

Knowledge Exchange records from 01/04/2013 – 31/03/2014

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

- Record ID 4010240
Title: **Genetic relationships between wood quality traits and diameter growth of juvenile core wood in Sitka spruce**
Parent Item: Canadian Journal of Forest Research
Author: Kennedy, S.G.
Co-author: Cameron, A.D.; Lee, S.J.
Imprint: Ottawa : National Research Council Canada, 2013
Source: Canadian Journal of Forest Research 43 (1)
Reference: 1-6 . 50refs.
dx.doi.org/10.1139/cjfr-2012-0308
Main subject: FOREST RESEARCH
Subjects: ROTATION; JUVENILE WOOD; SAWN BATTENS; PICEA SITCHENSIS; WOOD PROPERTIES; PILODYN; GENETIC RELATIONSHIPS; WOOD QUALITY; DIAMETER GROWTH; GREAT BRITAIN; UK; FCRA AUTHOR; ; 2014-FR-CAT-2
Abstract: The trend towards shorter rotations in planted conifer stands has resulted in a reduction in the proportion of mature wood relative to juvenile core wood, raising concerns that the mechanical performance of sawn battens will be affected. The potential to improve the wood quality of the juvenile core of Sitka spruce (*Picea sitchensis* (Bong.) Carrière) without compromising growth rate was investigated.
Class: Electronic resource
<http://www.ingentaconnect.com/content/nrc/cjfr/2013/00000043/00000001/art00002>
Bib type: A
GMD: Periodical article
Entered: 16/05/2013 0000008b
Updated: 25/06/2013 0000008b
- Record ID 4010245
Title: **Dynamic conservation of forest genetic resources in 33 European countries.**
Author: Lefevre, L
Co-author: Koskela, J.; Hubert, J.; Kraigher, H.; Longauer, R.; Olrik, D.C.; Schüler, S.; Bozzano, M.; Alizoti, P.; Bakys, R.; Baldwin, C. et al
Imprint: 2013
Source: Conservation Biology 27 (2)
Reference: 373-384. ill. 34refs
Main subject: FOREST CONSERVATION
Subjects: 2014-FR-CAT-2; DYNAMIC CONSERVATION; GAP ANALYSIS; GENE CONSERVATION; INDICATORS; EUROPE; FCRA AUTHORS
Abstract: Dynamic conservation of forest genetic resources (FGR) means maintaining the genetic diversity of trees within an evolutionary process and allowing generation turnover in the forest.
Bib type: A
GMD: Periodical article
Entered: 25/06/2013 0000008b
- Record ID 4010248
Title: **Spring phenology shows genetic variation among and within populations in seedlings of Scots pine (*Pinus sylvestris* L.) in the Scottish Highlands.**

Author: Salmela, M.J.
Co-author: Cavers, S.; Cottrell, J.E.; Iason, G.R.; Ennos, R.A.
Imprint: Taylor and Francis, 2013
Source: Plant Ecology and Diversity
Main subject: GENETICS
Subjects: FCRA AUTHOR; 2014-FR-CAT-2; ADAPTATION; GENETIC DIFFERENTIATION; SPATIAL HETEROGENEITY; TEMPORAL HETEROGENEITY; VARIATION

Abstract: Background: Genetic differentiation in phenotypic traits is often observed among forest tree populations, but less is known about patterns of adaptive variation within populations. Such variation is expected to enhance the survival likelihood of extant populations under climate change. Aims: Scots pine (*Pinus sylvestris*) occurs over a spatially and temporally heterogeneous landscape in Scotland. Our goal was to examine whether populations had differentiated genetically in timing of bud flush in response to spatial heterogeneity and whether variation was also maintained within populations.

Bib type: A
GMD: Periodical article
Entered: 26/06/2013 0000008b
Updated: 08/07/2013 B00000115

Record ID 4010280
Title: Acoustic velocity measurements of Oak – Do these assist in detecting shaken stems?

Parent Item: Quarterly Journal of Forestry
Author: Price, A.
Co-author: Savill, P.
Imprint: Tring, Herts : Geerings of Ashford Ltd for Royal Forestry Society, 2013
Source: Quarterly Journal of Forestry 107 (3)
Reference: 192-196. ill. 5refs.
Main subject: BRITISH FORESTRY
Subjects: FCRA AUTHOR; VESSEL SIZE; OAK; TREE BREEDING; QUERCUS ROBUR; GREAT BRITAIN; UK; 2014-FR-CAT-2

Abstract: A possible means of estimating vessel sizes quickly and accurately in oak trees would be a great asset to tree breeders. Trees with large earlywood vessels could then be removed from breeding programmes as their progeny would be predisposed to a serious defect, shake (especially on traditionally shake-prone sites). This study aimed to determine whether measurements of acoustic velocity might discriminate between trees with large vessels and those with small ones. The results proved to be completely negative.

Class: AH Serials 'Q' Room L12; NRS Library Serials
Bib type: A
GMD: Periodical article
Entered: 16/07/2013 0000008b

Record ID 4010281
Title: Forest of the month.

Author: Benham, S.
Co-author: Wilkinson, M.
Imprint: 2013
Source: Forest Ecology Bulletin 15
Reference: 2-4 ill. 9refs.
Main subject: FOREST ECOLOGY
Subjects: ALICE HOLT RESEARCH FOREST; ECN; ICP FORESTS; FOREST CARBON; REMOTE SENSING; SURREY; GREAT BRITAIN; UK; FCRA AUTHORS; 2014-FR-CAT-2

Bib type: A
GMD: Periodical article
Entered: 17/07/2013 0000008b

Record ID 4010294

Title: Well-being for all? The social distribution of benefits gained from woodlands and forests in Britain.

Author: O'Brien, E.A.

Co-author: Morris, J.

Imprint: Local Environment: The International Journal of Justice and Sustainability., 2013

Reference: DOI:10.1080/13549839.2013.790354

Main subject: SOCIAL FORESTRY

Subjects: SOCIAL DISTRIBUTION; QUALITY OF LIFE; CULTURAL SERVICES; WOODLAND INTERVENTIONS; FCRA AUTHORS; 2014-FR-CAT-2

Abstract: Well-being is a positive physical, mental and social state and has increasingly become an area of interest to researchers and policy-makers internationally. This paper presents results from research that analyses the well-being benefits gained by different sections of society through viewing, engaging with, and accessing woodlands and forests in Britain. We draw on 31 studies undertaken since 2001 and present a meta-analysis of quantitative data and a meta-synthesis of qualitative data to explore the range of benefits and associated activities in woodlands, and their social distribution. We also present a state-of-the-art typology of well-being benefits for woodlands in Britain. The findings illustrate the wide range of well-being benefits gained by different social groups through various forms of engagement with and activities undertaken in woodlands. We illustrate the wide range of meanings and values attached to trees and woodlands across different social groups. The evidence also illustrates how carefully designed and targeted interventions can be particularly effective in enabling and encouraging people to visit woodland sites, to participate or get involved in new activities and, therefore, to realise a range of well-being benefits.

Class: Electronic resource available.

WWW: <http://www.tandfonline.com/doi/abs/10.1080/13549839.2013.790354>

Bib type: A

GMD: Periodical article

Entered: 09/08/2013 B00000115

Record ID 4010295

Title: Participatory interdisciplinarity: Towards the integration of disciplinary diversity with stakeholder engagement for new models of knowledge production.

Author: O'Brien, E.

Co-author: Marzano, M.; White, R.M.

Imprint: Science and Public Policy, 2013

Reference: 11 pages.

Main subject: POLICY

Subjects: PARTICIPATION; INTERDISCIPLINARITY; STAKEHOLDER; ENVIRONMENTAL MANAGEMENT; DEER; LYME DISEASE; FCRA AUTHORS; 2014-FR-CAT-2

Abstract: Calls for new models of knowledge production demand more interdisciplinary research in order to: develop holistic solutions, increased stakeholder participation, to consider a plurality of perspectives, and to support a more deliberative democracy approach. However, knowledge production debates have rarely explored the synergies offered through combinations of different research attributes. We develop the concept of 'participatory interdisciplinarity' to explore the engagement of a wide range of stakeholders by groups of researchers from different disciplines. This paper examines the benefits and challenges of:

interdisciplinarity, stakeholder participation, the integration of interdisciplinarity and participation. We conclude that participatory interdisciplinary approaches can quickly improve understanding and communication amongst both researchers and stakeholders involved in management, with less evidence of immediate instrumental benefits. We outline how 'participatory interdisciplinarity' can assist in breaking down barriers between traditional knowledge roles (researcher/stakeholder) and knowledge forms (academic/local) and in activating more integrated environmental management.

Bib type: A
GMD: Periodical article
Entered: 09/08/2013 B00000115

Record ID 4010314
Title: First finding of *Cryphonectria parasitica* causing chestnut blight on *Castanea sativa* trees in England.

Author: Hunter, G.C.
Co-author: Wylder, B.; Jones, B.; Webber, J.F.
Imprint: New Disease Reports 27(1), 2013
Main subject: TREE HEALTH
Subjects: DISEASES; FCRA AUTHORS; 2014-FR-CAT-2
WWW: <http://dx.doi.org/10.5197/j.2044-0588.2013.027.001>
Bib type: M
GMD: Reports
Entered: 30/08/2013 B00000115

Record ID 4010316
Title: *Pseudomonas syringae* pv. *aesculi*: foliar infection of *Aesculus* species and temperature–growth relationships.

Author: Mullet, M.S.
Co-author: Webber, J.F.
Imprint: 2013
Source: Forest Pathology
Reference: DOI: 10.1111/efp.12040
Main subject: TREE HEALTH
Subjects: FCRA AUTHORS; 2014-FR-CAT-2
Class: Electronic online resource
WWW: <http://onlinelibrary.wiley.com/doi/10.1111/efp.12040/full>
Bib type: A
GMD: Periodical article
Entered: 02/09/2013 B00000115

Record ID 4010317
Title: The character of composted bracken (*Pteridium aquilinum*L. Kuhn) and its potential as a peat replacement medium.

Author: Pitman, R.M.
Co-author: Webber, J.F.
Imprint: 2013
Source: European Journal of Horticultural Science 78(4)
Reference: 145-152
Main subject: SOIL SCIENCE
Subjects: PH; AIR FILLED POROSITY; NITROGEN; DRAW DOWN; PTAQUILOSIDE; CONDUCTIVITY; WATER MANAGEMENT; FCRA AUTHORS; 2014-FR-CAT-2
Abstract: The preparation of natural bracken (*Pteridium aquilinum* L. Kuhn) from the field to a compost suitable for acid loving plants is described. Key chemical and physical characteristics of the compost were determined by laboratory assessments of particle size, pH, air filled porosity (AFP), water retention characteristics, nitrogen

draw down index (NDI) and basic chemistry. The procedure to ensure the breakdown of Ptaquiloside carcinogens is discussed. The material is naturally N poor, K rich with pH < 5.0, at cutting. During composting, particle size declines but pH naturally rises. Options to retain low pH and improve the water holding capacity are discussed. Nitrogen lock-up is similar to peat, but conductivity is lower, making nutrient management of pot plants easy. Water management is the key to successful use in the nursery. This plant is a highly sustainable resource, regaining biomass if cut in alternate years, growing along the western oceanic areas of Europe, particularly on light acid soils, from Norway to Spain and from Ireland eastward beyond

Germany.

ISSN: 1611-4426
Bib type: A
GMD: Periodical article
Entered: 02/09/2013 B00000115

Record ID 4010318

Title: Chemical measures of bioavailability/bioaccessibility of PAHs in soil: fundamentals to application.

Author: Atkinson, G.E.
Co-author: Doick, K.J.; Burningham, K.; France, C.
Imprint: 2013
Source: Elsevier
Reference: DOI: 10.1016/j.ufug.2013.04.002
Main subject: BROWNFIELD SITES
Subjects: FCRA AUTHORS; 2014-FR-CAT-2
Bib type: A
GMD: Periodical article
Entered: 02/09/2013 B00000115

Record ID 4010319

Title: Chemical measures of bioavailability/bioaccessibility of PAHs in soil: fundamentals to application.

Author: Doick, K.J.
Imprint: 2013
Source: Elsevier
Reference: DOI: 10.1016/j.jhazmat.2013.03.033
Main subject: CHEMICAL ECOLOGY
Subjects: FCRA AUTHOR; 2014-FR-CAT-2
Bib type: A
GMD: Periodical article
Entered: 02/09/2013 B00000115

Record ID 4010320

Title: Investigating design and provision of access facilities as a barrier to woodland use.

Author: Doick, K.J.
Imprint: 2013
Source: Elsevier
Reference: Dec 2012; 117-125
DOI: 10.1016/j.ufug.2012.12.001
Main subject: FORESTRY
Subjects: FCRA AUTHOR; 2014-FR-CAT-2
Bib type: A
GMD: Periodical article
Entered: 03/09/2013 B00000115

Record ID 4010321
Title: Taxonomic re-evaluation reveals that *Phytophthora cinnamomi* and *P. cinnamomi* var. *parvispora* are separate species.
Author: Scanu B.
Co-author: Hunter G.C.; Linaldeddu B.T.; Franceschini A.; Maddau L.; Jung T.; Denman S.
Imprint: 2013
Source: Forest Pathology
Reference: DOI: 10.1111/efp.12039
Main subject: TREE HEALTH
Subjects: FCRA AUTHORS; 2014-FR-CAT-2
Class: Electronic resource - at the moment it is only available as a doi document
Bib type: A
GMD: Periodical article
Entered: 03/09/2013 B00000115

Record ID 4010353
Title: Oviposition patterns and larval damage by the invasive horse-chestnut leaf miner *Cameraria ohridella* on different species of *Aesculus*.
Author: Straw, N.
Co-author: D'Costa, L.; Koricheva, K.; Straw, N.; Simmonds, M.S.J.
Imprint: Wiley, 2013
Source: Ecological Entomology
Reference: 456-462
Main subject: TREE HEALTH
Subjects: AESCULUS HIPPOCASTANUM; HOST PREFERENCE; OVIPOSITION PREFERENCE; FCRA AUTHOR; 2014-FR-CAT-2
Abstract: Presents the results of experiments investigating host-selection, oviposition preference and larval development of the horse-chestnut leaf-miner *Cameraria ohridella* on 11 different species of *Aesculus*. Host preference and suitability are related to the phylogenetic relationships between the tree species.
Class: Electronic resource
WWW: <http://onlinelibrary.wiley.com/doi/10.1111/een.2013.38.issue-5/issuetoc>
Bib type: A
GMD: Periodical article
Entered: 04/10/2013 B00000115
Updated: 04/10/2013 B00000115

Record ID 4010354
Title: Impact of the leaf miner *Cameraria ohridella* (Lepidoptera; Gracillariidae) and bleeding canker disease on horse-chestnut: direct effects and interaction.
Author: Straw, N.A.
Co-author: Williams, D.T.
Imprint: Wiley, 2013
Source: Agricultural and Forest Entomology
Reference: 321-333
Main subject: TREE HEALTH
Subjects: TREE DISEASE; PSEUDOMONAS SYRINGAE PV. AESCULI; INSECT-PATHOGEN INTERACTION; HORSE CHESTNUT LEAF MINER; FCRA AUTHORS; 2014-FR-CAT-2
Abstract: Describes the results of a 10-year study investigating the independent and combined impacts of the leaf-miner *Cameraria ohridella* and bleeding canker disease caused by *Pseudomonas syringae* pv. *aesculi* on the growth and condition of horse-chestnut trees.
Class: Electronic resource

WWW: <http://onlinelibrary.wiley.com/doi/10.1111/afe.2013.15.issue-3/issuetoc>
Bib type: A
GMD: Periodical article
Entered: 04/10/2013 B00000115

Record ID 4010355

Title: **Monitoring oak processionary moth *Thaumetopoea processionea* L. using pheromone traps: the influence of pheromone lure source, trap design and height above the ground on capture rates.**

Author: Straw, N.

Co-author: Williams, D.T.; Townsend, M.; Wilkinson, A.S.; Mullins, A.

Imprint: Wiley, 2013

Source: Agricultural & Forest Entomology

Reference: 126-134

Main subject: TREE HEALTH

Subjects: PESTS AND DISEASES; FCRA AUTHORS; 2014-FR-CAT-2

Abstract: Describes the results of an experimental trial carried out in Richmond Park, London, to determine the influence of trap type, lure and height above ground on the numbers of adult oak processionary moths (*Thaumetopoea processionea*) caught by commercially-available pheromone traps. The results of the study provide a basis for developing a standardised pheromone trapping system for oak processionary moth.

Class: Electronic resource

WWW: <http://onlinelibrary.wiley.com/doi/10.1111/afe.2013.15.issue-3/issuetoc>

Bib type: A

GMD: Periodical article

Entered: 04/10/2013 B00000115

Record ID 4010379

Title: **The potential for bioenergy crops to contribute to meeting GB heat and electricity demands.**

Author: Casella, E.

Co-author: Wang, S.; Hastings, A.; Wang, S.C.; Sunnenberg, G.; Tallis, M.; Taylor, S.; Wang, C.; Alexander, P.; Cisowska, I.; Lovett, A.; Taylor, G.; Firth, S.; Finch, J.; Moran, D.; Morison, J.; Smith, P.

Imprint: Wiley, 2013

Source: Global Change Biology Bioenergy

Reference: November, 2013

6 pp

Main subject: BIOENERGY

Subjects: COMBINED HEAT AND POWER; ELECTRICITY; GREENHOUSE GAS; HEAT; MISCANTHUS; RENEWABLE ENERGY; SHORT ROTATION COPPICE; FCRA AUTHORS; 2014-FR-CAT-2

Abstract: The paper presents a model system, which consists of a partial equilibrium model and process-based terrestrial biogeochemistry models, to determine the optimal distributions of both *Miscanthus* (*Miscanthus 9 giganteus*) and short rotation coppice willow (SRC) (*Salix. viminalis* L. x *S. viminalis* var *Joruun*) in Great Britain (GB), as well as their potential contribution to meet heat and electricity demand in GB. Results show that the potential contribution of *Miscanthus* and SRC to heat and electricity demand is significant. Without considering farm-scale economic constraints, *Miscanthus* and SRC could generate, in an economically competitive way compared with other energy generation costs, 224 800 GWh yr⁻¹ heat and 112 500 GWh yr⁻¹ electricity, with 8 Mha of available land under *Miscanthus* and SRC, accounting for 66% of total heat demand and 62% of total electricity demand respectively. Given the pattern of heat and electricity demand, and the relative yields of *Miscanthus* and SRC in different parts of GB,

Miscanthus is mainly favoured in the Midlands and areas in the South of GB, whereas SRC is favoured in Scotland, the Midlands and areas in the South of GB.

Class: pdf available
Bib type: A
GMD: Periodical article
Entered: 07/11/2013 B00000115
Updated: 07/11/2013 B00000115

Record ID 4010380

Title: **Estimating UK perennial energy crop supply using farm scale models with spatially disaggregated data.**

Author: Casella, E.
Co-author: Alexander, P.; Moran, D.; Smith, P.; Hastings, A.; Wang, S.; Sunnenberg, G.; Lovett, A.; Tallis, M.; Taylor, G.; Finch, J.; Cisowska, I.

Imprint: Wiley, 2013
Source: Global Change Biology Bioenergy
Reference: November, 2013

14 pp

Main subject: BIOENERGY

Subjects: ECONOMICS; ENERGY CROPS; FARM-SCALE MODELLING; MISCANTHUS; RISK; UNCERTAINTY; SHORT ROTATION COPPICE; SPATIAL ANALYSIS; FCRA AUTHOR; 2014-FR-CAT-2

Abstract: To achieve the UK Government's aim of expansion in the growth of perennial energy crops requires farmers to select these crops in preference to conventional rotations. Existing studies estimating the total potential resource have either only simplistically considered the farmer decision-making and opportunity costs, for example using an estimate of annual land rental charge; or have not considered spatial variability, for example using representative farm types. This paper attempts to apply a farm-scale modelling approach with spatially specific data to improve understanding of potential perennial energy crop supply. The model main inputs are yield maps for the perennial energy crops, Miscanthus and willow grown as short-rotation coppice (SRC), and regional yields for conventional crops. These are used to configure location specific farm-scale models, which optimize for profit maximization with risk aversion. Areas that are unsuitable or unavailable for energy crops, due to environmental or social factors, are constrained from selection. The results are maps of economic supply, assuming a homogenous farm-gate price, allowing supply cost curves for the UK market to be derived. The results show a high degree of regional variation in supply, with different patterns for each energy crop. Using estimates of yields under climate change scenarios suggests that Miscanthus supply may increase under future climates while the opposite effect is suggested for SRC willow. The results suggest that SRC willow is only likely to be able to supply a small proportion of the anticipated perennial energy crop target, without increases in market prices. Miscanthus appears to have greater scope for supply, and its dominance may be amplified over time by the effects of climate change. Finally, the relationship to the demand side of the market is discussed, and work is proposed to investigate the factors impacting how the market as a whole may develop.

Class: pdf available
Bib type: A
GMD: Periodical article
Entered: 07/11/2013 B00000115
Updated: 07/11/2013 B00000115

Record ID 4010381

Title: The technical potential of Great Britain to produce ligno-cellulosic biomass for bioenergy in current and future climates.

Author: Casella, E.

Co-author: Hastings, A.; Tallis, M.J.; Matthews, R.; Henshall, P.; Milner, S.; Smith, P.; Taylor, G.

Imprint: Wiley, 2013

Source: Global Change Biology Bioenergy

Reference: November, 2013
15 pp

Main subject: BIOENERGY

Subjects: CLIMATE CHANGE SCENARIOS; ESC-CARBINE; FOREST GROWTH-SRC; MISCANFOR©; MISCANTHUS; RENEWABLE ENERGY; SHORT ROTATION COPPICE; SHORT ROTATION FORESTRY; SUPPLY CHAIN; YIELD; YIELD MODELS; FCRA AUTHORS; 2014-FR-CAT-2;

Abstract: Process and empirical-based models that describe lignocellulosic biomass yield of the perennial energy grass Miscanthus (MiscanFor©), short rotation coppice (SRC) trees and shrubs, poplar and willow (ForestGrowth-SRC) and a number of short rotation forest trees (ESC-CARBINE), were used to estimate the yield potential for current and future climates across Great Britain (GB). In current climates, modelled yields for all feedstock crops varied between 8.1 and 10.6 Mg dry weight (DW) ha 1 yr 1 with willow SRC and poplar SRF producing the lowest and highest yields respectively. For the medium emissions scenario (UKCP09) in 2050, mean yield for all feedstock crops varied between 7.6 and 12.7 Mg DW ha 1 yr 1 with willow SRC and poplar SRF once again the lowest and the highest recorded yields. There were clear geographical trends within GB. Miscanthus yield was higher than all others in the south-west (13.1 Mg DW ha 1 yr 1), SRC willow and SRC poplar in the north-west (12.1–15.8 Mg DW ha 1 yr 1) and in the midlands and south-east, SRF poplar was the highest yielding (10.5– 11.6 Mg DW ha 1 yr 1). These geographical trends changed little with climate out to 2050, with mean yield of each 'best feedstock' increasing from 12.7 to 14.2 Mg DW ha 1 yr 1. Out to 2050, SRC declined slightly and Miscanthus and SRF poplar increased as the 'best feedstock' option. Except for a few localized examples, only SRF poplar had a higher yield than SRC or Miscanthus. These data suggest that in current and future climates, lignocellulosic biomass plantation species can be selected and optimized for best yield performance in different regions of GB. This modelling framework provides a valuable starting-point for which to test the performance of new genetic material, as this becomes available and parameterized for the models and socio-economic scenarios that may impact on the bioenergy industry.

Class: pdf available

Bib type: A

GMD: Periodical article

Entered: 07/11/2013 B00000115

Record ID 4010386

Title: Improving the science-policy-practice interface: Decision Support System uptake and use in the forestry sector in Great Britain.

Author: Stewart, A.

Co-author: Edwards, D.; Lawrence, A.

Imprint: Taylor & Francis Online, 2013

Source: Scandinavian Journal of Forest Research

Reference: 1-10
DOI:10.1080/02827581.2013.849358

Main subject: FOREST MANAGEMENT

Subjects: ADOPTION; DECISION SUPPORT SYSTEMS; FORESTRY; IMPLEMENTATION; KNOWLEDGE EXCHANGE; MODEL; UPTAKE; FCRA AUTHORS; 2014-FR-CAT-2

Abstract: Over the last decade, researchers have developed a range of decision support systems (DSS) which seek to improve the evidence-base for decision-making in the forestry sector in Great Britain. Many are now integral to the systems of forest management and planning used. However, in some cases, levels of adoption have been lower than expected. This problem is neither unique to Great Britain nor to forestry, and increasingly it is being explained in terms of the quality of stakeholder engagement during DSS development and implementation. Thus, social research was undertaken to understand the factors affecting DSS uptake. The methods included an online survey completed by 81 members of the Institute of Chartered Foresters and Forestry Commission staff and 30 semi-structured interviews with stakeholders. Four sets of factors were seen to influence uptake: professional judgement and cultural resistance; communication and access; training, support and consolidation; and meeting user requirements. More generally, our conclusions highlight the need for a shift in the quality of interactions at the science-policy-practice interface: from knowledge-transfer (a unidirectional "bridging of gaps") to knowledge-exchange (dialogue between collaborating partners) and knowledge-interaction (shared cultures and institutions).

WWW: <http://www.tandfonline.com/doi/abs/10.1080/02827581.2013.849358>

Bib type: A

GMD: Periodical article

Entered: 26/11/2013 B00000115

Updated: 03/12/2013 B00000115

Record ID 4010414

Title: **Woodland expansion in Scotland: an assessment of the opportunities and constraints using GIS.**

Author: Sing, L.

Co-author: Towers, W.; Ellis, J.

Imprint: 2013

Source: Scottish Forestry 67(4)

Reference: 18-25

Main subject: WOODLANDS

Subjects: WOODLAND EXPANSION; GIS; FCRA AUTHOR; 2014-FR-CAT-2

Abstract: This paper describes the methodology and results of the Woodland Expansion GIS Project which was commissioned to inform the Woodland Expansion Advisory Group. It identifies the types of land in Scotland which could hold the most potential for tree planting. Land was allocated into three categories to indicate the level of constraint and, by default, of opportunity for expansion based on natural and policy constraints using national scale digital datasets. The results show that Scotland has the capacity for increasing its woodland cover across a range of land types. The potential for new woodlands in each category is discussed.

Bib type: A

GMD: Periodical article

Entered: 16/12/2013 B00000115

Record ID 4010418

Title: **Is the private forest sector adapting to climate change? A study of forest managers in north Wales**

Author: Lawrence, A.

Co-author: Marzano, M.

Imprint: 2013

Source: Annals of Forest Science
Reference: DOI 10.1007/s13595-013-0326-4
Subjects: ADAPTATION; ATTITUDES; BEHAVIOUR; EXTENSION FORESTRY; RISK; UNCERTAINTY; NORTH WALES; CLIMATE CHANGE; UK; UK FORESTRY STANDARD; 2014-FR-CAT-2

Abstract: • Context Two-thirds of Britain's forest area is privately owned. Thus, understanding private forest owners and managers and their attitudes to uncertainty and change, is essential for the success of climate change adaptation policies. • Aim The aims of this study are to (1) assess how beliefs in climate change in the private sector have influenced forest management practices; (2) identify constraints related to changes in species choice and silvicultural systems; (3) analyse the implications for implementing climate change policy in forestry. • Method Semi-structured interviews with key informants who provide advice to, or manage woodlands in, the private forest sector in north Wales. • Results Woodland managers and some advisers are not generally convinced of a need to adapt. They feel the future is uncertain, more usually in relation to tree disease than to climate change itself. Species choice is the principle focus of adaptation activities and reveals a deep divide in opinion. Commercial advisers look to new exotics but are inhibited by absence of markets, while small-scale owners rely more on native genetic diversity. • Conclusions Findings that are likely to apply widely include: the influential role of forest agents in forest management decisions including species choice; lack of confidence in climate change predictions, and in markets; more immediate concerns about tree pests and diseases; demand for leadership from the public sector, and for engagement amongst the private sector. Further research is needed across a wider area to test the variability in relationship between attitudes and behaviors, and local conditions including climate change predictions.

Bib type: A
GMD: Periodical article
Entered: 18/12/2013 0000008b
Updated: 18/12/2013 0000008b

Record ID 4010419
Title: **Structural change during transformation in the Glentress Trial - an update**
Parent Item: Scottish Forestry
Author: Mackintosh, H.
Co-author: Kerr, G; Connolly, T.
Imprint: Royal Scottish Forestry Society, 2013
Source: Scottish Forestry 67 (3)
Reference: 14-23
Main subject: BRITISH FORESTRY
Subjects: GLENTRESS FOREST; EVEN-AGED; ; CONTINUOUS COVER FORESTRY; SITKA SPRUCE; SCOTLAND; UK; 2014-FR-CAT-2

Class: AH Library Serials 'S' Room L12
Bib type: A
GMD: Periodical article
Entered: 18/12/2013 0000008b

Record ID 4010420
Title: **Contrasting approaches to forest fire risk in New Zealand and Great Britain.**
Parent Item: Scottish Forestry
Author: Moffat, A.J.
Co-author: Pearce, H.G.
Imprint: Royal Scottish Forestry Society, 2013
Source: Scottish Forestry
Main subject: BRITISH FORESTRY

Subjects: NEW ZEALAND FORESTRY; GREAT BRITAIN; FOREST FIRES; WILDFIRE;
CLIMATE CHANGE; UK; FCRA AUTHOR; 2014-FR-CAT-2
Class: AH Library Serials 'S' Room L12
Bib type: A
GMD: Periodical article
Entered: 06/01/2014 0000008b

Record ID 4010422

Title: Mixtures with spruce species can be more productive than monocultures: evidence from the Gisburn experiment in Britain.

Author: Mason, W.L.
Co-author: Connolly, T.
Imprint: 2013
Series: Forestry Advance Access published November 27, 2013
Source: Forestry
Reference: 9pp
doi: 10.1093/forestry/cpt042

Main subject: SILVICULTURE

Subjects: FCRA AUTHORS; 2014-FR-CAT-2

Abstract: In 1955, an experiment was established at Gisburn forest in northern England to compare the performance of pure and mixed plots of four species: Norway spruce (*Picea abies*), Scots pine (*Pinus sylvestris*), sessile oak (*Quercus petraea*) and common alder (*Alnus glutinosa*). At the end of the first rotation, there was enhanced growth in all mixtures with Scots pine while there was a negative interaction in the Norway spruce/sessile oak mixture. The experiment was felled in 1989 after windblow and replanted in 1991, when Sitka spruce (*Picea sitchensis*) was added to the species trialled. After 20 years of the second rotation, patterns of individual species growth were generally similar to those in the first rotation, except that height and diameter growth of Norway spruce and Scots pine was significantly greater ($P < 0.01$) in mixed plots. Basal area growth of three combinations (Sitka spruce/Scots pine; Norway spruce/Scots pine; Norway spruce/common alder) was about 40 per cent greater than (and significantly different from) that predicted from performance in pure plots of the same species, evidence of transgressive overyielding. These results indicate that facilitation effects through improved nutrient status can lead to better productivity in mixed-species stands in planted forests. The implications of these findings for policies seeking to diversify single species planted forests are considered.

WWW: <http://forestry.oxfordjournals.org/content/early/2013/11/26/forestry.cpt042>

Bib type: A
GMD: Periodical article
Entered: 06/01/2014 B00000115

Record ID 4010424

Title: The role of true fir species in the silviculture of British forests: past, present and future.

Author: Mason, W.L.
Imprint: 2013
Source: Kastamonu Univ., Journal of Forestry Faculty, 12(3) Special Issue 2012
Reference: 15-26

Main subject: SILVICULTURE

Subjects: ABIES; PROVENANCE; CONTINUOUS COVER FORESTRY; CLIMATE CHANGE; FCRA AUTHOR; 2014-FR-CAT-2

Abstract: There are no true fir species (*Abies* spp.) native to the British Isles: the first to be introduced was *Abies alba* in the 1600s which was planted on some scale until the late 1800s when it proved vulnerable to an insect pest. Thereafter interest switched to North American species, particularly grand (*Abies grandis*) and noble

(*Abies procera*) firs. Provenance tests were established for *A. alba*, *A. amabilis*, *A. grandis*, and *A. procera*. Other silver fir species were trialled in forest plots with varying success. Although species such as grand fir have proved highly productive on favourable sites, their initial slow growth on new planting sites and limited tolerance of the moist nutrient-poor soils characteristic of upland Britain restricted their use in the afforestation programmes of the last century. As a consequence, in 2010, there were about 8000 ha of *Abies* species in Britain, comprising less than one per cent of the forest area. Recent species trials have confirmed that best growth is on mineral soils and that, in open ground conditions, establishment takes longer than for other conifers...

Class: pdf available online
Bib type: A
GMD: Periodical article
Entered: 06/01/2014 B00000115

Record ID 4010425

Title: **Evaluating the deployment of alternative species in planted conifer forests as a means of adaptation to climate change—case studies in New Zealand and Scotland.**

Author: Mason, W.L.
Co-author: Meason, D.F.
Imprint: Springer, 2013
Source: Annals of Forest Science June 2013
Reference: doi: 10.1007/s13595-013-0300-1
Main subject: SILVICULTURE
Subjects: HAZARDS; PROFITABILITY; FCRA AUTHOR; 2014-FR-CAT-2
Abstract: A strategy widely proposed for increasing the resilience of forests against the impacts of projected climate change is to increase the number of species planted to spread and reduce the risks from a range of biotic and abiotic hazards...

Class: pdf available online
WWW: <http://link.springer.com/article/10.1007%2Fs13595-013-0300-1>
Bib type: A
GMD: Periodical article
Entered: 06/01/2014 B00000115

Record ID 4010426

Title: **Western hemlock: are we ignoring one of our most useful tree species?**

Author: Mason, W.L.
Co-author: Cameron, A.D.
Imprint: 2013
Source: Scottish Forestry 67
Reference: 10-14
Main subject: SILVICULTURE
Subjects: FCRA AUTHOR; 2014-FR-CAT-2
Bib type: A
GMD: Periodical article
Entered: 07/01/2014 B00000115

Record ID 4010430

Title: **Ground-dwelling spider (Araneae) and carabid beetle (Coleoptera: Carabidae) community assemblages in mixed and monoculture stands of oak (*Quercus robur* L./*Quercus petraea* (Matt.) Liebl.) and Scots pine (*Pinus sylvestris* L.).**

Author: Barsoum, N.
Co-author: Fuller, L.; Ashwood, F.; Reed, K.; Bonnet-Lebrun, A.-S.; Leung, F.
Imprint: Elsevier, 2013

Source: Forest Ecology and Management
Reference: 13 pp
doi: 10.1016/j.foreco.2013.08.063

Main subject: HABITATS
Subjects: BIODIVERSITY; FCRA AUTHORS; 2014-FR-CAT-2
Abstract: A mixed tree species composition is frequently proposed as a way to increase habitat heterogeneity and support greater biodiversity in commercial forests. However, although international forest policy is increasingly advocating stands of mixed tree species, there is evidence to question the biodiversity benefits conferred by such forests. Using active ground-dwelling spiders and carabid beetles as biodiversity indicator taxa, we investigated the effect of forest stand composition on spider and carabid beetle community structure and composition. We conducted pitfall trapping in the summer of 2011 in 42 plantation forest stands across three different geographical regions in the UK and Ireland. Three common plantation forest stand types were examined: oak monocultures, Scots pine monocultures, and intimate Scots pine and oak mixtures (oak ⩽60% cover). Forest stand type had a weak effect on spider and beetle species richness, with no significant differences in mixed stands compared with monocultures. There were few differences in species composition between the stand types in each region and indicator species analysis found few species specifically affiliated with any of the forest stand types. Land use history is hypothesised to have contributed, at least in part, to the observed important regional differences in spider and beetle assemblages. Our results do not support the perception that intimate mixtures of dominant tree species benefit biodiversity in plantation forest stands. Further research is required to determine the optimum percentages and planting patterns required for mixtures of canopy tree species in order to support forest biodiversity.

Class: Available online through Science Direct 21 October 2013
WWW: <http://www.sciencedirect.com/science/article/pii/S0378112713006051>
Bib type: A
GMD: Periodical article
Entered: 14/01/2014 B00000115

Record ID 4010443
Title: **Managing forests for ecosystem services – can spruce forests show the way?**

Author: Mason, W.L.
Co-author: Mencuccini, M
Imprint: OUP, 2014
Source: Forestry Advance Access
Main subject: FOREST MANAGEMENT
Subjects: CONFERENCES; MILLENNIUM ECOSYSTEM ASSESSMENT; SITKA SPRUCE; BIODIVERSITY; NORWAY SPRUCE; PICEA SITCHENSIS; FCRA AUTHOR; 2014-FR-CAT-2

Abstract: Following the publication of the Millennium Ecosystem Assessment (MEA, 2005), there has been increasing interest in evaluating the state of different ecosystems, the range and categories of services these systems provide, their effects upon human well-being, and the consequences of direct and indirect anthropogenic impacts. The framework provided by the MEA's categories of ecosystem services (ES; i.e. provisioning, regulating, cultural and supporting services) can be used to explore the role of forests in a wider landscape, as well as to examine the effects at a finer scale and the way ES provision from forests is affected by management actions (Eustafor and Patterson, 2011). There are overlaps between this framework and the concepts of sustainable forest management (SFM) that have underpinned forest policy for at least the last two decades. The multifunctional management strategies developed through SFM may be

compromised by economic valuations involved with ES (Quine et al., 2013). There is a recognized need for research that examines the links between ecological systems such as forests and social institutions and management practices both over space and through time in order to improve methods of ecosystem governance (Carpenter et al., 2009).

Bib type: A
GMD: Periodical article
Entered: 12/02/2014 0000008b
Updated: 12/02/2014 0000008b

Record ID 4010452
Title: **Europe-wide dampening of population cycles in keystone herbivores.**
Author: Petty, S.J.
Co-author: Cornulier, T.; Yoccoz, N.G.; Bretagnolle, V.; Brommer, J. E.; Butet, A.; Ecke, F.; Elston, D.A.; Framstad, E.; Henttonen, H.; Hörmfeldt, B.; Huitu, O.; Imholt, C.; Ims, R.A.; Jacob, J.; Jedrzejewska, B.; Millon, A.; Pietiäinen, H.; Tkadlec, E.; Zub, K., Lambin, X.

Imprint: 2014
Source: Science Vol. 340
Reference: 5 April 2013
63-66
DOI: 10.1126/science.1228992

Main subject: ANIMAL ECOLOGY
Subjects: ENVIRONMENTAL; ECOSYSTEM; PLANTS; MAMMAL; FORESTS; FCRA AUTHOR; 2014-FR-CAT-2

Abstract: Suggestions of collapse in small herbivore cycles since the 1980s have raised concerns about the loss of essential ecosystem functions. Whether such phenomena are general and result from extrinsic environmental changes or from intrinsic process stochasticity is currently unknown. Using a large compilation of time series of vole abundances, we demonstrate consistent cycle amplitude dampening associated with a reduction in winter population growth, although regulatory processes responsible for cyclicity have not been lost. The underlying syndrome of change throughout Europe and grass-eating vole species suggests a common climatic driver. Increasing intervals of low-amplitude small herbivore population fluctuations are expected in the future, and these may have cascading impacts on trophic webs across ecosystems.

Class: Electronic resource
WWW: <http://www.sciencemag.org/content/340/6128/63.short>
Bib type: A
GMD: Periodical article
Entered: 27/02/2014 B00000115

Record ID 4010457
Title: **Cone production of Douglas fir (*Pseudotsuga menziesii*) in stands undergoing transformation to continuous cover forestry.**
Author: Stokes, V.
Imprint: 2013
Source: Quarterly Journal of Forestry
Reference: 101-111
Main subject: FORESTRY
Subjects: THINNING TREATMENTS; SILVICULTURAL SYSTEMS; NATURAL REGENERATION; FCRA AUTHOR; 2014-FR-CAT-2

Abstract: Stand-level cone production was assessed in young even-aged Douglas fir plantations undergoing transformation to continuous cover forestry. Ground-based counts of fallen cones were carried out at three sites for five to six consecutive years. At each site stands were thinned to different target basal

areas using either 'frame tree' thinning to convert the stand to continuous cover forestry, or standard management table thinning to maintain an even-aged structure. There were large differences in cone production between sites; at one site cone production was approximately ten-fold higher than that at the youngest site, which had the lowest cone production. Large inter-annual differences in cone production were found, following a similar pattern at all sites...

Bib type: A
GMD: Periodical article
Entered: 13/03/2014 B00000115
Updated: 13/03/2014 B00000115

Record ID 4010458

Title: Using canopy cover to control vegetation in continuous cover forestry. A triumph of hope over reality?

Author: Harmer, R.
Co-author: Kerr, G.
Imprint: 2013
Source: Quarterly Journal of Forestry
Reference: 113-121
Main subject: FORESTRY
Subjects: STAND MANAGEMENT; NATURAL REGENERATION; BASAL AREA; FCRA AUTHORS; 2014-FR-CAT-2

Abstract: Many forest managers have found that it is not as easy as supposed to control ground flora by manipulating the canopy cover. Ralph Harmer and Gary Kerr explore the issues involved and offer tips for increasing natural regeneration.

Bib type: A
GMD: Periodical article
Entered: 13/03/2014 B00000115

Record ID 4010493

Title: Earthworm selection of Short Rotation Forestry leaf litter assessed through preference testing and direct observation.

Author: Vanguelova, E.
Co-author: Rajapaksha, N.S.S.; Butt, K.R.; Moffat, A.J.
Imprint: 2013
Source: Soil Ecology and Biochemistry
Reference: 12-19
Main subject: SHORT ROTATION COPPICE
Subjects: EARTHWORMS; FOOD PREFERENCE; SHORT ROTATION FORESTRY; TREE LITTER SELECTION; CHOICE CHAMBER; WEB CAM RECORDING; FCRA AUTHORS; 2014-FR-CAT-2

Abstract: Short Rotation Forestry (SRF) practice which includes use of rapidly growing native and non-native tree species has been introduced to the UK as a method to increase woody biomass production. A largely unknown aspect of SRF is the quality of leaf litter, and its palatability to the soil decomposer community of which earthworms are a major component. The aims of the present study were to investigate and compare the preference of selected native British earthworms for selected SRF species litter. These were addressed through a series of controlled laboratory experiments. Choice chambers were used to quantify litter removal by *Allolobophora chlorotica*, *Aporrectodea caliginosa*, *Aporrectodea longa* and *Lumbricus terrestris* over a period up to five weeks...

Class: Electronic resource
WWW: <http://www.sciencedirect.com/science/article/pii/S003807171300271X>
Bib type: A
GMD: Periodical article
Entered: 07/04/2014 B00000115

Record ID 4010494
Title: **A new evaluation of carbon stocks in British forest soils.**
Author: Vanguelova, E.I.
Co-author: Nisbet, T.R.; Moffat, A.J.; Broadmeadow, S.; Sanders, T.G.M.; Morison, J.I.L.
Imprint: 2013
Source: Soil Use and Management
Reference: 169-181
10.1111/sum.12025
Main subject: FOREST SOILS
Subjects: BIOSOIL SURVEY; GREAT BRITAIN; FOREST SOILS; CARBON STOCKS; NATIONAL FOREST CARBON STOCKS; SOIL MONITORING; SOIL CARBON UNCERTAINTIES; FCRA AUTHORS; 2014-FR-CAT-2
Abstract: Carbon (C) stocks in forest soils were evaluated in the first comprehensive survey of Great Britain, the BioSoil soil survey, using a total of 167 plots (72 in England, 26 in Wales and 69 in Scotland). The average C stock down to 80 cm depth for seven main soil types ranged between 108 and 448 t C/ha with maximum values from 511 to 927 t C/ha. Carbon stock varied with soil depth and type, forest type, and stand age. Stocks within the upper mineral soil (0–20 cm) represented between 29 and 69% of the total 0–80 cm C stock, while those in the top 40 cm comprised 59–100% of the total. Carbon stocks decreased in the order deep peats > peaty gleys > groundwater gleys > surface-water gleys > podzols and ironpans > brown earths > rankers and rendzinas. Litter and fermentation horizons on average contributed an additional 7.3 and 8.8 t C/ha, respectively, to the overall soil C stock...
Class: Electronic resource
WWW: <http://onlinelibrary.wiley.com/doi/10.1111/sum.12025/abstract>
Bib type: A
GMD: Periodical article
Entered: 07/04/2014 B00000115

Record ID 4010495
Title: **Effects of short rotation forestry on earthworm community development in the UK.**
Author: Vanguelova, E.
Co-author: Rajapaksha, N.S.S.; Butt, K.R.; Moffat, A.J.
Imprint: 2013
Source: Forest Ecology and Management
Reference: 96-104
<http://dx.doi.org/10.1016/j.foreco.2013.04.004>
Main subject: SHORT ROTATION COPPICE
Subjects: LEAF LITTER QUALITY; LITTERBAGS; LUMBRICUS TERRESTRIS; SOIL SUSTAINABILITY; FCRA AUTHORS; 2014-FR-CAT-2
Abstract: Short Rotation Forestry (SRF) has been introduced to the UK as a method to increase woody biomass production. However, some SRF species have raised concerns about potential impacts on the environment. A largely unknown aspect of SRF is the quality and quantity of leaf litter, and its impact on soil fauna, of which the earthworm community is a major component. Earthworms have direct impacts on soil biogeochemistry of SRF systems, and the tree species can impact on the associated earthworm community. The aim of this study was to determine the effects of SRF species on earthworm diversity and population growth. Earthworm surveys and a litter mass loss study were conducted at a range of SRF trial sites. Associated laboratory experiments were also carried out to examine the direct effect of SRF litter on earthworm growth and reproduction. Overall survey results suggested that SRF affects earthworm community development depending on tree species, soil type and land-use history.

Class: Electronic resource
Bib type: A
GMD: Periodical article
Entered: 07/04/2014 B00000115

Record ID 4010497

Title: An economic analysis of the establishment of forest plantations in the United Kingdom to mitigate climatic change.

Author: Moffat, A.J.
Co-author: Nijnik, M.; Pajot, G.; Slee, B.
Imprint: 2013
Source: Forest Policy and Economics
Reference: 34-42

<http://dx.doi.org/10.1016/j.forpol.2012.10.002>

Main subject: CLIMATE CHANGE

Subjects: FORESTRY; AFFORESTATION; CARBON SEQUESTRATION; COST EFFECTIVENESS; POLICY; SUSTAINABLE DEVELOPMENT; FCRA AUTHOR; 2014-FR-CAT-2

Abstract: This paper addresses the economic dimensions of climate change mitigation by afforestation in the UK and the necessity of reconciling sustainable development with carbon sequestration forest policy initiatives. Present value costs per tonne of carbon sequestration through the creation of new forests are estimated, and results of a static comparative analysis, aiming to show the influence of key variables on the costs, are presented and discussed. The paper provides empirical evidence of the cost effectiveness of the establishment of forest plantations for climate change mitigation in different locations in the UK, identifying also the importance of placing forestry for carbon sequestration in the general context of rural land use, where significant policy reforms can be anticipated.

Class: Electronic resource
WWW: <http://www.sciencedirect.com/science/article/pii/S1389934112002274>
Bib type: A
GMD: Periodical article
Entered: 08/04/2014 B00000115