

Knowledge Exchange Records from 01/04/2014 – 01/11/2014

Category	Description	Number
1	Book and book chapters	1
2	Peer-reviewed journal article	38
3	FC and/or FR publication	7
4	Reports for non-FC customers (published and unpublished)	0
5	Trade journal and newsletter articles	2
6	Web pages	0
7	Scientific conferences: presentations or posters given	16
8	Other meetings	14
9	Media	0
10	Software and associated manuals	0
11	Other audiences and other delivery channels	9

Knowledge Exchange records from 01/04/2014 – 01/11/2014

CATEGORY 1 - Book and book chapters (1 record)

Record ID 4010563
Title: **Climate change, uncertainty, and consequent risks: opportunities for forest management adaptation in Britain**
Other titles: ITC Dissertation Number 252
Author: Petr, M.
Imprint: University of Twente, 2014
Description: 171 pp
Main subject: CLIMATE CHANGE
Subjects: FOREST MANAGEMENT; CLIMATE CHANGE ADAPTATION; ENVIRONMENTAL MANAGEMENT; FOREST PLANNING; UK; 2015-FR-CAT-1
Class: NRS 903 PET 2014
ISBN: 978-90-365-3695-0
Bib type: M
GMD: PhD Thesis.
Entered: 02/07/2014 0000008b
Updated: 02/07/2014 0000008b

Knowledge Exchange records from 01/04/2014 – 01/11/2014

CATEGORY 2 - Peer-reviewed journal articles (38 records)

- Record ID 4010492
Title: **Short rotation forestry – Earthworm interactions: A field based mesocosm experiment.**
Author: Vanguelova, E.
Co-author: Rajapaksha, N.S.S.; Butt, K.R.; Moffat, A.J.
Imprint: 2014
Source: Applied Soil Ecology
Reference: 52-59
Main subject: SHORT ROTATION COPPICE
Subjects: EARTHWORM POPULATION; LEAF-LITTER DECOMPOSITION; PLANT NUTRIENT UPTAKE; SRF GROWTH; TREE BIOMASS; FCRA AUTHORS; 2015-FR-CAT-2
Abstract: Short rotation forestry (SRF) which consists of planting rapidly growing native and non-native tree species has been introduced to the UK to increase woody biomass production. A largely unknown aspect of SRF species is their interaction with soil fauna, of which the earthworm community is a major component. Earthworms have a pronounced impact on litter decomposition, nutrient cycling and tree growth. Conversely, tree litter and root chemistry can impact on the associated earthworm community development. The aim of this study was to determine direct interactions between SRF species and earthworms. A field-based mesocosm experiment was conducted using *Betula pendula* (birch) and *Eucalyptus nitens* (eucalyptus) with two earthworm species *Lumbricus terrestris* and *Allolobophora chlorotica*...
Class: Electronic resource
WWW: <http://www.sciencedirect.com/science/article/pii/S0929139313003107>
Bib type: A
GMD: Periodical article
Entered: 07/04/2014 B00000115
- Record ID 4010514
Title: **A description of the symptoms of Acute Oak Decline in Britain and a comparative review on causes of similar disorders on oak in Europe.**
Author: Denman, S.
Co-author: Brown, N.; Kirk, S.; Jeger, M.; Webber, J.
Company: Forestry
Edition: doi: 10.1093/forestry/cpu010
Imprint: Oxford Journals, 2014
Description: 17 pages
Main subject: TREE HEALTH
Subjects: FCRA AUTHORS; 2015-FR-CAT-2
Abstract: Acute Oak Decline (AOD) is a relatively new decline-disease affecting both native oak species (*Quercus robur* and *Q. petraea*) in Britain. The key aim of this study was to describe the symptoms, and signs of AOD, to set a baseline. The second aim was to compare and review the European literature on what appear to be similar disorders on oak. AOD is characterized by four key features: weeping patches more-or-less vertically aligned on oak tree trunks; cracks between bark plates from which dark fluid seeps; inner bark necrosis and the presence (in .90 per cent of cases) of larval galleries of the oak buprestid, *Agrilus biguttatus*, on the phloem–sapwood interface. In this study, it was noted that although larval galleries were present in the inner bark in 19 of 21 trees, the ‘D-shaped’ exit holes of the adult beetles were seen less frequently on bark plates of affected trees (33 per cent of cases)...
Class: electronic resource

Country: <http://forestry.oxfordjournals.org/content/early/2014/04/18/forestry.cpu010.full.pdf+html>
uk
Bib type: M
GMD: Periodical article
Entered: 23/04/2014 B00000115
Updated: 31/07/2014 B00000115

Record ID 4010519
Title: **Flavan-3-ols in Norway Spruce: Biosynthesis, Accumulation, and Function in Response to Attack by the Bark Beetle-Associated Fungus *Ceratocystis polonica*.**
Author: Fenning, T.M.
Co-author: Hammerbacher, A.; Paetz, C.; Wright, L.P.; Fischer, T.C.; Bohlmann, J.; Davis, A.J.; Gershenzon, J.; Schmidt, A.
Imprint: 2015
Source: Plant Physiology
Reference: 2107-2122
Main subject: TREE HEALTH
Subjects: FCRA AUTHOR; 2015-FR-CAT-2
Abstract: Proanthocyanidins (PAs) are common polyphenolic polymers of plants found in foliage, fruit, bark, roots, rhizomes, and seed coats that consist of flavan-3-ol units such as 2,3-trans-(+)-catechin and 2,3-cis(-)-epicatechin. Although the biosynthesis of flavan-3-ols has been studied in angiosperms, little is known about their biosynthesis and ecological roles in gymnosperms. In this study, the genes encoding leucoanthocyanidin reductase, a branch point enzyme involved in the biosynthesis of 2,3-trans-(+)- flavan-3-ols, were identified and functionally characterized in Norway spruce (*Picea abies*), the most widespread and economically important conifer in Europe.
Class: Electronic resource
WWW: <http://www.plantphysiol.org/content/164/4/2107.abstract>
Bib type: A
GMD: Periodical article
Entered: 24/04/2014 B00000115

Record ID 4010533
Title: **Description of *Brenneria roseae* sp. nov. and two subspecies, *Brenneria roseae* subspecies *roseae* ssp. nov and *Brenneria roseae* subspecies *americana* ssp. nov. isolated from symptomatic oak.**
Author: Denman, S.
Co-author: Brady, C.; Hunter, G.; Kirk, S.; Arnold, D.
Imprint: Science Direct, 2014
Source: Systematic and Applied Microbiology
Reference: Vol. 37
<http://dx.doi.org/10.1016/j.syapm.2014.04.005>
Main subject: TREE HEALTH
Subjects: ENTEROBACTERIACEAE; ACUTE OAK DECLINE; TAXONOMY; MLSA; FCRA AUTHORS; 2015-FR-CAT-2
Abstract: Gram-negative, facultatively anaerobic bacteria were isolated from symptomatic oak tissue in the UK and USA. Partial *gyrB* sequencing placed ten strains in the genus *Brenneria*, with *B. goodwinii* as the closest phylogenetic relative. The strains were investigated further using a polyphasic approach including MLSA (based on partial *gyrB*, *rpoB*, *infB* and *atpD* gene sequences), 16S rRNA gene sequencing, DNA-DNA relatedness studies and both phenotypic and chemotaxonomic assays. The MLSA and 16S rRNA gene analyses separated the strains into two groups based on origin, suggesting that they belong to *Brenneria* as two novel species. However, the DNA-DNA relatedness values revealed a closer relationship between the groups and indicated that they should belong to the same species. As the two groups of strains from the UK and USA can be differentiated from each other phenotypically and by ERIC PCR fingerprints,

it is proposed to classify them as novel subspecies of a novel *Brenneria* species. The name *Brenneria roseae* sp. nov. (FRB 222T = LMG 27714T = NCPPB 4581T) is proposed, with *Brenneria roseae* subsp. *roseae* ssp. nov. (FRB 222T = LMG 27714T = NCPPB 4581T) for the strains from the UK and *Brenneria roseae* subsp. *americana* ssp. nov. (FRB 223T = LMG 27715T = NCPPB 4582T) for the strains from the USA.

Class: Electronic Resource
WWW: <http://www.sciencedirect.com/science/article/pii/S0723202014000757>
Bib type: A
GMD: Periodical article
Entered: 30/05/2014 B00000115

Record ID 4010535

Title: **Research Spotlight: The ELUM project: Ecosystem Land-Use Modeling and Soil Carbon GHG Flux Trial.**

Author: James Morison

Co-author: By Zoe M Harris; Niall P McNamara; Rebecca Rowe; Marta Dondini; Jon Finch; Mike Perks; Iain Donnison; Kerrie Farrar; Saran Sohi; Phil Ineson; Jonathan C Oxley; Pete Smith and Gail Taylor

Imprint: Taylor & Francis, London, 2014

Source: Biofuels

Reference: 111-116

Main subject: LAND USE

Subjects: FCRA AUTHORS; 2015-FR-CAT-2

Abstract: There is increasing interest in the use of nonfood second-generation lignocellulosic feedstocks and a move away from food crops for bioenergy applications, but questions still remain on sustainability. Empirical data are needed to quantify the GHG balance of land-use transition to lignocellulosic bioenergy cropping systems, to inform lifecycle analyses and aid model validation. The aim of this project 'Ecosystem Land Use Modeling and Soil Carbon GHG Flux Trial' is to produce a framework for predicting the sustainability of bioenergy deployment across the UK. This GB£4m consortium project is commissioned and funded by the Energy Technologies Institute, UK.

Class: Electronic Resource
WWW: <http://www.tandfonline.com/loi/tbfu20>
Bib type: A
GMD: Periodical article
Entered: 16/06/2014 B00000115

Record ID 4010549

Title: **Tree mineral nutrition is deteriorating in Europe.**

Author: Jonard, M.

Co-author: Fürst, A.; Verstraeten, A.; Thimonier, A.; Timmermann, V.; Potoèiæ, N.; Benham, S.; Waldner, P.; Hansen, K.; Merilä, P.; Ponette, Q.; de la Cruz, A.; Roskams, P.; Nicolas, M.; Croisé, L.; Ingerslev, M.; Matteucci, G.; Decinti, B.; Bascietto, M. and Rautio, P.

Imprint: Wiley, 2014

Source: Global Change Biology

Reference: DOI: 10.1111/gcb.12657

Main subject: TREE HEALTH

Subjects: FOLIAR NUTRIENTS; TREND ANALYSIS; FOREST MONITORING; FAGUS SYLVATICA; QUERCUS PETRAEA; QUERCUS ROBUR; ABIES ALBA; PICEA ABIES; PINUS SYLVESTRIS; FCRA AUTHOR; 2015-FR-CAT-2

Abstract: The response of forest ecosystems to increased atmospheric CO₂ is constrained by nutrient availability. It is thus crucial to account for nutrient limitation when studying the forest response to climate change. The objectives of this study were to describe the nutritional status of the main European tree species, to identify growth limiting nutrients and to assess changes in tree nutrition during the past two decades. We analysed the foliar nutrition data collected during 1992-2009 on the intensive forest monitoring plots of

the ICP Forests programme. Of the 22 significant temporal trends that were observed in foliar nutrient concentrations, 20 were decreasing and 2 were increasing. Some of these trends were alarming, amongst which the foliar P concentration in *F. sylvatica*, *Q. Petraea* and *P. sylvestris* that significantly deteriorated during the 1992-2009. In *Q. Petraea* and *P. sylvestris*, the decrease in foliar P concentration was more pronounced on plots with low foliar P status, meaning that trees with latent P deficiency could become deficient in the near future. Increased tree productivity, possibly resulting from high N deposition and from the global increase in atmospheric CO₂, has led to higher nutrient demand by trees. As the soil nutrient supply was not always sufficient to meet the demands of faster growing trees, this could partly explain the deterioration of tree mineral nutrition. The results suggest that when evaluating forest carbon storage capacity and when planning to reduce CO₂ emissions by increasing use of wood biomass for bioenergy, it is crucial that nutrient limitations for forest growth are considered.

Class: Electronic resource
<http://onlinelibrary.wiley.com/doi/10.1111/gcb.12657/abstract?campaign=wolacceptedarticle>

Bib type: A
 GMD: Periodical article
 Entered: 24/06/2014 B00000115
 Updated: 12/08/2014 b00000115

Record ID 4010550
Title: Permanent genetic resources added to Molecular Ecology Resources database 1 August 2011 - 30 September 2011.

Author: A'Hara, S.W.
 Co-author: Amouroux, P.; Argo, E.E.; Avand-Faghih, A.; Barat, A.; Barbieri, L.; Bert, T.M.; Blatrix, R.; Blin, A.; Bouktila, D.

Imprint: 12/2011
 Source: Molecular Ecology Resources
 Reference: 185-9
 doi: 10.1111/j.1755-0998.2011.03088.x

Main subject: GENETICS
 Subjects: GENETIC CONSERVATION; TWINFLOWER; LINNAEA BOREALIS; MICROSATELLITE MARKERS; FCRA AUTHOR; 2015-FR-CAT-2

Abstract: Ten microsatellite loci were isolated and characterized in 20 individual clones of twinflower (*Linnaea borealis* L.) collected from Abernethy Forest in northeast Scotland. The number of alleles per locus ranged from two to 14 and observed heterozygosity ranged from 0.3000 to 1.0000. Five of the loci deviated significantly from Hardy-Weinberg equilibrium. However, at least 95% of the samples amplified across all loci, suggesting the deviations from Hardy-Weinberg equilibrium are likely to be due to isolation and sub-structuring of the population in this rare Scottish species rather than to the presence of null alleles.

Class: Electronic resource
 WWW: <http://tomato.biol.trinity.edu/manuscripts/12-1/mer-11-0045.pdf>
<http://www.forestry.gov.uk/fr/geneticconservation>

ISSN: Online 1755-0998
 Bib type: A
 GMD: Periodical article
 Entered: 24/06/2014 B00000115

Record ID 4010552
Title: High rates of gene flow by pollen and seed in oak populations across Europe.

Author: Cottrell, J.
 Co-author: Gerber, S.; Chadœuf, J.; Gugerli, F.; Lascoux, M.; Buiteveld, J.; Dounavi, A.; Fineschi, S.; Forrest, L.; Fogelqvist, J.; Goicoechea, P.J.; Svejgaard, Jensen, J.; Salvini, D.; Vendramin, G.G.; Kremer, A.

