications*, Oxford: Oxford University Press, p. 169

suitable for afforestation by virtue of the fact that they are unsuitable for conventional agricultural activity, and that forestry planting is not at the expense of sites of habitat value, there should be no reason that why a closer relationship between REPS and Forestry would not be of benefit to both schemes¹⁶ Larger farmers fall outside the ambit of the REP scheme, however and it is essential that these farmers are guided with respect to the protection of the environment and landscape on their land.

Wicklow County Council will promote the use of native hardwood species using seed of native provenance where possible¹⁷

The Native Woodlands Scheme will be very instrumental in encouraging the maintenance of existing and planting of additional native woodland on farms and in the encouragement of ancillary activities. Adoption by farmers of this scheme will not only help improve biodiversity on their farms, it will also provide a supplementary income, shelter-belts for stock and crops and allow for the expansion into food production (e.g. fruit and mushrooms), agri-tourism and woodland crafts as outlined above. This scheme is particularly significant, as it is the first conservation-led forestry scheme in Ireland and it is anticipated that this scheme will be hugely instrumental in the support of the sustainable development of this county.

3.4 Forestry and Tourism, Recreation and Amenity

Forestry can have both a positive and a negative effect on tourism and amenity in an area, depending upon its landscape, habitat and social character. The amenity and tourist potential of forestry is not just significant in terms of the provision of forest and woodland walks, but there is also potential for orienteering, nature trails, fishing, hunting and products and crafts derived from sustainable woodland management. In addition the coupling of sustainable woodland management with training in native woodland management techniques and crafts, as will be promoted through the Native Woodland Scheme, can be a further source of tourism.

Afforestation that is insensitive to the surrounding landscape and environment can have a negative effect on tourism. Certain landscapes can absorb afforestation very well, particularly landscapes that are already forested. These landscapes may be enhanced through further afforestation. The Coronation Plantation in the Liffey valley is an example of how a landscape can be enhanced by appropriate afforestation. Other landscapes however may not be aesthetically enhanced by afforestation; examples include areas of heathland and moor, whose attractiveness and beauty lie in their barrenness and openness. Afforestation in such areas may not only have environmental and habitat repercussions but may also reduce their visual appeal and therefore attractiveness for tourists. Views and Prospects listed and protected in the County Development Plan may also be adversely affected by afforestation, depending on the nature of the view or prospect. Again, this will have repercussions on the tourist and amenity value of an

¹⁶ Unimproved pasture, such as wet pasture and other areas of marginal agricultural use, are usually of higher habitat value and have a greater biodiversity than areas of more productive agricultural land - Andrews, J. and Rebane, M, 1994, *Farming and Wildlife, A Practical Management Handbook*, RSPB, Bedfordshire, pp 56, 96); 2000, *A Guide to Habitats in Ireland*, Dublin; The Heritage Council)

¹⁷ Wicklow County Council County Development Plan, 1999, p 13

area. It must also be noted that certain landscapes that are already forested, particularly if they are heavily forested, may be not be capable of absorbing further afforestation.

Forestry Schemes, such as the Neighbourhood Scheme, are hugely instrumental in the maintenance and provision of amenity and recreational woodland. The Urban and Amenity Woodland Schemes, which were in operation between 1994 and 1999, were particularly instrumental in helping Local Authorities and private individuals respectively, to provide woodlands in or near urban areas for access by the local community and tourists. The Neighbourhood Scheme will have a significant emphasis on conservation and so will also have a dual benefit for the environment.

3.5 Forestry and the Landscape in Wicklow

One of the main aims for the previous forestry strategy was to safeguard the scenic qualities of the county, while at the same time having regard to the economic role that is played by forestry. Prior to the emergence of both the *Forest Service Forestry and Landscape Guidelines* and the 1998 *Indicative Forestry Strategy*, much of the planting which occurred in the county was poorly landscaped, both in terms of location and plantation structure.

The 1998 Strategy, using the *Forest Service Guidelines* as a base, sought to redress these deficiencies. This was achieved by outlining areas that were sensitive to afforestation, both from a scenic and an environmental viewpoint. Areas that were preferred for afforestation were also listed. This was based, to a large degree, on the ability of the surrounding landscape to absorb forestry developments with minimal effects on the scenic or environmental qualities of the area and formed part of a comprehensive Landscape Assessment that was carried out for the County Development Plan 1999. The Landscape Assessment formed the basis for the identification of areas sensitive for afforestation and areas of special planning control. The work that was carried out for this assessment is still relevant and is reproduced later in this document in the form of maps that indicate areas favoured for forestry and areas in which forestry development is to be regulated. The Landscape Assessment did not however include a habitat assessment.

It is proposed to carry out a new Landscape Assessment for the 2005 County Development Plan, using the *Consultation Draft Guidelines on Landscape and Landscape Assessment*, published in June 2000 by the Department of the Environment and Local Government as a guideline. A detailed habitat survey will need to be part of this assessment. The Indicative Forestry Strategy will need, at that stage, to be updated accordingly.

Wicklow County Council recommends the use of the *Forest Service Forestry and Landscape Guidelines* in everyday decisions with respect to forestry applications.

3.6 Forestry and Archaeology

Ireland has a very rich archaeological heritage. However, many of our visible and buried archaeological structures have been damaged or destroyed over the years through agricultural and development pressures. In the recent past, afforestation has become

one of the major threats to our archaeological heritage due to its intensification.¹⁸ Peat bog and upland areas are among the richest sources of our remaining architectural legacy, and afforestation in these areas can be particularly damaging to archaeological structures. The Forest Service *Forestry and Archaeology Guidelines* (2000) set out the methods by which Recorded Monuments and non-recorded monuments found while carrying out forestry operations are to be protected. Many archaeological structures are not recorded and many more are buried rather than surface structures. Buried, unrecorded features, such as souterrains¹⁹ are particularly vulnerable, as they are often not found until mechanical excavations begin. At this stage, serious damage may already be caused. Although the threshold for an Environmental Impact Assessment for initial afforestation has been reduced from 200 to 70 hectares in 1996 and from 70 to 50 hectares in 2001, areas less than this threshold are just as likely to possess archaeological structures of equal importance. The Forest Service Forestry and Archaeological guidelines provide information and guidance on the development of all sites irrespective of area. Where archaeological structures are recorded in the Record of Monuments and Places, these sites shall be automatically referred to Duchas. Duchas advice in relation to setback distances shall be taken on board in the approval letter that issues from the Forest Service to the applicant.

Wicklow County Council supports the recommendations made by the Forest Service with respect to the protection of archaeological sites and structures. The Forest Service *Forestry and Archaeological guidelines* recognises that additional precautions should be taken to prevent the destruction or damage of submerged archaeology, or little known archaeological features, particularly on sites under 50 hectares, where no Archaeological Impact Assessment will be carried out. These guidelines state that there are many indicators that archaeological structures or artifacts may be submerged in an area. On sites where surface archaeological structures have been found or are already recorded on the Sites and Monuments Record, there is an increased likelihood that archaeological artifacts and structures will be submerged in the surrounding area. It is also highly likely that souterrains will be located near Early Christian Ecclesiastical and Ringfort sites.²⁰ Upland sites are also likely to have a higher proportion of archaeological structures because of their inaccessibility, which usually has saved them thus far from damage. Peat bog often overlays entire human settlement patterns of stone walls and houses. Peat bog is also a preservative and often contains well-preserved toghers or ancient timber roads, which have almost completely obliterated elsewhere through development, particularly road building. Toghers can also be found across mountainous terrain. Fulachta Fiadh are Bronze Age cooking places, which are identifiable as horseshoe shaped mounds. They are usually located near water or marshy or previously marshy ground, as water was heated in a trough located in a pit at the centre of the mound. The water was heated using hot stones from a nearby fire. The mounds comprise shattered stones and charcoal, shoveled out of the pit. Fulachta Fiadh may also be located near the site of hillforts, ringforts, crannógs or other settlements of the same period.

¹⁸ Johnson, G., 1998, *Archaeology and Forestry in Ireland*, Heritage Council: Kilkenny, p. 16.

¹⁹ Souterrains are underground passages used as places of refuge or for storage and are most commonly associated with ringforts and Early Christian Ecclesiastical Sites

²⁰ Manning C., 1991, *Irish Field Monuments*, Office of Public Works: Dublin, p. 4.

3.7 Forestry and Biodiversity

The Forest Service *Forest Biodiversity Guidelines* (July 2000) deal with the method by which biodiversity can be conserved and enhanced in Irish forests through appropriate planning, conservation and management. It is a condition for grant aid that biodiversity considerations are incorporated into the initial forestry site development plan, with 15% of the forest area to be set aside for biodiversity enhancement (open space and retained habitat). While the guidelines emphasise the retention and maintenance of existing, pre-forestation habitats (5 – 10% of the site), it is necessary to draw attention to the fact that forestry and woodland are climax vegetation. Many of our rarest flora and fauna can only compete in early succession habitats and are initial colonisers; this is particularly true of heathland and unimproved pasture. Introducing trees into such a habitat brings with them other flora and fauna that dominate climax habitats and which very quickly out-compete with existing species. The loss of entire communities can be the result. Although the inhibition of natural succession is not a suitable management strategy for all habitats, most ecological conservation work concentrates on delaying or preventing natural succession, in order to prevent species from higher habitats from out-competing with existing species.^{21 22} While full credit is given to the Forestry Industry for its strict code of self-regulation with respect to the environment, one cannot stress enough the importance to our heritage of rare non-climatic habitats, and their component communities, particularly those outside European designated sites, which do not enjoy the protection of legislation and which may be equally significant in terms of habitat value. Despite the retention of areas of the original habitat, proximity to climatic vegetation, can lead to their receiving less light and their invasion by other species, thus eventually changing the nature of the original habitat, even if it isn't actually forested. In addition, much of Ireland's remaining wildlife heritage occurs on marginal agricultural land and any significant land use change in such areas could have serious implications for existing habitats.²³

While the current map of areas sensitive to afforestation does not include sensitive habitats, Wicklow County Council wishes to re-emphasise the regard that should be given to the uniqueness and sensitivity of the existing habitats in each new forestry application and to ensuring that delicate ecosystems are not jeopardised.

Wicklow County Council encourages a diverse age structure in forested areas, as different tree and shrub height encourages different levels of light entry onto the forest floor, thereby increasing plant variation and subsequently bio-diversity.

Wicklow County Council supports the Forest Service recommendations in the *Forest Biodiversity Guidelines* to leave old trees and deadwood in place in forests because of their high biodiversity value. In terms of habitat value, over-mature trees, which are

²¹ Sutherland, W. J. and Hill, D. A, Eds., 1995 *Managing Habitats for Conservation*, Cambridge University Press, Cambridge, p. 7.

²² This does not infer that grazing is a suitable method for delaying natural succession; habitat conservation and management is very precise and site specific and while grazing, like any other inhibiting device, is a suitable management system for some habitats in certain circumstances, it is highly inappropriate for others.

²³ The Heritage Council, 1999, *Heritage Council's Policy Paper on: Forestry and the National Heritage*, Kilkenny, p. 6

beyond their commercial value, are much more significant than merely old trees. It must be stressed that in order to be truly valuable in terms of biodiversity, individual and groups of trees should be left to reach over-maturity, and where possible, left to die and rot naturally. Broadleaf's, particularly native broadleaf's, are especially important in terms of biodiversity, as they can support more species of invertebrates, and therefore more fauna than non-native broadleaf, or coniferous trees.²⁴ Their habitat value is further increased when over-mature or dead as they have exceptional value for lichens, fungi, invertebrates and hole-nesting birds, in fact one fifth of woodland fauna depend on dead or decaying trees²⁵.

Wicklow County Council and the Forest Service recommend that existing hedgerow trees be retained on all forested sites, as they will not only contain an existing dead-wood component, but they will also be representative of species already in the area, and will already have an established invertebrate and flora community of their own. Existing field boundaries will also be part of an active wildlife corridor and therefore might be more capable of sustaining local wildlife populations than would any introduced broadleaf or dead wood component. These hedgerows should, where possible be in addition to the retained 15% of the existing habitat.

3.9 Broadleaf Planting

While all afforestation is considered positive, provided that it is carried out in manner that is in accordance with the sustainable development of the county and the protection and enhancement of our natural and built heritage; broadleaf's, especially native broadleaf's from local provenance's are particularly encouraged. Wicklow County Council supports the Forest Service recommendations in the *Forest Service Biodiversity Guidelines* to favour broadleaf's and native provenances as much as possible. Broadleaf's, as mentioned previously, are of higher biodiversity value than conifers, because Irish flora and fauna have adapted to our temperate climatic zone, of which broadleaf's are the climax vegetation, while conifers are natives of the boreal climatic zone. Because broadleaf's are deciduous, they also allow for a much more varied understorey than coniferous trees, as they allow a lot of light onto the forest floor until early summer and always provide lighter shade than conifers. One of the few exceptions is beech, which casts a heavy shade in summer.²⁶ Many species of flora, and subsequently dependent fauna, will flourish in deciduous while they may be very uncommon in coniferous forest plantations, apart from where glades and rides exist. There are certain species of flora, such as the oxlip, which will only exist in ancient woodland or where woodland has existed in some form on the site since ancient times. In the case of old woodland, care should be taken to plant native broadleaf's to maintain a continuity that will protect any species or community, which may be incapable of adapting to any other environment or dispersing from their current location.

²⁴ Willow supports 450 different mite and insect species and Oak 423, while beech supports 98 and Norway Spruce 70 - (1994, Andrews, J. and Rebane, M, *Farming and Wildlife, A Practical Management Handbook*, RSPB, p.187.

²⁵ 1995, Sutherland, W. J. and Hill, D. A, Eds., *Managing Habitats for Conservation*, Cambridge University Press, Cambridge, p. 332

²⁶ Beech has however, its own characteristic dependant flora and fauna, some of which, such as the growth of bluebells under canopy is a result of the particular levels of shade it produces.

In the case of sites near rivers and streams, the planting of broadleaf's is also encouraged over coniferous trees. While afforestation can lead to the acidification of watercourses, deciduous trees can help control water temperature, light, habitat diversity, channel morphology, food webs and the species diversity of stream systems.²⁷ Care must be taken that such planting should take place on sites that are already part of a riparian forest system, however, as non-forested watercourses will have an existing ecosystem that is light dependant and which may be inhibited by the introduction of a canopy.

The planting of broadleaf plantations is also compatible with coppicing as a woodland management technique. Conventional thinning of broadleaved forests provides valuable timber for the timber industry but also provides much needed light to the forest floor. Coppicing as a form of woodland management has an important role to play in certain conservation areas Coppiced woodlands, contain trees at all stages of their life-cycle, which means that there is wide variety of habitat types, capable of supporting a high diversity of species of flora and fauna. Recently coppiced areas of woodland are particularly beneficially in encouraging the growth of light dependent species and the shrub layer.

The Forest Service actively encourages the planting of broadleaf species. Over the last four years broadleaf planting accounted for over 16 % of the afforestation program in County Wicklow. Broadleaf's are important because of both their high-value timber and their environmental role. The planting of broadleaf's is supported by attractive grants and premiums and currently all afforestation proposals must contain a minimum of 10 % broadleaf's, if the site is suitable. The Forest Service will review its broadleaf recommendation in 2003 and is committed to a national target of 30% broadleaf planting by 2006. Quality timber from Wicklow's broadleaf forests provides material for the production of high quality furniture and timber flooring. It is hoped that with increased planting the quality of the hardwood timber resource will increase and help sustain and expand the hardwood processing industries.

The Native Woodland Scheme will provide financial support for the management of existing woodlands and the development of new native woodland and will encourage the use of sustainable and traditional woodland management practices.

Deciduous trees require well drained, mineral soils in order to thrive, soils that are water logged or susceptible to drought are not suitable for forestry growth.²⁸ *In silvicultural terms it is generally recommended that broadleaf's should not be sown at elevations exceeding 200 metres or conifers exceeding 400 metres in county Wicklow.* The south and east low-lying agricultural areas are therefore most suitable for deciduous growth and broadleaf plantation is encouraged in these areas.

²⁷ Austin, S.A., *Riparian Forest Handbook 1: Appreciating and Evaluating Stream Side Forests*, Virginia Department of Forestry, Virginia, p.p. 1, 2, 3

²⁸ Kerr, G., and Evans, J., 1993, *Growing Broadleaves for Timber*, London: The Forestry Commission Handbook 9, p. 11.

3.10 Forestry and Renewable Energy Resources

It is the intention of Wicklow County Council to produce further strategy documents with respect to alternative energy, starting with an Indicative Wind Energy Strategy. While the full implications of the interrelationships between forestry and wind energy cannot be fully examined in advance of the Wind Energy Strategy, attention must be drawn to the fact that existing forestry has implications for the location of wind turbines, as do existing wind turbines have implications for the location of forestry. In advance of a survey indicating the optimum locations for wind turbines based on wind speed and slope, it is not possible at this stage to determine the extent to which these locations will impact on forestry in the County. It should be noted that in many cases forestry may have a positive role to play in lessening the visual impact of wind turbines on the landscape. It will be necessary however to factor this consideration into the location of wind turbines and forestry, as Wicklow County Council wishes to promote all renewable energy initiatives equally.

The woodland management practice of short rotation coppicing can be used as a source of biomass. Wicklow County Council supports any such activity that has secondary as well as a primary role to play in the sustainable development of the county.

4.0 The Indicative Forestry Strategy

The draft guidelines issued by the Department of the Environment to planning authorities on forestry development in January of 1997 emphasise the need for Local Authorities to designate areas as being sensitive to afforestation. Local Authorities were asked to produce maps indicating areas sensitive to afforestation to be submitted to the Forest Service. These guidelines also suggested that planning authorities should consider preparing an Indicative Forest Strategy and that preferably maps indicating areas sensitive to afforestation should be created within the context of an Indicative Forestry Strategy.

One of the functions of an Indicative Forestry Strategy is to help identify those areas that are preferred for afforestation as well as those areas that are sensitive to afforestation. This Forestry Strategy is intended to assist planners in assessing forestry applications by illustrating areas of the county that are favoured for afforestation and those areas where afforestation would be inappropriate by virtue of landscape, soil type, settlement or environmental grounds and to provide guidance with respect to their input into the planting application process. Examples of appropriate afforestation would include locations where the site is both environmentally and silviculturally suitable and where the landscape can absorb or be enhanced by planting. Examples of inappropriate afforestation include potential damage to water supplies, either in the surface water catchment or indeed in vulnerable aquifers or subtraction from the amenity value of an area. Much of the material in this document is based on the updated Forest Service Guidelines, issued by the Forest Service, which have been listed earlier in section 2.1. The Forest Service consults with a wide variety of bodies, including Local Authorities when dealing with forestry applications. The strategy is intended to assist the Forest Service and members of the public determine those areas in which Wicklow County

Council considers that there are certain environmental, archaeological or landscape constraints to afforestation. In this way it is hoped to offer assistance in the planning of species, site layout, planting and all other factors that will affect the impact of afforestation in areas sensitive to forestry at as early a stage as possible in the forestry application process.

The Department of the Environment and Local Government Guidelines referred to above were issued 5 years ago. In 2001 there was a significant development regarding Indicative Forest Strategies (IFSs). New planning procedures in relation to forestry were agreed with the European Commission and introduced by the Forest Service in October 2001. The new procedures consist of:

- an enhanced consultation process (the new statutory consent system referred to in Sect. 2.2 above)
- an independent Appeals process
- the development of Indicative Forest Strategies

The Forest Service has commenced the development of Indicative Forest Strategies on a County basis.²⁹ Its aim is to develop County IFSs in partnership with Local Authorities. The overall objective of the IFS process is to highlight the potential for afforestation in each County and the contribution forestry can make to economic, social and cultural needs. Each IFS is developed following a consultation process with recognised stakeholders and the public and will be subject to a 5 year review.

4.1 Areas Sensitive to Afforestation

Areas sensitive to afforestation have been selected with regard to the need to protect national monuments, designated sites, views and prospects and areas of outstanding natural beauty. Factors also taken into account include water quality and the need to avoid rural isolation. Designation of an area as sensitive does not mean that the Local Authority does not wish to see forestry development in that area, but wishes to be consulted on and make observations on all grant-assisted applications that take place. Since most afforestation takes place only with grant and premia support, the existence of this support framework provides the main opportunity for Wicklow County Council to have input into the environmental and landscape controls on such planting.

It needs to be stressed that the planning authority has no direct role in the development of forestry, and that the Forest Service is the agency charged with this responsibility.

²⁹ Wicklow County Council had commenced this Indicative Forest Strategy before the Forest Service initiative started.

Table 3. Areas Sensitive to Afforestation

Area	Character	Description
Mountain uplands	Area of Outstanding Natural Beauty	Central mountain area including the Wicklow National Park.
Northern Hills	Area of Outstanding Natural Beauty	Great and Little Sugarloaf Mountains and Bray Head.
Glencree and Glencullen	Area of Outstanding Natural Beauty	Glencullen and Glencree river valleys
Coastal Area	Area of Outstanding Natural Beauty.	Coastal area between the coast road and the Sea
Blessington lakes	Area of Outstanding Natural Beauty	Poulaphuca Reservoir and the surrounding hillsides.
North Mountain Lowlands	Area of Special Amenity	North eastern foothills of Wicklow mountains from Downs Hill at Calary to Trooperstown
South Mountain Lowlands	Area of Special Amenity	South eastern foothills of Wicklow mountains from Rathdrum to Aghrim and Woodenbridge
Baltinglass hills	Area of special Amenity	Hills surrounding Baltinglass and Stratford of scenic importance and containing a Megalithic hillfort of international importance
Natural Aquifers	Vulnerable Aquifers	Vulnerable sand and gravel identified in the Infrastructure Working Paper.
NHA/SAC/SPA	Heritage Areas	Proposed National Heritage Areas (NHAs) for flora and fauna conservation identified by the Wildlife Service, including Special Areas of

Conservation (SACs) and Special Protected Areas (SPAs).

Archaeological Buffer Areas- areas that are of Archaeological potential or significance

Archaeological Sites

Archaeological sites identified by Dúchas Archaeological Service as Recorded Monuments and areas of archaeological interest

Expanding Urban Areas

Urban Areas

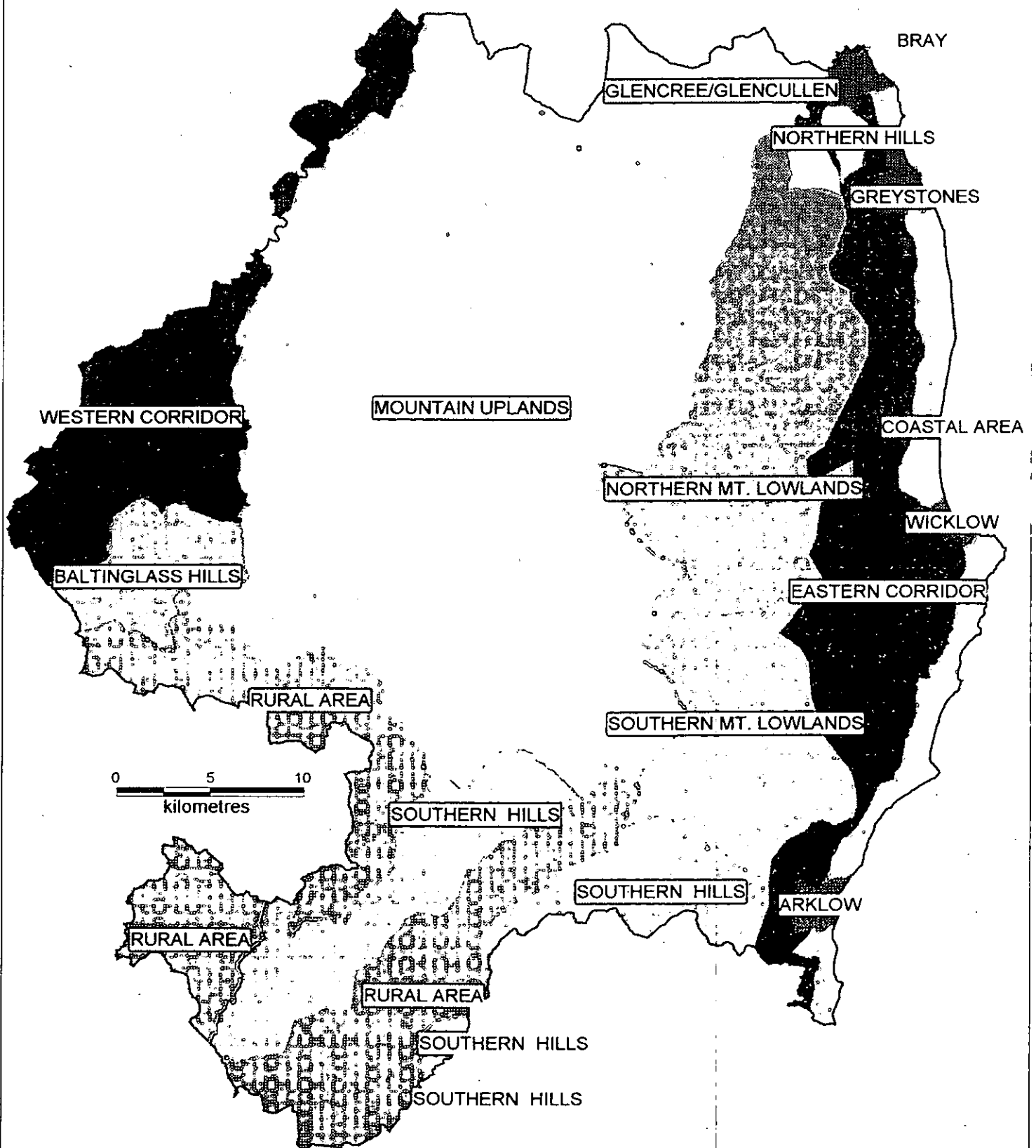
The environs of expanding towns and villages

4.2 River Catchments Sensitive to Afforestation

The rivers listed below and their feeder streams are catchments submitted by the Eastern Regional Fisheries Board to the Department of Forestry Food and Fisheries as sensitive to afforestation, in accordance with the Forest Service *Forestry and Water Quality Guidelines*, 2000.

- Glenree River - (The River Dargle System)
- The Vartry catchment - upstream of the reservoir.
- The Liffey valley - upstream of Poulaphuca reservoir, excluding Brittas river.
- Kings River.
- The Avonmore River - upstream of Clara
- Glenmacnass River - upstream of Laragh
- Glendassan River
- Avonbeg River - upstream of Ballinaclash Bridge
- Auhrim River System
 - Derry Water- upstream of Rodenagh Bridge.
 - Ow River - upstream of Annacurragh Bridge
- Knickeen Stream - (The Upper Slaney System)
- Dereen River - upstream of Kilcarney Lower

Plate 1 Landscape Categories

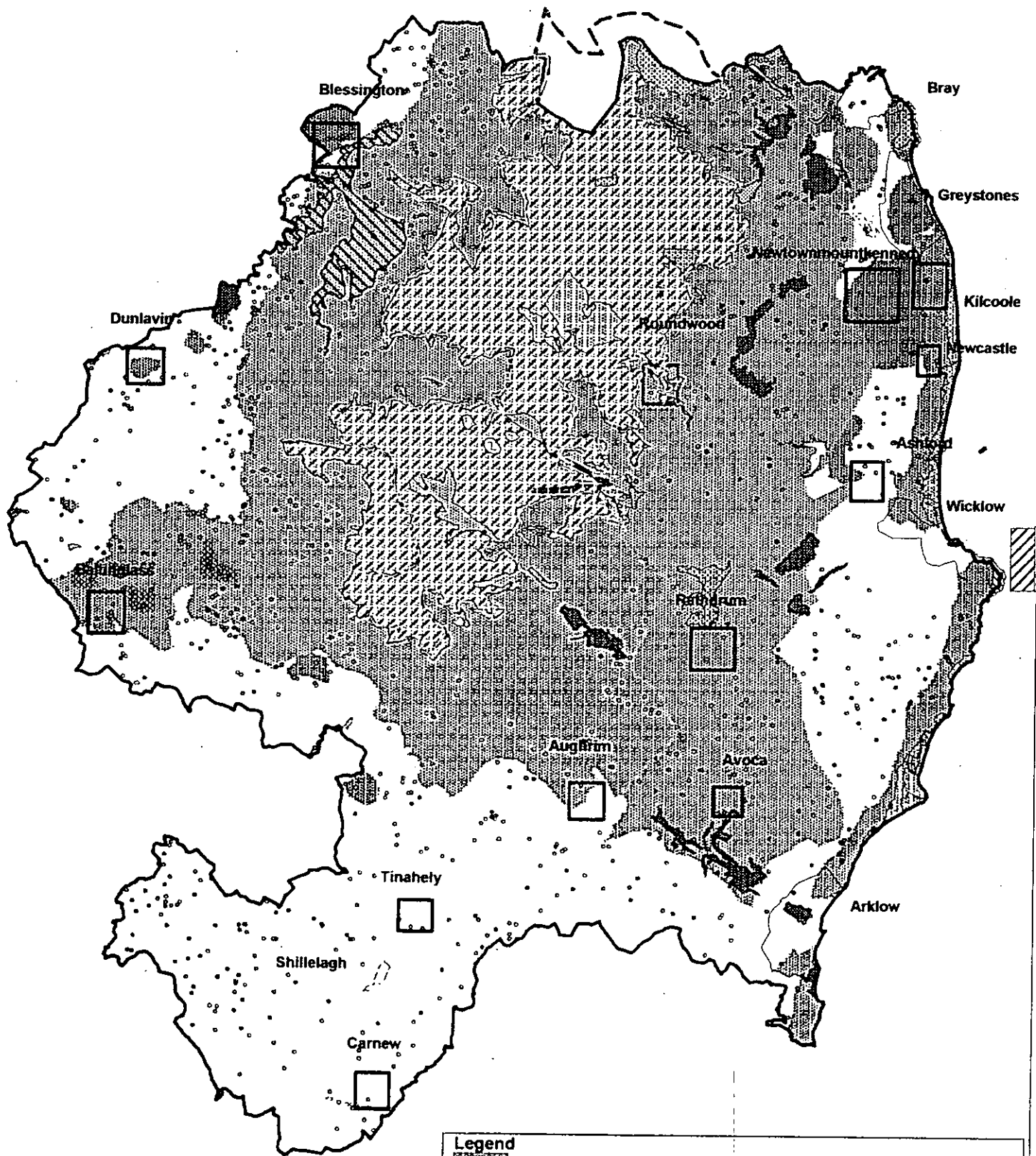


Legend	
	Area of Outstanding Natural Beauty
	Area of Special Amenity
	Corridor Area
	Urban Area
	Rural Area

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Plate 2

Areas Sensitive to Afforestation



Legend			
	National Monument		Natural Heritage Area
	Expanding Urban Area		Special Area of Conservation
	Sites or Objects of Archaeological Significance		Special Protection Area
	Area of Special Amenity		National Park
	Area of Outstanding Natural Beauty		Rivers (Generic 10 meter buffer)
	Aquifer		Roads (20 meter buffer)

Plate 4 River Catchments Sensitive to Afforestation

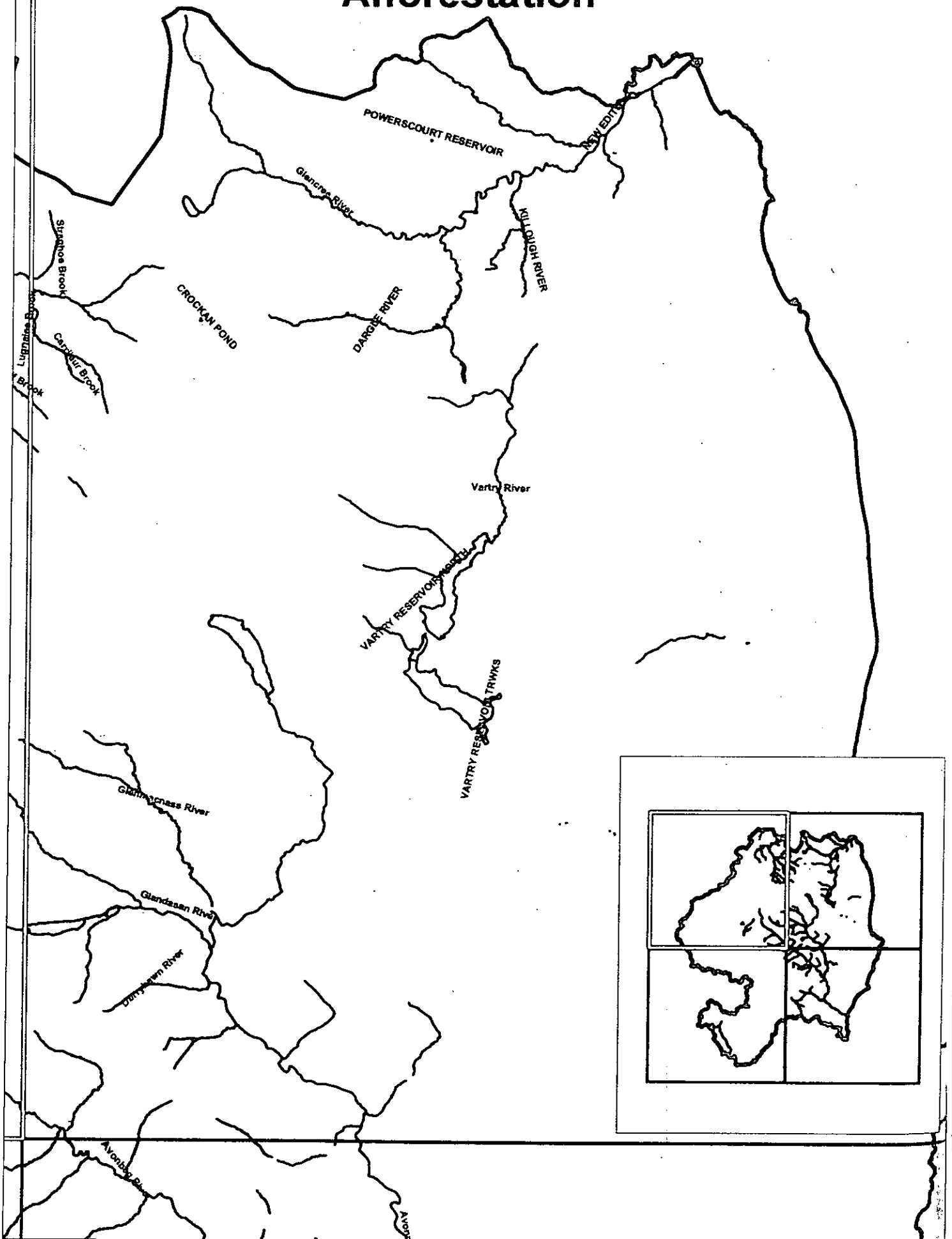


Plate 5 River Catchments Sensitive to Afforestation

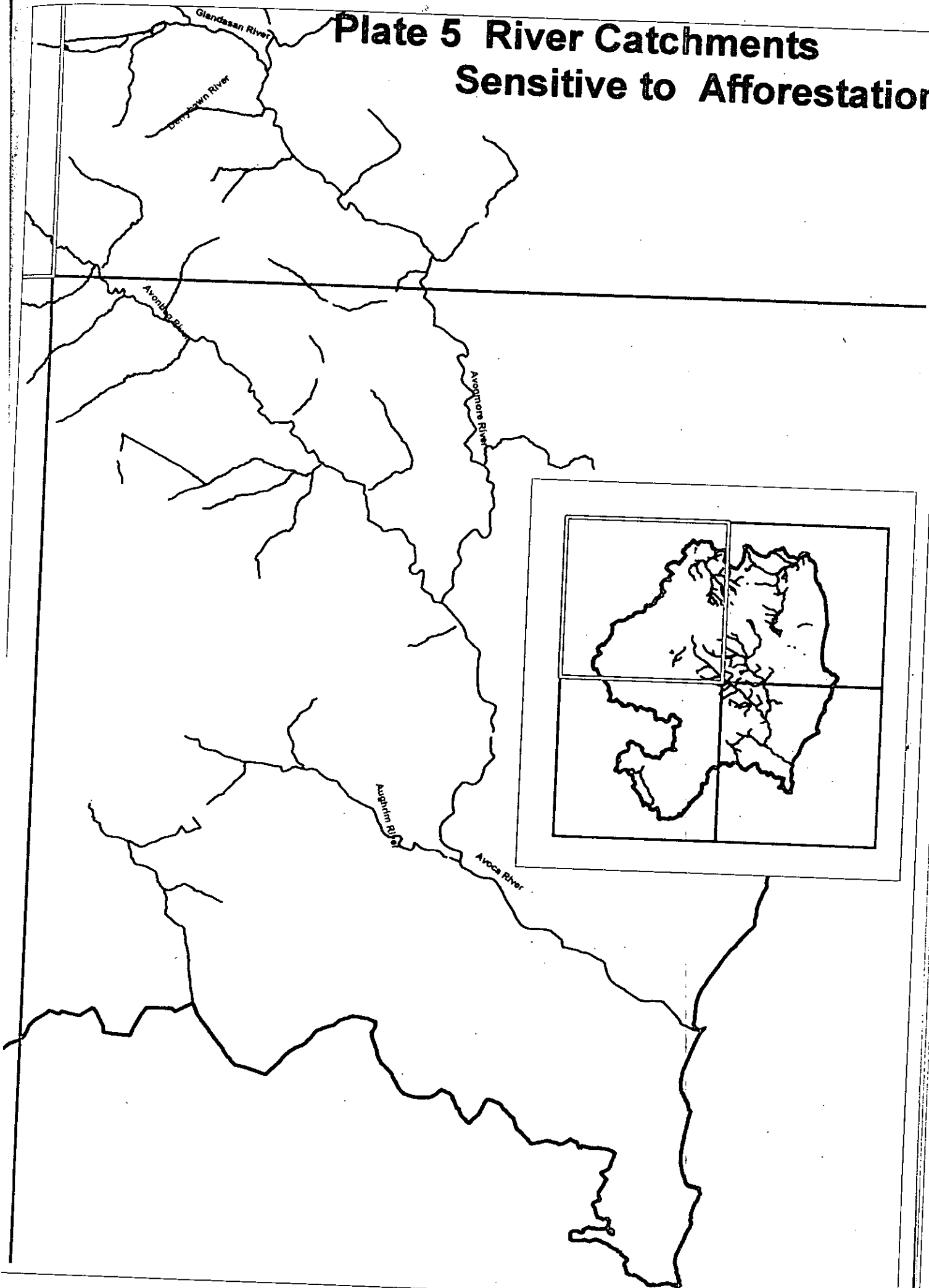
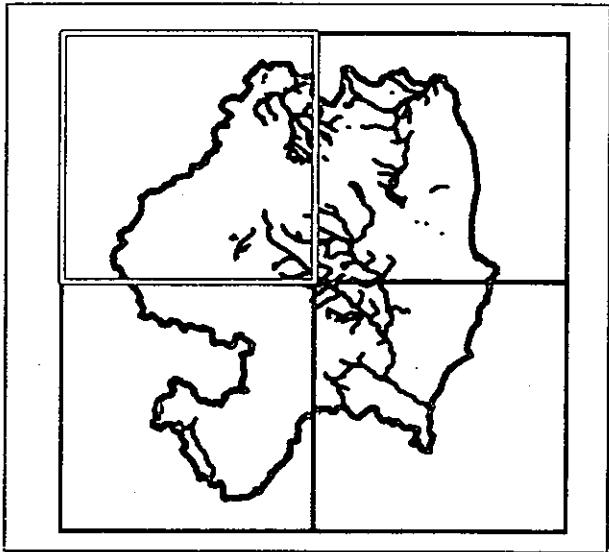
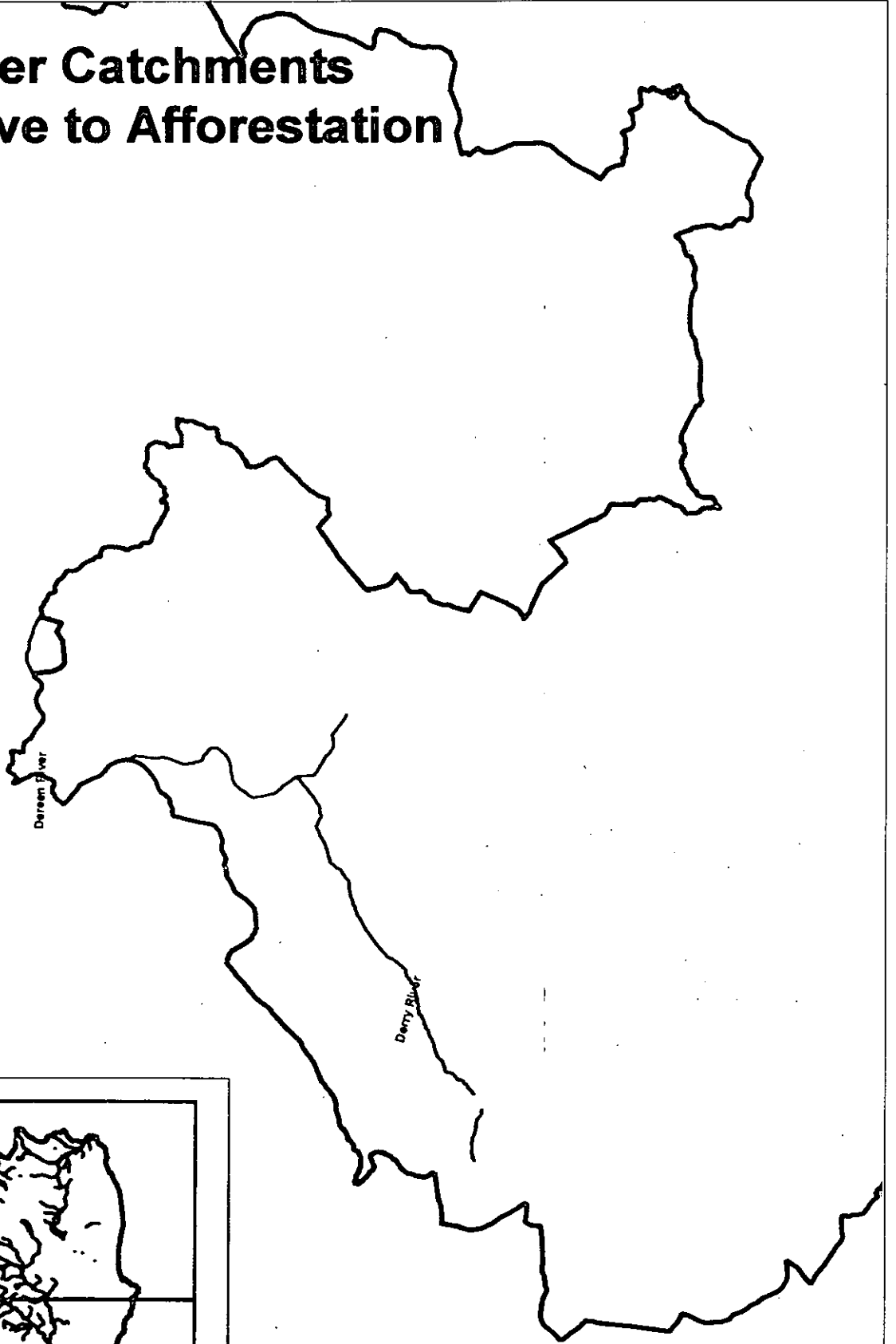


Plate 6 River Catchments Sensitive to Afforestation



4.3 Acid Sensitive Areas

The Aquafor Report "A Study of the Effects of Stream Hydrology and Water Quality in Forested Catchments on Fish and Invertebrates", published in 1997 identified acidification as being a complex process in some county Wicklow catchments, with many different activities from mining to agriculture having an influence in some locations. The report also identified afforestation as causing an increase in the acidification of poorly buffered watercourses in the county. Areas sensitive to afforestation require measures to protect them from potential acidification caused by afforestation. It is recognised that there is a need to carry out an extensive survey to identify and map all areas in County Wicklow that are sensitive to acidification. Without adequate resources it is not within the scope of this project to carry out such an exercise. Wicklow County Council recommends that such a study be carried out, possibly using the pooled resources of the Forest Service, The Regional Fisheries Board, the Environmental Protection Agency and Wicklow County Council. In the absence of such a map, areas sensitive to acidification can be defined as those that conform to the following criteria, as outlined in the Forest Service *Forestry and Water Quality Guideline*, 2000.

- the aquatic zone is part of a recognised salmonoid fishery and is a spawning, nursing, or angling area and;
- the geology is base poor and;
- in water samples taken regularly between 1st February and the 31st May either;
 - pH readings are equal to or less than 5.5 or
 - water hardness in mg calcium carbonate is less than 12 or
 - water alkalinity in mg. calcium carbonate/litre is equal to or less than 10.³⁰

(Note: the above criteria could change in the light of on-going research.)

Much further research is required in the area of Acid Sensitivity. The Forest Service Forestry and Water Guidelines provide good criteria for the identification of acid sensitive areas. Much of Co. Wicklow has been designated by the Forest Service as potentially acid sensitive. Where plantations are proposed in these areas, a detailed sampling and analysis procedure (in accordance with a protocol agreed between the Forest Service and the EPA) must be carried out to determine whether or not the site may be planted. The Council for Forest Research and Development (COFORD) are also currently involved in research in this area, using a Sodium Dominance index as a measure of acid sensitivity, the results of their research will be highly beneficial in the production of future Indicative Forestry Strategies and in any other projects that will have a bearing on acid sensitive areas

³⁰ 2000, Forest Service, *Forestry and Water Quality Guidelines* The Forest Service, Dublin, p 3.

4.4 Other Influencing Factors

4.4.1 Soils

While the purpose of this document is not to outline the technical requirements of trees in order to make them thrive³¹, soil type will affect both the acidity and the potential run-off or percolation of water in forested areas and so are of environmental as well as technical importance. As mentioned in 4.3, soils that are already acidic will increase the acidification effects of afforestation, while base rich soils will have a neutralising effect on water that percolates through it and therefore will reduce the acidification effects of afforestation. Coupled with pH however is the porosity of the soil, as it determines the amount of surface run-off that occurs. Type of precipitation, particularly intensity, cracks, slope angle, freezing, cultivation, existing soil moisture and plants also determine surface run-off. Of these factors, soil porosity has the most significance, as it is the measure of the empty space in the soil through which water can pass.³² The less porous the soil, the more surface run-off occurs, this factor combined with steep slopes and/or heavy rain can cause problems with respect to the acidification of water sources and soil erosion. Even in base rich areas, if water does not percolate through the soil, the neutralising effects of the alkaline soils are negligible. Some soils such as podzols have dense horizons formed by the accumulation of iron oxides and organic matter; these may be nearly impervious to water. This leads to what is called through-flow or inter-flow, depending on the depth of the pan, which causes the same effects as overland flow or surface run-off. Equally if a soil is extremely permeable, water will percolate through to groundwater too rapidly and, lead to acidification of groundwater.

The soils in county Wicklow are mostly category 3b on the Teagasc Overland Runoff Risk scale, which are soils of low hydraulic conductivity (permeability), followed by category 1, which are persistently wet soils in high rainfall areas, mostly blanket peat. These are very high-risk surface run-off categories. In the south and east of the county are the only areas with medium run-off risk, having basin and cut over peats and adjoining alluvial flat areas, which are 4 on the Overland Runoff Risk Scale. There are tiny pockets, of dry soils, with only slight run-off risk, mostly permeable morainic sands (7a), but these are located under and around reservoirs and so are unsuitable for afforestation.

Wicklow County Council recommends due care be taken with afforestation on soils that are category 1 on the overland run-off scale and also on soils that are category 3b and have a steep slope.

4.4.2 Fertilisation

The Forest Service environmental guidelines, Forestry Schemes Procedures and Standards Manual and Code of Best Forest Practice provide information on the precautions that must be taken in the use and storage of fertilisers. It is important before developing a site to establish if fertiliser is necessary to establish a crop. Analysis of existing ground vegetation and identification of the soil type can usually assess a sites

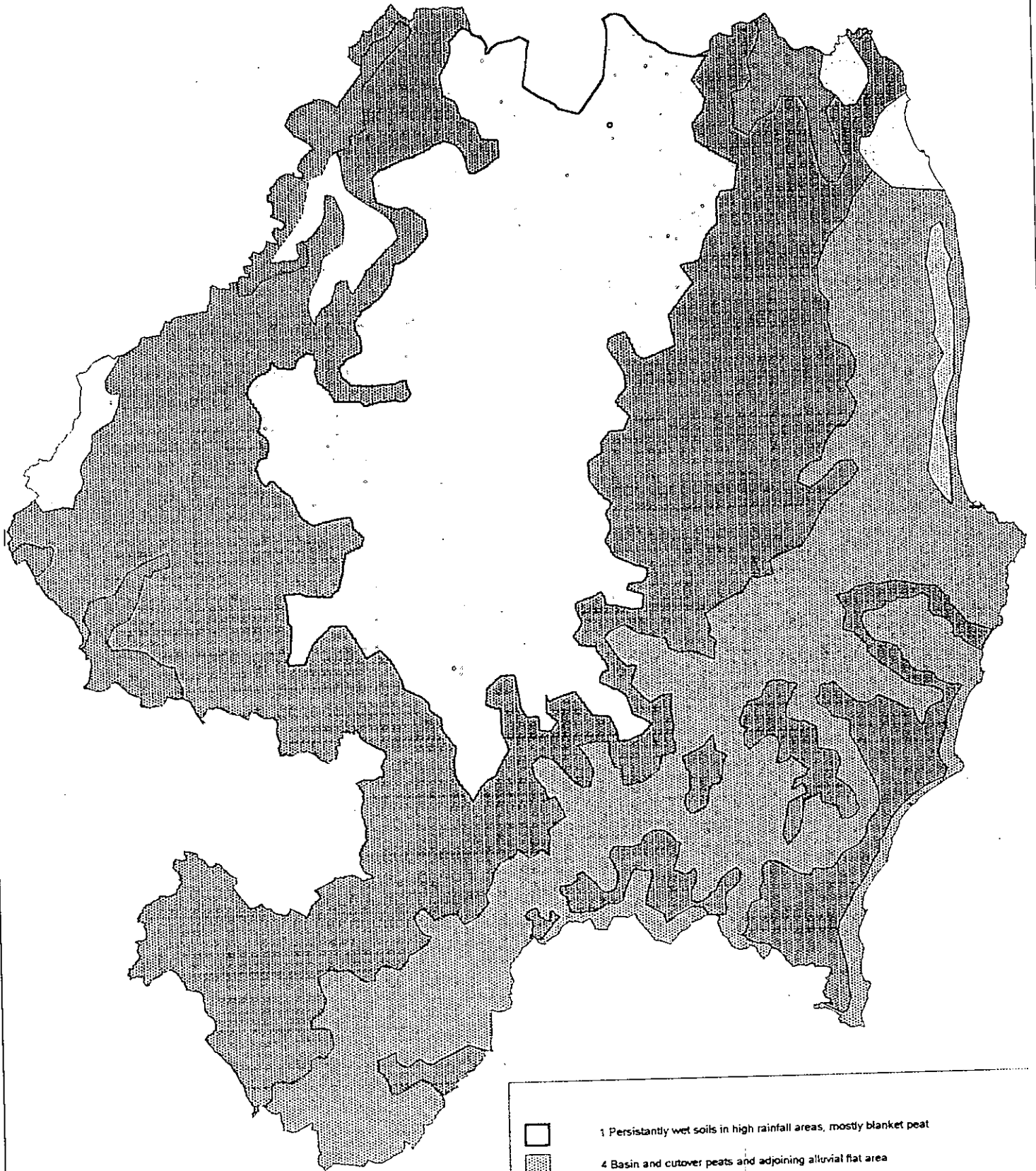
³¹ such requirements are set out in Afforestation Location Constraint Criteria and are the concern of the forestry industry rather than the Local Authority







³² Selby, M. J., 1991, *Earth's Changing Surface*, Oxford: Clarendon Press, p. 213

nutrient status. The Forest Service recommends that initial fertilisation should only take place at establishment where there is a definite need. In older plantations, which are showing signs of nutrient deficiency, foliar analysis is recommended in order to determine the appropriate rate of application and the nutrient that is deficient. The Forest Service also regulates the application of aerial fertiliser and written approval must be obtained. The Forest Service have produced Guidelines on Aerial Fertilisation which outline the application process and give guidance on rates and timing of operation

Plate 7

Soils Prone to Surface Run-Off



-  1 Persistently wet soils in high rainfall areas, mostly blanket peat
-  4 Basin and cutover peats and adjoining alluvial flat area
-  3b Soils of low hydraulic conductivity
-  6a Mainly dry soils, low rainfall, wet at slope bottom, undulating topography
-  6b mainly dry but heavy soils, low rainfall shaley limestone origin
-  7a Dry soils, only slight runoff risk

4.5 Areas Preferred for Afforestation

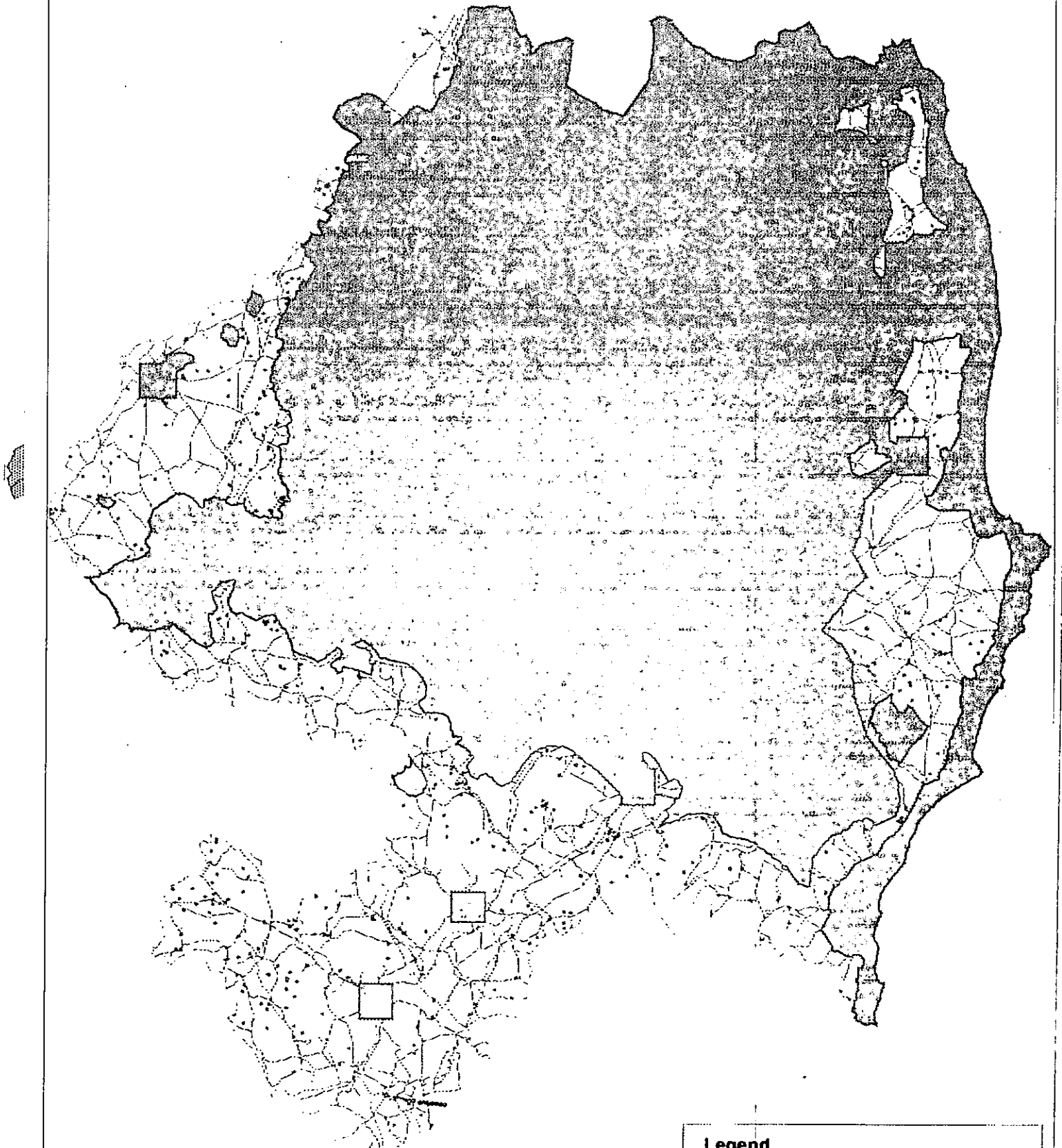
Areas Preferred for Afforestation have been selected by virtue of the ability of the surrounding landscape to absorb afforestation. While these areas are preferred for afforestation, it must be emphasised that not all sites in these areas will be suitable for afforestation and all forestry applications will need to comply with the Forest Service Guidelines, Forestry and Planning legislation and with the General Planning Policy in Relation to Afforestation (table 5.). Each forestry application in these areas will need to be dealt with on its own merits, based on the specific site conditions.

Table 4. Areas Preferred for Afforestation

Area	Character	Description
Southern Hills ASA	Area of Special Amenity	Just north of Rathdrum to Woodenbridge and between the two Sugar Loaves
Rural areas	Rural Areas	The Western and Southern extremities of the county
Eastern Corridor Area	Corridor Area	Area of influence of the N11 - from Kilmacanogue to Killowen House
Western Corridor Area	Corridor Area	Area of influence of the N81 - from Brittas to Donaghmore and from Grangecon to Donard

Plate 8

Areas Preferred for Afforestation



Legend

Areas Preferred for Afforestation



Areas Sensitive to Afforestation

4.6 Planning Policy in Relation to Afforestation

All forestry development shall comply with the Forest Service Forestry Guidelines 2000.

Table 5. General Planning Policy in Relation to Afforestation

Roads

It is an objective of Wicklow County Council that financial contributions shall be levied where appropriate, for past or proposed expenditure for roads works necessitated by the felling of woodlands and/or the transportation of timber on public roads.

The Timber industry is in the process of agreeing a Code of Practice for the Transport of Round Timber.

The Code of Best Forest Practice also provides advice on the planning and transportation of timber in relation to roads.

As recommended in the Forest Service Guidelines, 2000 a distance of 20m in the case of conifer plantations and 10 m in the case of broadleaf plantations to be maintained from the forest edge and the public road, with provision for variation for landscape purposes. This is necessary to avoid the tunnel effect that detracts from views, to ensure that public roads do not deteriorate unduly as a result of permanent damp conditions.

Forest Design.

Mono cultural conifer plantations shall be discouraged. At least 10% broadleaf's should be planted if the site is suitable and at least 20% of the conifer component must consist of a conifer other than Sitka Spruce/Lodgepole pine. The Forest Service's broadleaf planting recommendation will be reviewed in 2003 and they are committed to a national target of 30% broadleaf planting by 2006. The

Indicative Forestry Strategy will support any increase in broadleaf planting that may be introduced by the Forest Service. Where planting adjoins county roads the planting of an appropriate percentage of broadleaf's/larch and pines should be introduced, where conditions suit, in random intimate mixture to avoid the effect of different belts of colours which might arise if different species were planted in rigid rows.

Forest Shape and Design

Forest Shape and Design shall be in accordance with the Forest Service Forestry and Landscape Guidelines. As recommended by the Forestry and Landscape Guidelines, the entire plantation should be designed in accordance with best landscaping practice: examples include relating the shape of the planted areas to the scale and topography of the landscape and including an element of broadleaf's, larch or pine on the edges of plantations, planted in an intimate mixture and merging gradually with the plantation to avoid the box effect of different colour blocks (see forest design). Additional species with differing colours and shapes would be required to introduce variety to such plantings. These are to be used, where silviculturally appropriate to blend in the forest with the local landscape.

Isolated Rural Dwellings

As recommended by the Forest Service, in the Forestry and Landscape Guidelines, in the interest of preventing isolation as a result of forestry, the minimum distance between a dwelling house or building and a forest edge should be at least 60m except with the agreement of the owners, and where adjoining properties are 0.2 ha or less, planting should be kept 30 metres back from the property boundary.

Archaeological sites and areas

All new afforestation should be in accordance with the Forest Service Guidelines on Forestry and Archaeology. Duchas shall be contacted before any planting takes place within 30 metres of a known archaeological site. All setback distances shall be in accordance with the advice of Dúchas, with existing vegetation to be left intact, together with the provision of an access track from the nearest road to the site also to be established in consultation with Dúchas.

Archaeological Sites discovered prior to and during planting.

Where previously unrecorded archaeological sites are discovered prior to planting, Duchas shall be contacted and their advice taken on board regarding how best to protect the site. Where a previously unrecorded site or monument is discovered during planting operations, objects should be left undisturbed and the relevant authorities notified (Duchas, Garda Síochána, and National Museum of Ireland). An immediate exclusion zone of at least 100 metres should be maintained until such time as the site has been examined by the relevant authorities and recommendations made regarding how best to manage it

Non-archaeological Sites

Many of our more recent buildings and man-made structures are disappearing from our landscape (e.g. old farm houses, cottages, limekilns, mass paths drovers routes, may bushes, mass rocks, creamery stands, stiles and townland boundaries). These should be treated and protected as if they were archaeological sites.

Paths, Rights of way & Private Roads

The preservation of existing rights of way and paths and the imposition of at least a 5m setback from all such routes. It is also recommended that there should be at least a 5 metre setback from private roads.

Salmonoid and other sensitive waters

The protection of salmonoid and other watercourses, including feeder streams from acidification and the preservation of access to river banks by the imposition of a minimum 10m setback from the edge of all such water courses. In addition a more varied forest edge, with broadleaf component will be a requirement in these situations (see Appendix 1).

Gathering grounds of water supply sources, including feeder streams

The protection of gathering grounds of water supply sources, including feeder streams from acidification by the imposition of suitable setback distance from all such sources

Views of Special Amenity Value

Views of special amenity value, shall be preserved by the imposition of a suitable set-back downhill of the public road of at least 30m and by the imposition of a minimum setback of 50m up hill of the public road, unless on specific sites it is deemed by Wicklow County Council and the Forest Service that the view is visually enhanced by afforestation. In cases where the 30m and 50m setbacks apply, some flexibility for sensitive landscaping purposes shall be allowed, this shall be decided on a site by site basis by Wicklow County Council and the Forest Service. All setbacks shall be landscaped in accordance with the Forest Service Forestry and Landscape Guidelines

Semi-natural woodland

The conversion of semi-natural woodland to conifer plantations will be discouraged.

Drainage Requirements

The cutting of drainage channels at right angles to the slope contours will be

	discouraged because of the potential for erosion and associated danger to surrounding lands and watercourses. The provision of an adequate system of silt traps for all such plantations will be required.
Sensitive Habitats and Ecosystems	The destruction or endangerment of sensitive habitats and ecosystems will be discouraged.
Proximity to designated sites	Designated sites (SACs, NHAs and SPAs) are recognised as being of both National as well as county importance for nature conservation. In order to protect these sites from species invasion the Council recommend that a buffer zone of at least 30 metres be established between these sites and new plantations. In addition all proposed applications within 100 metres of designated sites shall be forwarded to Dúchas for comment.
Ecological Corridors and Wildlife	Hedgerows are important wildlife corridors in the county. All existing hedgerows shall be retained on all planting sites. In accordance with the Forestry and Biodiversity Guidelines each plantation must have approximately 15% area of biodiversity enhancement (open space and retained habitat).
Wind Farms and Wind Turbines	In advance of a survey indicating the optimum locations for wind turbines based on wind speed and slope, it is not possible at this stage to determine the extent to which these locations will impact on forestry in the County. It should be noted that in many cases forestry may have a positive role to play in lessening the visual impact of wind turbines on the landscape. It will be necessary however to factor this consideration into the location of wind turbines and forestry, as Wicklow County Council wishes to promote all renewable energy initiatives equally.

Table 6. Policy in Areas Sensitive to Afforestation

The occurrence of Peatland or Heath habitat types in a large proportion of the Areas of Outstanding Natural Beauty and Areas of Special Amenity makes them particularly worthy of conservation. As well as potentially covering untold archaeological wealth, both of these habitats have significant ecological value and are listed in Annex I of the Habitats Directive. The inaccessibility of these areas has so far protected rare habitats, species and archaeological objects. Any proposed developments in these areas and in areas adjacent to them (particularly above the 300 meter contour), are in danger of having a negative impact on visual amenity, archaeological objects, sensitive habitats, ecosystems and species with links to Annex I and Annex II of the Habitats Directive. Wicklow County Council will be consulted by the Forest Service in all cases where part or all of the proposed planting exceeds the 300 meter contour. Each proposed plantation should be designed in accordance with best forest landscape design practices (see Forest Service Forestry and Landscape Guidelines).

Area	Objective
Mountain Uplands AONB	<p>No new afforestation within the Wicklow National Park unless agreed by Dúchas</p> <p>New afforestation above the 300m contour should only take place where it contributes to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present Where Dúchas are consulted new afforestation above the 300m contour should only take place with their agreement. The upper edges of the plantation shall be sensitively landscaped. Trees of varying species could be used to enhance the appearance of many mountain areas.</p>
Northern Hills AONB	<p>Great Sugarloaf: New afforestation above the 300m contour should only take place where it contributes to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present. Where Dúchas are consulted new afforestation above the 300m contour should only take place with their agreement. The upper edges of the plantation shall be sensitively landscaped All applications to be referred to Dúchas as it lies within an NHA site.</p>

Little Sugarloaf : New afforestation above the 250m contour should only take place where it contributes to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present. The upper edges of the plantation shall be sensitively landscaped. All applications to be referred to Dúchas as it lies within an SAC site.

Bray Head: All forestry applications to be referred to Dúchas because much of Bray Head lies within an SAC site

Glencree and Glencullen AONB

New afforestation above the 300m contour should only take place where it contributes to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present. Where Dúchas are consulted new afforestation above the 300m contour should only take place with their agreement. The upper edges of the plantation shall be sensitively landscaped.

While the Forest Service Guidelines stipulate that 10% of all new afforestation should be broadleaf, it is encouraged that all forestry within the vicinity of the native oak woods in the valley to be broad-leaved with at least 20% oak subject to site suitability. The Forest Service broadleaf planting recommendation will be reviewed in 2003 and they are committed to a national target of 30% broadleaf planting by 2006. The Indicative Forestry Strategy will support any increase in broadleaf planting that may be introduced by the Forest Service. The recently introduced Native Woodland Scheme protects existing and supports the expansion of native woodland in these areas.

Coastal Area AONB

All afforestation proposals will be referred to Wicklow County Council for comment. New afforestation in this area should only take place where it does not detract from

the visual amenity of the area.

Blessington lakes AONB

New afforestation above the 300m contour should only take place where it contributes to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present. Where Dúchas are consulted new afforestation above the 300m contour should only take place with their agreement.

The upper edges of the plantation shall be sensitively landscaped. Here possible variation in the species selected for planting could enhance the scenic quality of plantations.

North Mountain Lowlands ASA

New afforestation above the 300m contour should only take place where it contributes to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present. Where Dúchas are consulted new afforestation above the 300m contour should only take place with their agreement.

The upper edges of the plantation shall be sensitively landscaped. As above possible variation in selection of the species for planting could enhance the visual appearance of the plantations.

South Mountain Lowlands

While the Forest Service Guidelines stipulate that 10% of all new afforestation should be broadleaf, it is encouraged that all forestry within the vicinity of the native oak woods in the valley be broadleaf with at least 20% oak subject to site suitability. The Forest Service broadleaf planting recommendation will be reviewed in 2002 and they are committed to a national target of 30% broadleaf planting by 2006. The Indicative Forestry Strategy will support any increase in broadleaf planting that may be introduced by the Forest Services. New afforestation above the 300m contour should only take place where it contributes

to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present. Where Dúchas are consulted new afforestation above the 300m contour should only take place with their agreement. The upper edges of the plantation shall be sensitively landscaped

Baltinglass hills ASA.

New afforestation above the 300m contour should only take place where it contributes to visual amenity and / or infilling of existing forestry provided that no archaeological objects or sensitive habitats or species are present. Where Dúchas are consulted new afforestation above the 300m contour should only take place with their agreement. The upper edges of the plantation shall be sensitively landscaped.

No new afforestation within 100m of the hillforts or associated monuments unless otherwise agreed upon, in consultation with Dúchas. For archaeological sites or monuments discovered during planting operations, objects should be left undisturbed and the relevant authorities notified (Duchas, Garda Síochana, and National Museum of Ireland). An immediate exclusion zone of at least 100 metres should be maintained until such time as the site has been examined by the relevant authorities and recommendations made regarding how best to manage it.

Natural Aquifers ASA

The Forest Service will consult with Wicklow County Council on the compilation of the proposed draft ground water protection plan.

Natural Heritage Areas*

No new afforestation or reforestation within such areas without Dúchas approval.

Special Areas of Conservation*

No new afforestation nor reforestation

within such areas without Dúchas approval

Special Protection Areas*

No new afforestation nor reforestation within such areas without Dúchas approval

Archaeological site buffer zones*

All new afforestation should be in accordance with the Forest Service Guidelines on Forestry and Archaeology. Dúchas shall be contacted before any planting takes place near an archaeological site or area. All setback distances shall be in accordance with the advice of Dúchas, with existing vegetation to be left intact, together with the provision of an access track from the nearest road to the site also to be established in consultation with Dúchas

Expanding Urban Areas

The Forest Service will consult with the Council on proposed afforestation developments in these areas identified in the County Development Plan. Local amenities may be enhanced in these areas by the Forest Service's NeighbourWood Scheme.

* The Forest Service refers all forestry applications affecting National and Recorded Monuments, Natural Heritage Areas, Special Areas of Conservation and Special Protection Areas to Dúchas prior to any afforestation taking place. If any archaeological objects or features are discovered during operations, the developer is obliged to contact Dúchas immediately.

* The forthcoming Native Woodland Grant Scheme will have an influence

Table 7. Policy in Areas Preferred for Afforestation

All afforestation should be developed in conjunction with the Forest Service Guidelines and the *Code of Best Forest Practice*.

Area	Objective
Southern Hills ASA	Afforestation acceptable in principle subject to evaluation of the proposal on its merits and in accordance with the forestry control objectives set out in Table 5.
Rural areas	Afforestation acceptable in principle subject to evaluation of the proposal on its merits and in accordance with the forestry control objectives set out in Table 5
Eastern Corridor Area	Afforestation acceptable in principle subject to evaluation of the proposal on its merits and in accordance with the objectives set out in Table 5.
Western Corridor Area	Afforestation acceptable in principle subject to the evaluation of the proposal on its merits and in accordance with the forestry control objectives set out in Table 5.

Appendix 1:

Buffer Zone Widths in Relation to Forestry and Water Quality

Buffer zone widths are based on the following factors:

- The average slope of the area adjacent to the aquatic zone (buffer zone widths should be greater when slopes are steep.
- The sensitivity to erosion of the soil adjoining the aquatic zone.

Buffer Zone Widths.

Average slope to aquatic zone.	Buffer zone width on each side of the aquatic zone	Buffer zone width for highly erodable soils.
Moderate (even to 1 in 7/0-15%)	10m	15m
Steep (in 7 to 1 in 3 15-30%)	15m	20m
Very steep (1 in 3 >30%)	20m	25m

The width of the buffer zone may vary e.g. to avoid straight edges for landscaping purposes, the minimum width outlined above must be maintained.

Buffer zones should be actively managed to encourage vegetation and cover for the protection and enhancement of water quality.

Open and partially wooded conditions near the riparian zones should be maintained in order to encourage the development of bank side vegetation.

Appendix 2:

Pan-European Criteria for Sustainable Forest Management

- Criterion 1 Maintenance and Appropriate Enhancement of Forest Resources and their Contribution to Global Carbon Cycles
- Criterion 2 Maintenance of Forest Ecosystem Health and Vitality
- Criterion 3 Maintenance and Encouragement of Productive Functions of Forests (wood and non-wood)
- Criterion 4 Maintenance, Conservation and Appropriate Enhancement of Biological Diversity in Forest Ecosystems
- Criterion 5 Maintenance and Appropriate Enhancement of Protective Functions in Forest Management (notably soil and water)
- Criterion 6 Maintenance of other Socio-Economic Functions and Conditions

The Irish National Forest Standard is available from the Forest Service and lists measures and indicators for the above criteria.

Appendix 3:

Legislation, Guidelines and Organisations

Legislation

Forestry Act 1946
Forestry Act 1956,
Forestry Act 1988 establishing Coillte
Environmental Impact Assessment (Amendment) Regulations – Statutory Instrument No. 101, 1996, Statutory Instrument No 538, 2001
Environmental Protection Agency Act 1992;
EU Council Directive 79/409/EEC on the conservation of wild birds;
EU (Conservation of Wild Birds) (Amendment) Regulation 1999;
European Communities (Natural Habitats) Regulation 1997;
EC (Natural Habitats) (Amendment) Regulation 1998;
Litter Pollution Act, 1997;
Local Government (Water Pollution) Act, 1977
Waste Management Act, 1996
Local Government (Planning and Development) Acts 1963-1996;
Local Government (Planning and Development) Act 2000;
Local Government (Planning and Development) Regulations - Statutory Instrument No. 100, 1996
Local Government (Planning and Development) Regulations (Amendment)- Statutory Instrument No 538, 2001
Local Government (Water Pollution) Acts 1977-90;
Local Government (Special Amenity and Conservation Orders) Act 1976;
National Monuments Acts 1930-1994;
National Monuments (Amendment) Act, 1987
Occupiers Liability Act 1995;
Road Traffic Acts 1933-1993;
Roads Acts 1993 and 1998;
Roads (Amendment) Act, 1998;
Safety, Health and Welfare at Work Act 1989;
Wildlife Act 1976;
Wildlife Bill 1999.
Wildlife (Amendment) Act, 2000

Guidelines

Forest Service, *Forest Harvesting and the Environment Guidelines*, June 2000
Forest Service, *Forestry and Archaeology Guidelines*, June 2000
Forest Service, *Forest Biodiversity Guidelines*, June 2000
Forest Service, *Forestry and the Landscape Guidelines*, June 2000
Forest Service, *Forestry and Water Quality Guidelines*, June 2000
Forest Service, *Forestry and Aerial Fertilisation Guidelines, 2001*
Department of the Environment and Local Government, *Landscape and Landscape Assessment Consultation Draft Guidelines for Planning Authorities*, June 2000.
Department of the Environment and Local Government *Draft Guidelines for Planning Authorities on Forestry Development*, January 1997

Organisations Groups and Companies Involved in and Affected by Forestry Development.

The Forest Service

Coillte Teoranta

Irish Forestry Industry Chain (IFIC)

- COFORD
- Coillte Teoranta
- Enterprise Ireland
- Irish Christmas Tree Growers Association
- Irish Forestry Unit Trust
- Irish Timber Council
- Smartply
- Masonite Ireland
- None-so-Hardy Limited
- Society of Irish Foresters
- Willamette Europe Limited
- Other Private Forestry Companies and Consultants, list available from the Forest Service

Woodlands of Ireland

Tree Council of Ireland

Irish Forestry Certification Initiative (IFCI)

Wicklow Rural Partnership

Heritage Council

Dúchas

CRANN

The Forest Stewardship Council (FSC)

Wicklow Uplands Council

Afforestation Grants and Forestry Premium Schemes

Schedule of Grants and Premiums (€ per hectare)

	Afforestation Grant €	Second Installment Grant €	Total Grant €
Unenclosed Land	2031.58	698.36	2729.94
Enclosed Land/ Improved Land			
• Sitka Spruce			2729.94
• Lodgepole Pine	2031.58	698.36	2856.91
• 20% Diverse	2158.55	698.36	3174.35
• Diverse	2412.50	761.84	
Broadleaf			
• Approved species other than Oak/beech 100% stocking	3809.21	1142.76	4951.98
• Oak 75 - 100% stocking	4825.00	1523.69	6348.69
• Beech 80 - 100% stocking	5078.95	1650.66	6729.61

The afforestation grant is cost based up to the maximum grant level shown. In the interests of multi-functional forestry objectives, broadleaved rates of aid may be extended to unenclosed land on a case by case basis.

Rates of Premium Payable (€ per hectare)

Unenclosed Land		209.51
Enclosed Land/ Improved land	Conifers	
	Non- diverse	336.48
	20% diverse	391.08
	diverse	416.47
	Broadleaves	441.87
	Oak/beech	473.61
Non farmers	Conifers	171.41
	Broadleaves	184.11

In addition, in respect of new planting grants a supplement of €12.70/hectare will be payable on sites greater than 6 hectares and €25.40/hectare on sites greater than 12

hectares in respect of sites planted by farmers on enclosed land. In the interests of multi-functional forestry objectives, broadleaves rates of aid may be extended to unenclosed land on a case by case basis.³³

³³ Forest Service, 2000, Afforestation Grant and Premium Schemes, Wexford, Magner Communications

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