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WELCOME

The PLANFORBIO research programme supports targeted forest biodiversity research in forests of major significance in the contemporary Irish landscape. In keeping with government strategy to increase planting of forests that support a wealth of biodiversity throughout Ireland this years FORESTBIO fieldwork is concerned largely with mixed species plantations, while continuing to survey our native woodlands. The HEN HARRIER research project has moved on to an exciting new phase exploiting technologies such as GPS tracking and nest camera deployment in addition to extensive manual data collection by the fieldwork team to provide information on the requirements of this bird.

The 2008 summer field season is now well underway with researchers travelling throughout the island of Ireland conducting fieldwork on a variety of forest biodiversity projects.

NATIVE WOODLAND BIODIVERSITY SURVEYS

Two native woodland forest types will be surveyed on the FORESTBIO project: Oak-birch-holly woodland which is one of the most widespread of the native woodland types, and Oak-ash-hazel woodland sites where ash is more dominant than oak. But why would a forestry research programme survey native woods? Because the information gathered in our native woods can be used as a benchmark against which to assess the biodiversity of plantation forests and can help inform plantation forest management how best to maximise biodiversity.

Sites for survey were selected based on several criteria including minimum size and age. Ten sites were surveyed during the 2007 field season and the remaining ten have already been surveyed for epiphytes during Spring 2008 with the rest of the FORESTBIO field team to visit over the summer. Many of these woods are privately owned, while others are owned by NPWS or the Forest Service. Ease of access to these sites varies from car parks with interpretive signs to orienteering over gravel roads and through fields with the wood far on the horizon! The owners and managers of these woods are without exception generous with their



knowledge and with allowing access. It is to recognise this that FORESTBIO data collected in these woods will be given to the respective owners/managers in a practical form for their information e.g. species lists. Thanks to all those involved in allowing the FORESTBIO field team access to sites and we look forward to sending each owner biodiversity inventories for their woods when they become available. Further information: kamoore@tcd.ie

CANOPY FOGGING UPDATE

2008 fogging fieldwork is progressing smoothly this year with three Norway spruce:Scots pine mixed sites already fogged since mid-April. Fogging works much more efficiently in the dry summer months, in comparison to last year's late autumn sampling time, and thousands of insects have been collected at each site. Sorting of these samples is now underway, in between fogging fieldwork which is extremely weather-dependent. I hope to be completed this year's fieldwork by the end of July.

Right: Fogging in progress at the pure Norway spruce site CRAB, Co. Tipperary.





THE CONTRIBUTION OF DEAD WOOD TO WOODLAND LIFE

ANCIENT IRELAND'S FORESTRY ACT

In Ireland there is a rich folklore surrounding trees and in ancient times certain trees were imbued with sacredness and believed to have magical powers resulting in customs and traditions that we still follow today. For instance, druids, the priests or wise men of ancient times, believed the yew tree to be sacred and it was considered unlucky to cut down or damage it. The yew was the most powerful in midwinter, symbolising the passage of the sun through the darkest time of the year. It was the tree of light and its evergreen leaves emphasised the fact that life would continue. Yews were adorned with sparkling objects at Yuletide, to attract the light of the sun back into the year and this tradition continues now with our Christmas trees.

In Celtic lore hazel was the tree of knowledge and is central to one of the great legends of Irish folklore, the 'Salmon on Knowledge'. The story goes that when the father of all salmon was first going to the sea, he was drawn to a magical well and his journeys thence instilled in all future salmon their migratory genes. Nine hazel trees surrounded the well and each dropped a sacred hazelnut into the water and on swallowing these nuts the salmon absorbed the nuts' wisdom and became the recipient of all knowledge.

The importance with which trees were held in ancient Irish society is reflected in their laws of the time. In Brehon Law, as in our modern Forestry Act, there were sanctions for felling trees, but the ancient law was more complex. It divided trees into four classes according to their usefulness and symbolism, and there was a special fine for damaging each class of tree. The most important trees were the 'chieftains' such as the great oak tree which was highly prized for its tough durable timber and also because its bark was used for tanning leather. Brehon law laid down that the penalty for stripping as much bark from another person's oak tree as would tan a cow hide was a pair of women's shoes worth half a screpall, and for as much as would tan an ox hide, a pair of men's shoes worth a screpall. Other trees in the 'chieftain' class were hazel, with its branches that formed magician's wands; holly, with its red berries symbolising the food of the gods; yew, associated with death and rebirth; ash, symbolising health; pine, with its phallic-shaped cones; and apple, whose juice provided the drink of the gods.

The 'peasant' trees were alder; willow; hawthorn, associated with spring fertility rites; rowan; birch, symbolising the coming of spring and summer; and elm, associated with fairies of 'the little people' and the passage from life to death. The 'shrub' trees were blackthorn, which heralds spring and guards Autumn; elder, which provides bounty and health; aspen, symbolising the wind; juniper, offering purification; and reed, which was considered a tree because of its usefulness. The 'bramble' trees were dog-rose, bramble, fern and spindle, among others. The law underpinned the utilitarian value of trees and the importance of their wise use with their spiritual and mythological values, reflecting the thinking and superstitions of the time. Further information: v.french@ucc.ie

FIFTH IRISH ORNITHOLOGICAL RESEARCH CONFERENCE

Current Ornithological Research in Ireland: Fifth Ornithological Research Conference, University College Cork, 15th-16th November, 2008. It is five years since the third Conference on Ornithological Research in Ireland was held at University College Cork in November 2003. Since then a number of projects have been completed, others started and some long-term studies are ongoing. It is now appropriate to provide an up to date summary of our ornithological research activities. The fifth conference in the series will take place at



Dead wood is recognised as a vital component of woodland ecosystems. It contributes to a number of ecological processes such as nutrient cycling, hydraulics and germination, which in turn influence the biodiversity of woodlands through various mechanisms including food provision, habitat and microclimate modification and nest site provision. Dead wood is utilised by a large variety of organisms including birds, beetles, fungi and mosses to list but a few. Dead wood commonly takes one of four forms: fallen (course woody debris and brash); standing (snags); intact (dead boughs of trees) and stumps.

Particular species commonly associate with a particular type of dead wood and, because many saproxylic insects and fungi that are associated with dead wood are rare, dead wood type and volume is likely to be critical in determining biodiversity of woodland patches.

Dead wood is extremely important to birds. Many of the invertebrates that depend on dead wood will become prey items for ground feeding birds, while decaying and fallen trees can provide nesting habitat for species such as the Treecreeper. Other species typically nest in holes in trees, and decaying snags could potentially provide such nesting habitat.

Importantly, the Irish bird fauna differs from other European countries. Overall species diversity is lower (perhaps attributable to island biogeography) as is the density of hole-nesting birds such as Redstart and Pied Flycatcher which are more common in Britain. One potential explanation for this pattern is the absence of woodpeckers. Our study seeks to quantify overall levels of dead wood in 20 native woodlands as well as quantifying the number and size of snags. Furthermore, knowledge of overall dead wood levels and how they compare to other countries will help to inform woodland management to the benefit of biodiversity and should form the basis for a large-scale study of the saproxylic flora and fauna of Irish woodlands. Further information: o.sweeney@ucc.ie

PLANFORBIO ADVISORY GROUP APPOINTED

An Advisory Group has been established to provide advice on research conducted on the research programme. The group comprises experts from a number of Irish organisations and also international experts in the field of forest biodiversity including John Cross, National Parks and Wildlife Service, Noel Foley, Forest Service, Eugene Hendrick, COFORD, Sue Iremonger, Independent consultant ecologist, Mick Keane, Coillte, Keith Kirby, Natural England, Tor-Björn Larsson, European Environmental Agency, Alistair Pfeifer, COFORD, Allan Watt, Centre for Ecology and Hydrology, UK.

University College Cork on 15th-16th November 2008. As before, all known workers in Irish Ornithology, at the Universities, Institutes of Technology, the Government Departments and Conservation Organisations are invited to submit abstracts. This is the first notice of the meeting which will celebrate 40 years of BirdWatch Ireland, 150 Years of British ornithologist Union and 75 Years of BTO and over 20 years of our Ornithological Research Meetings. Abstracts, summarising your work on birds, of no more than 400 words should be submitted to j.halloran@ucc.ie by September 19th, 2008.

HIGHLAND STATISTICS

At the beginning of March this year, four members of the PLANFORBIO team, Linda Coote, Howard Fox and Karen Moore from TCD and Veronica French from UCC, travelled to Coimbra in Portugal to attend a statistics course run by Highland Statistics Ltd. (www.highstat.com). The course had the rather formidable title of "The use of Generalized Linear Models (GLM) and General Additive Models (GAM) in Ecology" and had previously been attended by other PLANFORBIO researchers, John O'Halloran, Mark Wilson, Anne Oxbrough, Rebecca Martin and Oisín Sweeney from UCC, but in the less exotic location of Cork.



Course Participants.

The course tutors were Alain Zuur and Elena Ieno, director and co-director of Highland Statistics, which is based in Newburgh in Scotland. Alain is a statistician who has a particular interest in applying statistical methods to ecological and environmental data

and Elena is a marine biologist who left academia to work full time as a statistical consultant. Together they travel round the world and teach statistics to ecologists in a way that bridges that gap between the two disciplines and dispels the dread of statistics felt by many. They are much in demand and their courses are always fully booked. They are also the authors of two books on methods of analysing ecological data. They, along with a team of associates, also offer a statistical consultancy service to researchers who don't have the time or knowledge to do statistical analyses themselves or just need a bit of extra expertise for a certain problem.

The PLANFORBIO team members were in the unusual position of being the only people on the course who had English as their first language, including the course tutors. There were Post-docs and PhD students from Universities in Portugal, Germany, and even as far away as Estonia and Israel, but other nationalities were also represented. Getting your head around statistics is challenging enough, but doing it in another language at the same time is quite impressive. The distance travelled by participants is evidence of the great reputation Alain and Elena have for teaching statistics.

The course covered a lot in a short space of time and aimed at giving the participants the knowledge needed to apply the right statistical test to their data and to interpret the results. The analyses on the course were done using the statistical software package, **Brodgar**, developed by the company and named after a stone circle in Orkney. The course was challenging but rewarding and the PLANFORBIO team members came out feeling that they had a better understanding of the topic and looking forward with interest to the challenges of the Mixed Modelling course being given by Alain and Elena in September. This time they won't be leaving Ireland though, with the course being held at UCC. Further information: lcoote@tcd.ie



Courtyard at University of Coimbra.



GPS COMES HOME TO PIGEONS

One of the most exciting aspects of PLANFORBIO is the use of GPS (Global Positioning System) technology to study habitat use by foraging Hen Harriers. The GPS units we are using are made by Giacomo Dell'Omo of Technosmart, Rome. Giacomo and his colleagues have been developing GPS tags for birds for a decade, working mostly with homing pigeons. The ease with which tags can be deployed and recovered on pigeons, and with which the welfare of captive pigeons can



be monitored, made them a much more convenient model for this work than any wild bird population. Over the past several years, GPS has been used to address several long-standing questions about navigation in homing pigeons. However, advances in GPS technology (in retrieval of data from tags, and in tag size, which has been greatly reduced) allow its application to an ever-increasing range of wild birds. Our project will be the first to deploy GPS on any species of harrier. This technology will yield an unprecedented quantity and quality of data, allowing us to determine fine-scale preferences for small patches of vegetation or for linear features such as hedgerows or lines of brash. By synchronising GPS data with photos recorded by the nest cameras, it may even be possible to identify exactly where each item of prey brought into the nest was captured!

PLANFORBIO's collaboration with Giacomo is also yielding dividends in other areas of bird research in Ireland. One of our researchers, Dr Thomas Kelly, has collaborated with Dublin Airport Authority (DAA) in a long-term study of bird strikes at Ireland's busiest airport. In the 1990s, this study identified pigeon racing as a major risk to planes at Dublin. Although the majority of pigeon racers are based in Northern Ireland, many of their races started to the south of Dublin, and large flocks of racing pigeons had been observed over the airport. A serious bird strike by a pigeon on a plane five years ago prompted negotiations between DAA and pigeon racing associations, who agreed to shift their release sites to the west, in an attempt to move the routes taken by racing pigeons away from Dublin. This strategy appears to have been successful, as large flocks of pigeons are no longer seen over the airfield on race days. However, there is still concern that the routes taken by pigeons may not be sufficiently far from Dublin airspace. UCC suggested that similar GPS tags to those being used on Hen Harriers could be deployed on racing pigeons. Giacomo and members of PLANFORBIO met with representatives of DAA and the pigeon associations in May, and this weekend three GPS-tagged pigeons took part in a race in Ireland. None of them went too close to Dublin airport and it's pleasing to think that, as the pigeons flew home, GPS had come full circle from pigeons, via Hen Harriers, back to pigeons again! Further information: mark.wilson@ucc.ie

TEAM AWARDS

In February members of PLANFORBIO attended ENVIRON 2008, the 18th Irish Environmental Researchers Colloquium which was held in the campus grounds of Dundalk Institute of Technology. The conference was based around environmental research presently taking place in Ireland under 15 specific themes, examples being Animal & Plant Ecology, Agriculture & Land-use, and Emerging Environmental Biotechnologies. At DkIT, everyone was impressed by the prominent wind turbine situated on campus which provides 50% of the campus's energy requirements.

On Friday evening the president of DkIT Mr. Dennis Cummins gave a welcome address before the conference was officially opened by the Minister for Education, Dermot Ahern. On Saturday the conference was in full swing and people busily zig-zagged around while they attended research presentations, mingled amongst the poster presentations, and picked up literature from the stands.

The PLANFORBIO team were ever active with Mark Wilson chairing the afternoon session of 'Biodiversity and Ag-Biota', during which Karen Moore and Howard Fox presented their research. Both talks were very well presented and received, and generated questions from an interested audience. Rebecca Martin and Oisín Sweeney also presented posters on their research and there were project posters up both for PLANFORBIO and BIOFOREST.

One of the highlights on Saturday was the presentation by the keynote speaker at the conference, the environmentalist and presenter Duncan Stewart. He gave a passionate speech on the state of the environment in Ireland and expressed the importance of the environmental research taking place in Ireland at the moment including that which was being highlighted at the conference. He voiced the hope that the outcomes of this research would go towards improving Ireland's environmental record.

After a full day of research related activities DkIT hosted a lavish evening in the Crowne Plaza hotel including a wine reception, dinner and live entertainment, after which Sunday dawned a little too early for some.

The prize-giving session prior to the closing of the conference on Sunday yielded some happy surprises. We extend our congratulations to Rebecca Martin for best forestry poster and Howard Fox for best oral forestry presentation.

EUROPEAN ENVIRONMENT AGENCY REPORT, IN WHICH JOHN O'HALLORAN, DIRECTOR OF PLANFORBIO WAS INVOLVED, IS LAUNCHED IN BONN, GERMANY



Despite political commitment, Europe is struggling to halt the loss of biodiversity by 2010. Forests cover roughly a third of the European land area and they are a vital host to much of the biological diversity in Europe. Any initiative designed to halt the biodiversity loss in Europe must consequently take forests into account. This report by European Environment Agency helps in addressing how forest biodiversity might contribute to halting loss.

Demands on forests will become stronger and spatially more diversified. Production of wood and other traditional forest resources will have to be balanced against other kinds of goods and services from the forest ecosystems. Europe must develop frameworks capable of addressing all these demands to create optimal forest landscapes in the future while preserving biodiversity.

Although preliminary assessments show that the 2010 target of halting the loss of biodiversity will not be met entirely in the forests, Europe has the institutional, legal, financial and information framework in place to make a real difference. The new European Environment Agency report was released last week during a side event at the 9th Conference of the Parties to the Convention on Biological Diversity in Bonn, Germany. The report identifies the state, trends and major pressures on the forest ecosystems across Europe and suggests needed actions and capacity-building for sustainable forest management and safeguarding biodiversity.

Further information can be obtained from the report which can be downloaded at:

http://reports.eea.europa.eu/eea_report_2008_3/en/European-forests-final-web-20052008.pdf

NEW APPOINTMENTS

A number of staff have joined the PLANFORBIO team for the summer of 2008. Barry O'Mahony, Chris Cullen and Geoff Oliver will be conducting fieldwork on the HEN HARRIER project throughout the summer months. Eibhlín Foley, Steven O'Connell and Claire Chauvigne, from Ecole Supérieure D'Agriculture D'Angers, will all join the team at UCC as summer bursary students. Steven will research the diet of Hen Harriers by analysing pellets to reveal their favoured prey items, while Eibhlín and Claire will both look at the diversity of invertebrates in samples collected on the FORESTBIO project. Blathnaid O'Loughlin has been appointed as a research assistant on the FORESTBIO project, again looking at invertebrate biodiversity. The FORESTBIO team at TCD will be joined by Michelle Moran for May and June, and by Orla Daly doing her masters thesis research during June and July and finally Ciara Corcoran, an undergraduate student, doing her degree project in August.

FOR FURTHER INFORMATION

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