

Ecosystem Services Coillte's progress in the provision of public goods across its estate

Eugene Griffin^{a*}

Abstract

This paper gives the background to the formation of Coillte Teoranta, the Irish Forestry Board, in 1989, and reviews its progress in the areas of recreation, nature conservation, biodiversity and landscape design. The findings of a study on the economic value of trails and forest recreation in Republic of Ireland are discussed, as is the current funding that supports the provision of recreation. The paper looks at how LIFE projects can play an invaluable role in supporting nature conservation. The results of a recent study on the valuation of the public goods provided by Coillte relating to landscape, habitats and species, and cultural heritage are presented.

Keywords: *Coillte, recreation, funding, nature conservation, biodiversity, landscape, valuation, LIFE.*

Introduction

Coillte Teoranta, the Irish Forestry Board, was formed at the beginning of 1989 with the mandate to operate as a commercial semi-state organisation. For all of its previous history, the forest estate was directly managed by a succession of Government Departments and during the 1980's was estimated to be in receipt of annual government subvention in excess of 30 million Irish punts (Anon, 1985). Following Coillte's establishment no further government funding was received. Coillte undertook a considerable amount of land acquisition and afforestation in the 1990's, but following an EU ruling that it was not entitled to afforestation premium payments, very little further acquisition occurred subsequently.

Coillte today has an estate of 443,000 ha of which 390,000 ha is under forest and has developed into a more broadly based company operating in forestry and in related businesses, such as renewable energy and in the manufacture of wood panel products.

Coillte's forests have dual international certification in terms of being responsibly and sustainably managed. The adoption of sustainable management has brought with it a much sharper focus on the management of biodiversity in terms of habitats and species, landscape design and management including size of felling coupes, and stakeholder consultation and involvement.

Ecosystem services include the full range of goods and services that are delivered by the forest and include timber, water, forage, soil protection, recreation, nature

^a Worked in Stewardship and Public Goods, Coillte. Retired in July 2016

* Corresponding author: ejgriffin55@gmail.com

conservation, biodiversity, landscape and cultural heritage. Timber is obviously an ecosystem service that can be traded. However, the services that are not tradable in the normal market are known as public goods and are a subset of ecosystem services, and include nature conservation, biodiversity enhancement, landscape management, protection of cultural heritage and provision of recreation.

Recreation

When Coillte was established it inherited most of the amenity areas/sites that were previously with the Forest and Wildlife Service, apart from the John F. Kennedy Park (Arboretum). While a few of those sites were closed, most remained open and continued to be maintained and or developed, and funded by Coillte without receiving any funding from Government. Coillte continued with the “Open Forest Policy” allowing unlimited pedestrian access to its entire estate. In 2005 Coillte published its first recreation policy *Healthy Forests, Healthy Nation*, in order to formalise a position on the provision of recreation in the light of changing public expectations and operating environments. Furthermore, Coillte in conjunction with the Irish Sports Council in 2005, commissioned Fitzpatrick Associates, Economic Consultants, to undertake a study on the economic value of trails and recreation in the Republic of Ireland. The research involved extensive primary and innovative research work, through both postal and on-site surveys. A questionnaire was sent to 3,000 households in Ireland, while some 640 trail and forest users were interviewed on-site at 15 locations throughout the country. The findings from this research were supplemented by a review of existing literature, consisting of three international comparative studies, and consultation with key stakeholders. This was the most significant report of its kind ever completed in Ireland. The main findings of the report were as follows:

- the total number of trail visits was estimated to be 17.5 million annually;
- the non-market value of forest recreation was €97 million per annum;
- visitors valued their visit at €5.40, using the willingness to pay and the costless choice models;
- economic activity generated by domestic forest visitors was estimated at €268 million annually;
- economic activity generated by overseas walking and cycling tourism in forests was estimated at €138 million annually.

It was determined from the three international comparative studies, that the governments in those countries were funding the development of trails and outdoor recreational facilities in a very significant way:

- New Zealand government was providing 60 million dollars annually, and
- the Scottish and Finnish governments were providing €25 million annually to their state owned forest companies.

The literature indicated that in nearly all countries, people using forest recreational facilities are not charged *per se*, and that the facilities are valued for the economic activity accruing from spending in the local areas, and also by attracting in and spending of foreign tourists. The report stated that Coillte's lands are well positioned to facilitate investment in Ireland's trail network, that Coillte's forests offer significant opportunities for the provision of a broad range of alternative recreational facilities including off-road cycling trails, horse riding trails and mountain biking, and that Coillte could also contribute to the development of a much needed national cycling trail network. Since the publication of this report there has been a greater awareness of Coillte's ongoing commitment and funding of recreation and also its great capability for improving existing recreational facilities, developing new ones and thereby significantly improving the recreational offering to both local residents and overseas tourists alike. Coillte owns and manages more than 50% of the entire national waymarked trail network and contributes very substantially to increased participation in outdoor recreation through management of more than 600 walking and cycling trails nationally. To leverage this public recreation offering, partnerships have been developed with government departments, agencies and local authorities to create funding streams to defray the costs of running this substantial infrastructural network.

Thus since 2008, funding has been received from the Sports Council for certain staff to work exclusively in trail management and development and recreation work across the estate. Since 2010, funding has been received annually from the government to fund recreation on the Coillte estate, which significantly increased in 2015. However, this funding varies from year to year making it difficult to plan and budget over the medium to long term timeframe of between five to ten years.

An important issue to note is that this funding is significantly below the overall costs of maintaining this recreational infrastructure. Coillte will seek, in partnership with other state agencies, additional funds to defray these ongoing costs.

Much progress has been made in recreation in recent years. In 2007, a new *Coillte Outdoors* website was launched where over 150 recreation sites are listed and where one can find full details of trails and facilities and download any required maps (www.coillteoutdoors.ie). Also in 2007, a newly refurbished Lough Key Forest and Activity Park was opened, which was the first recreational joint venture between Coillte and a local authority, Roscommon County Council, with major capital funding from Fáilte Ireland. Visitor numbers to the park have significantly increased since then and are currently greater than 72,000 annually. Over the last 6 years, a total of 142 km of mountain bike trails have been developed at four different sites throughout the country, the longest being 91 km in length. Coillte was instrumental in setting up the Dublin Mountains Partnership in 2008 with the local authorities in Dublin and a Coillte staff member has been seconded to work full time with the Partnership. One of the flagship

projects of the Partnership was the long distance trail, the Dublin Mountains Way that crosses the Dublin Mountains for a distance of 42 kilometres.

In 2013, Coillte in partnership with Cavan County Council, commenced the development of an interpretive centre and new trail facilities at the Cavan Burren Park which is part of the Marble Arch Caves Global Geopark, which covers parts of Cavan and Fermanagh. The development, a cross-border initiative, was valued at over €900,000 and was financed by the European Union's INTERREG IVA Programme. The 124 hectares of the Burren Forest has an exceptional geological heritage along with a range of national monuments, ancient habitation sites and field systems that survive from prehistoric times. The Burren property was all afforested in the mid 1950's and this has been a very significant factor in the protection and preservation of the archaeological and geological features of the site. These new facilities were completed and opened in May 2014. In October 2014, this project won the RDS/Forest Service Community Award and in January 2015 it won the Heritage Section of the Local Authority Management Awards.

Biodiversity and nature conservation

Coillte has designated at least 15% of its estate to be managed for non-commercial purposes with biodiversity being the primary management objective, and that these areas would be identified on maps and protected from harvesting and other high impact forest operations. Between 2001 and 2005, Coillte employed a number of contract ecologists, who following consultation with the local forest managers, surveyed the entire forest estate and determined the most valuable areas for biodiversity management (O'Sullivan 2004). Each forest management unit area has a detailed site description and management plan, and is now a separate layer on the company's geographical information system (GIS). This system allows staff to readily identify "designated biodiversity areas" and thus ensure their protection from forest operations where required. Over the years other potential biodiversity sites have been identified and recorded and this currently amounts to an additional 5% of the estate. The total of the estate now being managed for biodiversity stands at over 20% or 90,055 ha (A. O'Sullivan, 2013, pers. comm.). Therefore, Coillte is a significant contributor to the National Biodiversity Programme. To advise operational forest management staff in the management of these areas and address ongoing environmental compliance requirements, Coillte currently employs a senior ecologist, a hydrologist and four environmental officers.

Since 2001, many operational staff have undergone biodiversity training to certificate or diploma level with University College Cork. Coillte has developed biodiversity action plans for three key species, namely the Lesser Horseshoe Bat, the Hen Harrier and Freshwater Pearl Mussel and one habitat type, Raised Bog, all of

which are listed as rare or endangered in Ireland under the EU Habitats and Birds Directive and for which forestry is particularly relevant to their conservation.

An Old Woodland Survey (OWS; Garrett 2001, Garrett and O’Sullivan 2001) was commissioned by Coillte in 2001 to complete the first systematic attempt in Ireland of quantifying and inventorying Ireland’s old woodland sites on the Coillte estate. The survey was carried out by comparing the distribution of woodland cover as shown in the first edition of Ordinance Survey maps (1833-1844) with that mapped on the subsequent third edition (1900-1913), and lastly with the then Coillte inventory data (2000). Maps were drawn up to show where overlaps occurred with nature conservation designations such as Natural Heritage Areas and Special Areas of Conservation. The survey found that there were 27,000 ha of OWS sites on the estate, comprising 6.5% of the productive forest area. An area of 1,232 ha of OWS sites are currently being restored to semi-natural woodland under the Native Woodland Grant scheme (I. Booth, 2013, pers comm.). The scheme provides grant assistance towards the establishment costs in the first four years, but the ongoing yearly costs of maintenance are being paid for by Coillte. The company is restoring a considerable amount of other former OWS sites to semi-natural woodland, without external grant assistance.

Coillte was a major partner in the Peoples Millennium Forests Project, where over 340 ha of land was planted in 2000, (316 ha on Coillte land) using native Irish seed and also the restoration of certain native woodlands. A native tree was planted on behalf of every household in Ireland and a certificate was posted to all homes giving details about the household’s tree and where it was planted. These forests continue to be managed by the company and form a lasting legacy for all to enjoy and include woodland walks, nature trails, interpretive and recreational facilities.

Habitat restoration and EU LIFE Nature projects

The company has undertaken a number of very significant EU LIFE funded projects in recent years. Between 2002 and 2007, a major blanket bog restoration project (LIFE02 NAT/IRL/8490 “Restoring Active Blanket Bog in Ireland”) was undertaken on Coillte land to restore 1,967 ha of afforested peatland back to their former blanket bog status. Most of the sites were situated along the western seaboard of Ireland, with County Mayo containing the largest number. The sites were selected because they lay within or adjoined Natura 2000 sites which had been designated because of the high quality blanket bog habitat present. The main restoration work carried out was felling of the standing conifer crop, the blocking of drains, the removal of the regenerating conifers and native broadleaves where feasible, and on some sites new fencing was erected in order to exclude grazing animals. This project has significantly improved the quality and quantity of blanket bog habitat within a number of important Irish Natura 2000

sites, and has also provided important insights into blanket bog restoration in terms of appropriate methodology and the cost of implementation. The overall cost of the project was €4.19 million, 75% being funded by the EU and 25% by Coillte.

Following on from the success of the above project, Coillte, in 2004, began a new raised bog restoration project (LIFE04 NAT/IE/000121 “Restoring Raised Bog in Ireland”) with funding again from the EU LIFE-Nature Programme. A total of 14 sites comprising 571 ha were selected for the project as they were within raised bog SAC’s. While most sites selected consisted of entirely afforested raised bog habitat, some of the sites contained significant areas of open, largely intact raised bog. The main restoration work was similar to that adopted on the blanket bog and also included measures for the protection of vulnerable raised bog sites from fire, and consultation to secure control of turbarry (turf cutting) rights. This project was recognised by the EU as being one of the 19 best LIFE projects completed / reported on in 2008.

In 2006, Coillte began a third LIFE project, this time on native woodland restoration (LIFE05 NAT/IRL/000182 “Restoring Priority Woodland Habitats in Ireland”), again with funding under the EU LIFE Nature Programme. Four native woodland types can be found in Ireland –yew woodland, alluvial woodland, woodland associated with limestone pavement and bog woodland are all recognised under the EU Habitats as being critically rare. Nine sites representing these woodland types were selected, totalling 551 ha. The main restoration work carried out was removal of non-native trees and shrubs, control of non-native species to facilitate natural regeneration of native woodland habitat, fencing of project sites to protect sites from grazing where appropriate and extension of yew woodlands through natural regeneration and planting of local native stock. This was a very successful project and in 2011 was recognised by the EU as one of the top six best EU Life projects completed in Europe that year. The project also won the Irish section of the UN Energy Globe Awards in 2010 and the largest project site at Clonbur on the Galway/Mayo border subsequently won an RDS/Forest Service Woodland Award.

A second raised bog restoration project (LIFE09 NAT/IRL/000222 “Demonstrating Best Practice in Raised Bog Restoration in Ireland”) was begun in 2011, involving a further 17 sites, totalling 636 ha; an additional area was added during the course of the project bringing the total area to 685 ha. The sites were identified in conjunction with the National Parks and Wildlife Service as having the best ecological value and potential for restoration of wetland conditions; five of the sites are designated as SACs and twelve as NHAs. The main work being carried out is similar to the work carried out in the previous raised bog restoration project and an additional objective of this project is to contribute to the development of best practice in the restoration of afforested raised bogs, both nationally and across the EU. The project was jointly funded by EU LIFE-Nature Programme (60%), Department of Arts Heritage and the

Gaeltacht (35%) and Coillte (5% plus the project sites totalling 685 ha).

An additional aspect of all four LIFE projects was an extensive outreach and communications programme to raise public awareness of the importance of these rare habitat types, not just in Ireland but across the European Union. Each project constructed a dedicated project website which remains online today, and public walks, events, DVDs and end of project conferences were arranged for each project. In addition, demonstration sites for each project were designated with additional signage, car parking and other facilities to encourage public use of these important sites. With regard to all of the above project sites, once the projects officially ended, normally after a four-five year period, those sites continue to be maintained, monitored and managed with nature conservation as the primary management objective; Coillte does not receive any maintenance funding to support this ongoing work.

Coillte's involvement in large nature conservation projects is listed in Table 1.

Table 1: *Coillte has been and continues to be involved in four major nationally significant nature conservation projects.*

Restoration type	Duration	Restoration area (ha)
Blanket bog restoration	2002-2007	1,967
Raised bog restoration	2004-2008	571
Raised bog restoration	2011-2015	685
Priority woodland restoration	2006-2010	551

All of the above restoration projects are an integral and very important part of Coillte's overall biodiversity programme and represent the highest level of external (European Commission) recognition of the application of environmental best practice on the Coillte estate.

Landscape design and protection

Coillte's forests occupy various upland and lowland positions throughout the country and many are in areas considered valuable from a landscape perspective and or are sensitive to landscape change. Forested landscapes can add considerable value to rural areas, and forests often form interesting and valued back-drops to rural towns and villages, when they are designed to fit in with the natural landscape. Coillte's policy has been to create forests that are productive, attractive and environmentally sympathetic in the landscape. This has been achieved by ensuring that the design of forests is in harmony with the landscapes in which they are set and that large even-aged blocks are restructured to create greater diversity in age structure and tree species composition.

Restructuring of a large even-aged block of forest usually involves dividing the original forest block into a number of areas of different shapes and sizes that will be felled and replanted in different years and the resultant forest will have a variety of ages

and heights which is more visually pleasing and also of benefit to the animals living in or close to those forests. Areas that have been clearfelled and previously contained one or at most two species, generally have a broader range of species included in the replanting and broadleaves tend to be planted on parts of the sites where appropriate. Coillte has a policy of routinely training and up-skilling its forest managers in the principles of landscape design. The company has classified all of its properties into “landscape units” and these have been rated high, medium or low in terms of their landscape sensitivities; each of these ratings has specific requirements in terms of their design. In plantations, the maximum coupe size (felling block) is 20 ha in upland areas, and 5 ha in lowland areas, except where larger coupes are explicitly justified through a combination of windthrow risk, landscape features and where restructuring of existing plantation design dictates larger coupe sizes.

Coillte has also undertaken a Western Peatland Project to review its commercial strategy on forests established on peatlands along the western seaboard. It has been widely accepted by Coillte’s statutory stakeholders that many of those plantations are not suitable for sustainable commercial forestry and that the best management strategy is to redesign them as environmental forests so that their social, environmental and economic contribution can be optimised in the context of a shared national sustainable land use. The principle output from the project has been a Decision Support System which now supports forest managers in making both strategic and operational decisions for individual management units in these forest areas, and has been used in the most recent review of Forest Management Plans covering a five-year period.

Wild Nephin -Ireland’s first wilderness?

Coillte has also been exploring new and innovative uses of forest land in Ireland. The concept of setting aside and maintaining wild lands for the protection of natural resources and enjoyment of future generations has been evolving in other developed western countries for decades. In the United States the concept is highly developed in the National Wilderness System established in 1964 to protect wild landscapes and provide opportunities for visitors to engage in “primitive” recreation. In 2009, the European Parliament recognised the need to provide such areas in an increasingly urbanised and developed Europe and has called on member states to look at setting aside lands as wilderness or “restoring” lands to primitive qualities where inhabitants have the opportunity to engage closely with nature and the natural habitats. Given Coillte’s considerable competencies in habitat restoration, its major land ownership in suitable areas and its roles in recreation and partnership building, the organisation has the potential to act on this call and contribute to the development of an important national asset for future generations.

Coillte has embarked on this process through the “Wild Nephin” initiative and together with the National Parks and Wildlife Service and Mayo County Council, has dedicated approximately 11,000 ha of land in Mayo for the creation of Ireland’s first wilderness area. This initiative aims to focus primarily, though not exclusively, on concrete conservation actions targeting re-wilding of nine desired habitat types within the forested part of the identified project area. As part of a 15-year conversion plan (2014-29) the intention is the withdrawal of active forest management with a vision that wild forces of nature will ultimately become the dominant management driver of the area delivering natural ecosystem services. The objectives of this project are to convert the existing plantation forest into nine desired natural and semi-natural habitat types thereby maintaining and restoring ecosystems and their services while delivering recreation and primitive recreation opportunities to the public.

Valuation of public goods provided by Coillte

The Coillte estate produces a range of benefits for the public at large that are normally referred to as “public goods” or “ecosystem services”. Producing these benefits can at times increase Coillte’s costs, and/or reduce its revenue compared to what they would be if Coillte acted solely to maximise its profits from commercial forestry. Coillte is generally not compensated for the financial impact of providing many of these benefits; the exceptions to this are the provision of recreation and the co-funding of a number of LIFE nature conservation projects and the People’s Millennium Forests.

Coillte and the Heritage Council in 2011, commissioned Goodbody Economic Consultants to provide an economic evaluation of three key public goods provided by the Coillte estate. As the Heritage Council is a statutory body with responsibility for built, natural and cultural heritage, it was felt that the Council was the most appropriate external agency to be involved in this evaluation.

The study concentrated on three public goods produced by Coillte;

- *Landscape*; the effect on the national landscape of the forest estate managed by Coillte. This is a general effect, or good, enjoyed by anyone who is aware of, and appreciates the effect that Coillte’s forests have on the landscape. It is distinct from the benefits obtained by people who actually travel to the forest estate for recreational purposes.

- *Habitats and species*; the contribution that Coillte’s forests make to biodiversity and nature conservation through the protection of habitats and species. It is the value that the public place on the fact that Coillte protects, manages and enhances certain types of habitats and so secures the continued existence of certain species and animals.

- *Cultural heritage*; the heritage features, such as monuments, protected structures and cultural features that are contained in the forest estate and protected by Coillte. This is a generalised “existence” benefit that people obtain from the knowledge that these features are being protected by Coillte.

All of these public goods values are non-use values that a large proportion of the public may derive from the existence of the Coillte forest estate and how it is managed. The production of these public goods imposes real costs on Coillte. Significant staff and resources, including regular training, are devoted to implementing the policies and procedures in relation to providing these goods.

The Discrete Choice Method was used to value the listed “Public Goods”. Over 1,000 Irish residents over the age of 15, randomly selected on a clustered basis in order to be representative of the population as a whole, were interviewed. The result of the survey showed that the Irish public place a total value of €510 m per annum on the existence of these goods, broken down as follows:

- | | |
|--|-------------------|
| ■ Landscape | €96 m per annum; |
| ■ Biodiversity and nature conservation | €322 m per annum; |
| ■ Cultural heritage | €92 m per annum. |

Goodbody’s concluded that the specific values identified in their study for these three public goods provided by the Coillte estate were broadly consistent with similar studies carried out in Ireland and other jurisdictions for similar public goods.

Conclusion

Coillte has been and is involved over many years in significant developments in the area of recreation, biodiversity and nature conservation, habitat restoration in both blanket and raised bogs and priority woodlands, landscape design and protection of cultural heritage. Certain aspects of this work were a prerequisite in obtaining international forest certification. While some funding has been received for recreation in recent years, and in the establishment of LIFE projects, the underlying position is that Coillte provides a wide range of public goods that it funds out of its own resources without adequate compensation and recognition by the State.

This situation is in stark contrast to many other countries where significant annual exchequer funding is given to their forest companies for the provision of public goods. It is important that Coillte’s contribution to the provision of public goods is formally recognised by Government and that appropriate annual funding mechanisms are put in place to compensate the company for this expenditure. In regard to the EU, consideration should be given to the provision of maintenance funding for a number of years after the initial projects are completed.

Acknowledgements

I wish to thank my colleagues in Coillte, D. De Forge, P. Murphy (retired), P. Neville, P. O’Dea, and A. O’Sullivan for their assistance in preparing this paper.

References

- Anon. 1985. Report of the Minister for Energy on the Forest and Wildlife Service.
- Coillte. 2002. *Restoring Active Blanket Bog in Ireland*. Available at www.irishbogrestorationproject.ie [Accessed November 2016].
- Coillte. 2004. *Restoring Raised Bog in Ireland*. Available at www.raisedbogrestoration.ie [Accessed November 2016].
- Coillte. 2005. *Recreation Policy, Healthy Forests, Healthy Nation*. Internal Coillte report.
- Coillte. 2005. *Restoring Priority Woodland Habitats in Ireland*. Available at www.woodlandrestoration.ie [Accessed November 2016].
- Coillte. 2009. *Demonstrating Best Practice in Raised Bog Restoration in Ireland*. Available at www.raisedbogrestoration.ie [Accessed November 2016].
- Fitzpatrick Associates. 2005. *The Economic Value of Trails and Forest Recreation in the Republic of Ireland*.
- Garrett, W. 2001. *Woodland History Survey of the Coillte Estate*. Internal Coillte report.
- Garrett, W. and O’Sullivan, A. 2001. Coillte Old Woodland Survey - July 2001. *The Irish Scientist Yearbook 2001*. Samton, Dublin.
- Goodbody Economic Consultants. 2011. *Valuation of the Public Goods provided by Coillte in Landscape, Habitats and Species and Cultural Heritage*.
- Neville, P. 2007. Nature conservation and biodiversity initiatives in Coillte’s forests. Internal Coillte publication.
- O’Sullivan, A. 2004. Enhancing biodiversity in commercial forestry - Coillte’s approach. In *Opportunities for biodiversity enhancement in plantation forests*. Ed. MacLennan, L. Proceedings of the COFORD Seminar, October 2002, Cork. COFORD, Dublin.