Press Release from Bournemouth University

30 July, 2009

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Biodiversity loss reversible say researchers

Improved biodiversity benefits following ecological restoration can boost the economy and be a source of green employment

Research co-authored by Bournemouth University (BU) Professor Adrian Newton and published in the leading journal *Science* this week shows that ecological restoration in areas of environmental degradation can help reverse global biodiversity losses, as well as promoting recovery of ecosystem services.

However the research also showed that measures of biodiversity and ecosystem services are higher in pristine land, freshwater and marine systems than in restored systems.

Examples of ecosystem services include improved water quality and increased carbon storage, services which benefit human well-being.

The research was carried out by an international team from the University of Alcalá in Spain, the UK's Centre for Ecology & Hydrology, and Bournemouth University in the UK. It will be published on the Science Express website at 1900 BST (1400 pm U.S. Eastern Time) on Thursday, 30 July 2009.

Lead author, Professor José M. Rey Benayas from the University of Alcalá and President of the International Foundation for Ecosystem Restoration said: "In addition to the improved biodiversity resulting from ecological restoration, our findings show that such restoration also has benefits for ecosystem services. These services can act as an engine of economy and a source of green employment, so our results give policymakers an extra incentive to restore degraded ecosystems."

Ecological restoration is widely used to reverse the environmental degradation caused by human activities. However, the effectiveness of restoration actions in increasing provision of both biodiversity and ecosystem services has not previously been evaluated systematically.

The research team analysed results from 89 restoration assessments carried out in a wide range of ecosystem types across the globe. On average, ecological restoration increased provision of biodiversity and ecosystem services by 44% and 25% respectively. Increases in biodiversity and ecosystem service measures following restoration were positively correlated. However, values of both remained lower in restored than in intact (undamaged) reference ecosystems.

The results indicate that restoration actions focused on enhancing biodiversity should support increased provision of ecosystem services, particularly in tropical terrestrial areas, which hold the largest amounts of biodiversity and are usually subject to high levels of human pressure."

Co-author, Professor James Bullock from the Centre for Ecology & Hydrology said: "We have shown that across the globe restoration projects are able to help reverse loss of the biodiversity and ecosystem services in areas degraded by human activities. While restoration can help reverse losses, this research shows it is critical for human well-being that we conserve pristine habitats and the biodiversity and ecosystem services they provide."

To interview Prof. Adrian Newton at Bournemouth University
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Editor's Notes:

1. Bournemouth University (BU) – BU has been named the UK's number one 'new' university in the *Guardian University Guide* over the last two years (2009 & 2010). In the most recent Research Assessment Exercise (RAE), Bournemouth University recorded one of the largest improvements in research performance in the UK. The ranking means that BU is now in the top ten for research amongst the UK's new universities – those institutions which have become universities since 1992.

2. BU's Centre for Conservation Ecology and Environmental Change is one of the research centres within the University, and undertakes internationally recognised research on environmental change and its impacts on biodiversity. It is also a leading provider of education and training in conservation science. (www.bournemouth.ac.uk/conservation/)

3. Universidad de Alcalá - The University of Alcalá (UAH) was founded in 1499 as an educational project which fused the best of the academic fields of its time, becoming a center of prestige and cultural reference that was declared as World Heritage Site in 1998 by UNESCO. (http://www.uah.es)

4. The Centre for Ecology & Hydrology (CEH) is the UK's Centre of Excellence for integrated research in land and freshwater ecosystems and their interaction with the atmosphere. CEH is part of the Natural Environment Research Council. (www.ceh.ac.uk)

5. The International Foundation for Ecosystem Restoration (FIRE) is a private, non-profit organization based at Madrid (Spain), including a resourceful membership from 10 Latin American and European countries. FIRE aims to support the design and implementation of plans, projects, and public policies on ecological restoration undertaken by native landowners, national and local authorities, social organizations, and private companies. (http://www.fundacionfire.org/)

Funding

1. The research was funded by a variety of sources including the UK Natural Environment Research Council, the International Foundation for Ecosystem Restoration (FIRE), the Spanish Ministry of Science and Education, and the ReForLan project funded by the EC.

2. The Spanish Ministry of Science and Education partially funded this project through the project CGL2007-60533-BOS lead by the senior author; the aim of this project is to explain the effects of both passive (i.e. cropland abandonment) and active (i.e. tree and shrub plantations) ecological restoration on the dynamics and diversity patterns of plants and birds in agricultural landscapes. It received as well support from the Madrid Government through the project S-0505/AMB/0355, the REMEDINAL network of six major research groups related to ecological restoration http://www.remedinal.org/plt_Home.aspx

3. This research was partly supported by the ReForLan project, an international initiative involving researchers from six countries, funded by the EC. The project is focusing on the ecological restoration of native forest in dryland areas of South America, and includes the use of remote sensing and GIS technologies to assess the environmental degradation that has taken place, and the potential for ecological recovery. Specifically, the project is examining whether such restoration might be cost-effective, when the value of different ecosystem services is taken into account. The potential impacts of ecological restoration on biodiversity are also being explored. Further details at http://reforlan.bournemouth.ac.uk/. The project is coordinated by Prof. Adrian Newton of Bournemouth University.

ENDS **30 July, 2009**

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