

CJC Consulting

- ❑ **CJC Consulting Ltd** is an independent economics consultancy focused on environmental, countryside and rural issues. It specialises in economic analysis, policy evaluation and impact assessment. Our current client base includes government departments, environmental and development agencies, local authorities and the private sector. Projects are undertaken either on an individual basis or as part of joint teams with other research organisations and consultants. CJC Consulting, through its associates, has access to a wide range of skills in survey organisation, data management and environmental modelling and impact assessment.

education

- ❑ **BSc Agriculture Hons** (University of Reading)
- ❑ **PhD** (University of Wales)
- ❑ **M Phil Agricultural Economics** (University of Reading)

career summary

- ❑ **Director CJC Consulting Ltd** (2000-)
- ❑ **Head of Economics Group, Macaulay Land Use Research Institute, Aberdeen** (1993-2000)
- ❑ **Senior Economist, SAC (Scottish Agricultural College)** (1973-2000)
- ❑ **Lecturer, University of Aberdeen** (1973-2000)

professional skills

- ❑ **Economic and policy analysis**
Extensive experience in applying economic analysis to a wide range of issues in agriculture, forestry, environmental management, diffuse pollution, regional economics and rural development. Specialist in policy design and evaluation using cost benefit and cost-effectiveness analysis, investment appraisal, benefit valuation, and economic impact modelling.
- ❑ **Water quality and catchment management**
Managed a number of multidisciplinary teams to investigate issues in water quality, integrated catchment management and design of instruments for water resource protection. Recent projects for Defra include MACC curve assessment of nitrate mitigation mechanisms, and the valuation of secondary costs and benefits (ammonia and greenhouse gases) from mitigation options designed to reduce diffuse nitrogen and phosphorus pollution. Also analysed the cost-effectiveness of alternative strategies for meeting the requirements of the Nitrates Directive and Water Framework Directive including agricultural options for alleviating nitrate levels in drinking water.
- ❑ **Environment/agri-environment and climate change**
Contributed to the Defra reviews of agri-environment policy measures, set-aside policy and the cost-effectiveness analysis of PSA targets for SSSIs. Assessed for Defra the impact on net carbon emissions of alternative woodlands species and management systems including energy forestry. Developed investment appraisal software over 200-year horizons for comparing the cost-benefit of alternative forestry planting options in regions of the UK on net carbon abatement.

❑ **Forestry economics and policy**

Published extensively on forestry economics and policy and has undertaken evaluations of government and EU financed forestry schemes in England and Scotland. Completed a number of studies for the Forestry Commission, Defra and H. M. Treasury including the cost benefit analyses of forestry in England, the evaluation of the public forestry estate in Scotland, supporting advice to the Independent Panel on Forestry and an assessment of the cost-effectiveness of forestry options for carbon abatement.

❑ **Recreation/ access benefits and economic impacts**

Experienced in measuring the public benefits from enhanced access and applying cost-benefit and cost-effectiveness analysis to recreation and tourism development. Undertook the cost-benefit study of options for improving access to the English coast and the development of new mountain bike trails in England. Researched the costs of public access to landowners and occupiers, and quantified the benefits and impacts from enhanced access to woodlands and the countryside.

❑ **Economic impacts**

Experienced in input-output and survey techniques for establishing sectoral impacts on employment and income. Recent projects include the employment and GVA contribution of the forestry sector on the Scottish economy and the employment impact of the forestry sector and National Forest Estate in Scotland.

selected projects

- ❑ **Department for International Development (2015). Budgeting for and valuing of evaluations.** Development of a procedure for assessing investment in the evaluation of international projects. An application of cost-benefit analysis, ex-ante and ex-post, in a risk environment when outcomes are not known with certainty (sub contract to ITAD).
- ❑ **Forestry Commission (2014) Dual economic analysis of forestry in Scotland.** Estimating the employment, income and value-impacts on the Scottish economy of the National Forest Estate and the forestry sector in Scotland. This study include direct and indirect effects and the impacts of forest-related recreation and deer stalking and management.
- ❑ **Forestry Commission (2014). Assessing the cost-effectiveness of woodlands in the abatement of carbon dioxide emissions.** Calculation of the cost-effectiveness of investment in a range of forest types in different regions of GB for reducing carbon emissions. The investment model incorporates the current costs of woodland establishment and maintenance and uses predicted timber prices and DECC carbon values to derive MACCs for forestry.
- ❑ **Forestry Commission (2013) Scoping and specifying a dual economic analysis of forestry in Scotland.** A scoping study of options for estimating the employment, expenditures and gross value added of the forestry sector in Scotland and the National Forest Estate.
- ❑ **DEFRA (2013): Woodland owner segmentation.** Segmentation modelling of woodland owners and agents to produce typologies for woodland creation and woodland management (sub contract to URS).
- ❑ **DEFRA (2012): Economic evidence to support the Independent Panel on Forestry.** Modelling opportunities, costs and benefits from woodland creation in England (sub contract to URS).
- ❑ **Cambridge Water (2012): Land management options for reducing ground water nitrate levels in catchments with water extraction boreholes (sub contract to Mott Macdonald).** A study to identify the potential to reduce nitrate leaching to groundwater through changes to farming practice in selected catchments.
- ❑ **Forestry Commission (2011): Study to assess investment returns in woodland creation in Great Britain.** Development of a model using Access/Excel software to derive the return on capital from investment in different woodland types in different GB contexts, including both timber, carbon and other social and private benefits.

- ❑ **Forestry Commission Scotland (2011). Branching Out economic study.** Development of economic evaluation methods for a programme developed for those with severe and enduring mental health problems.
- ❑ **DEFRA (2011): Measuring the economic, environmental and ecosystem services value of woodland and heathland and heritage gardens in the context of determining potential impacts from the regulated plant pathogens *Phytophthora ramorum* and *Phytophthora kernoviae*.** A risk and valuation study of predicted impacts on woodland and carbon sequestration values of tree pathogens (sub contract for ADAS).
- ❑ **Scottish Government (2010): Review of goose management policy in Scotland.** A detailed study of existing policy with an analysis of policy options for future intervention in goose management (with BTO Scotland).
- ❑ **Environment Agency (2010). Appraising future actions under the Water Framework Directive.** An analysis of cost-effectiveness of strategies for intervention in catchment management in England to improve water quality in the context of WFD requirements (sub contract to RPA consultants).
- ❑ **Forestry Commission (2010). Economics of managing forests for health.** Book chapter on the economic valuation of physical and psychological health benefits from woodlands.
- ❑ **Forestry Commission (2009): Analysis of policy options for reducing greenhouse gas emissions from agriculture, forestry and land management – forestry options.** MACC curves were developed for 14 types of forestry based on mitigation potential in 2020, 2022 and 2050. Options included short rotation energy forests, coniferous and broadleaved woodlands, and improved management of existing under-managed woodlands. **Defra (2009): Analysis of policy options for reducing greenhouse gas emissions from agriculture, forestry and land management (RMP/5142).** A cost-effectiveness and policy delivery assessment of a range of options for the sector (sub-contract to ADAS).
- ❑ **Woodland Trust (2009): The value of benefits arising from trees and woodlands in the UK.** An economic valuation review of the social, environmental and cultural benefits delivered by woodlands and trees in the UK.
- ❑ **North York Moors National Park (2008): A coast-to-coast mountain bike feasibility study.** This study established a new mountain bike route across northern England and estimated its set-up costs and economic benefits to users and local businesses. With Asken Ltd.
- ❑ **Forest Research (2007): Non-market benefits of 'Forestry For People' in Scotland.** A study to quantify the monetary value of the benefits to environment, tourism, recreation, health, community and the economy, of forestry in Scotland.
- ❑ **DEFRA (2007). Benefits and Pollution Swapping: Cross-cutting issues for Catchment Sensitive Farming Policy (WT0706):** This study examined the impact on primary and secondary emissions of a large number of options for changing the management of crops and livestock. Impacts on nitrate, phosphorus and other emissions to water bodies, and ammonia and greenhouse gases to the atmosphere were quantified and social benefits valued in monetary terms. With IGER as the main contractor.
- ❑ **DEFRA (2007): Assessment of options to improve access to the English Coast.** An appraisal of the costs and benefits of alternative measures for increasing public access to the coast. With Asken Ltd.
- ❑ **Plunkett Foundation (2006): Enterprise for Inclusion.** Evaluation of Defra's funding programme to reduce social exclusion in rural areas. Postal surveys of grant aid recipients, statistical analysis of impacts and evaluation of programme benefits. A Defra funded project.
- ❑ **ADAS (2006): Economic Valuation of Soil Functions Phase 1: Literature Review and Method Development.** An assessment of the main functions and services provided by soils. The project reviews the evidence on the valuation of marginal changes to soil services and the methodologies for valuing environmental effects. Project SP 08004 for Defra
- ❑ **DEFRA (2006): Research in to the funding of community buildings and their associated benefits.** A study to identify the public benefits from rural community buildings together with an assessment of funding issues and their resolution. Main contractor Rural Partnerships.

- ❑ **DEFRA (2005): Project to assess future options for set-aside.** An economic assessment of the environmental effects of removing the set-aside obligation within the SPS. Main contractor University of Cambridge.
- ❑ **PACEC (2005): Evaluation of the South West Forest and Forest Futures Projects.** Assessment of the Forestry Commission and Defra expenditures in support of these major investments in new planting and forest management. A study for Forestry Commission England.
- ❑ **Forestry Commission (2005): Economic benefits of accessible green spaces for physical and mental health.** A review of the economic evidence relating to health benefits from greenspace. The study derives monetary measures for the benefits from increased physical activity and assesses current policy measures to enhance activity on greenspace.
- ❑ **DEFRA (2005): Review of evidence for the formulation of forestry policy in England.** A review of the evidence relating to market, environmental and social impacts of forestry as a basis for the development of the revised England forestry strategy.
- ❑ **IGER (2005): Cost curve of nitrate mitigation options.** Research to quantify the costs of a range of options for reducing nitrate leaching under arable and grassland systems. Project NT2511 for Defra.
- ❑ **Welsh Development Agency (2005): The value of greenspace in Wales: a scoping study.** A review of the policy background for greenspace in Wales and the benefits from existing and newly created greenspace. The review quantifies the benefits to health, environment and the economy.
- ❑ **Forestry Commission Scotland (2005): Economic Evaluation of the forest sector in Moray.** An assessment of the impact of forestry on the economy of Moray including the direct, indirect and induced effects on incomes and employment.
- ❑ **Forestry Commission Scotland (2004). Economic evaluation of the Central Scotland Forest and Grampian Challenge funds.** An appraisal of the costs and benefits of the funds which provided £13m to support new planting in two targeted regions.
- ❑ **DEFRA (2004): Cost effectiveness of approaches for the delivery of PSA targets relating to SSSIs.** A cost benefit analysis of government policy on SSSIs and an assessment of policy measures for the restoration of SSSIs to favourable condition.
- ❑ **Forestry Commission (2004): Economic analysis of the forest estate managed by Forestry Commission Scotland.** An assessment of the cost and benefits of the public estate and the scope for repositioning to increase the public benefits delivered.
- ❑ **DEFRA (2004): Research into the economic contribution of sea angling.** A study to measure the economic value to anglers, and economic impacts on the national and coastal economy of sea angling in England and Wales. With Drew Associates and University of Newcastle upon Tyne.
- ❑ **DEFRA and Forestry Commission (2003): Methodology for monitoring new woodlands in England.** The design of a monitoring and evaluation system for measuring the benefits from grant-aided new planting in the private sector.
- ❑ **Land Use Policy Group of the GB Statutory Conservation, Countryside and Environment Agencies (2003): Review of area-based less-favoured area payments across Great Britain.** A comparison of the structure and impacts of the three GB schemes for payment of LFA compensatory allowances under the Rural Development Regulation.
- ❑ **Land Use Policy Group of the GB Statutory Conservation, Countryside and Environment Agencies (2003): Review of area-based less-favoured area payments across EU Member States.** A comparison of the structure and impacts of new schemes to deliver LFA compensatory allowance under the Rural Development Regulation in six EU Member States.
- ❑ **DEFRA (2003): Review of agri-environment schemes – monitoring information and R&D results.** A detailed review of all monitoring and evaluation, economic and R&D studies on agri-environment schemes in England. The project drew conclusions on the effectiveness and value for money of the scheme and put forward proposal for the development of agri-environment policy. With Ecoscope and CPM.

selected publications

- Ken Willis, Bob Crabtree, Liesl M Osman and Kirsty Catherine. 2015. Green space and health benefits: a QALY and CEA of a mental health programme. *Environmental Economics and Policy*. DOI:10.1080/21606544.2015.1058195
- Cardenas, L.M., D. Scholefield, S. P. Cuttle, B. Crabtree, A. Hopkins, A. Shepherd and A. del Prado. 2011. Cost-effectiveness of nitrate leaching mitigation measures for grassland livestock systems at location in England and Wales. *Science of The Total Environment*, Volume 409, Issue 6, 15 February 2011, Pages 1104-1115.
- Willis, Ken and Crabtree, Bob 2010. Measuring the health benefits of green space in economic terms. In 'Forests, Trees and Human Health', Springer, ISBN:978-90-481-9805-4.
- Chadwick, D., Chambers, B, Anthony, S, Harris, D and Crabtree R. 2008. Benefits and pollution swapping: Cross cutting issues for diffuse pollution migration. SEPA/SAC 2008 Conference, Edinburgh.
- Cardenas, L.M., D. Scholefield, S. Cuttle, B. Crabtree, A. Hopkins and A. del Prado 2007. Nitrate Cost Curve of Mitigation Options for Grassland Soils in the UK. 15th Nitrogen Workshop, Lleida, Spain.
- Crabtree J. R. 2007. Costs and benefits of UK forestry policy. In '*Valuing the Environment in Developed Countries: Case Studies*'. Ed. By David Pearce, Edward Elgar, Cheltenham.
- Hill, G.W. and Crabtree, J.R. 2003. Local environmental investments and sustainable development: The evaluation of environmental projects in Scotland supported by the European Agricultural Guidance and Guarantee Fund. *Local Environment* 8, 185-203.
- Dunn, S. M., Stalham, M., Chalmers, N. and Crabtree, R. 2003. Adjusting irrigation abstraction to minimise the impact on stream flow in the East of Scotland. *J. Environmental Management* 68, 95-107.
- Crabtree, J. R. 2002. Agricultural policy and nature conservation in the UK. In '*Nature and Agriculture in the European Union*' ed. By Brouwer, F. and van der Straaten, J. p 141-161. Edward Elgar, Cheltenham.
- Dunn, S. M., Stalham, M., Chalmers, N. and Crabtree, R. 2002. Spatial and temporal issues in the development of policies for abstraction control in Scotland, Proc. 3rd Inter-Celtic Colloquium on Hydrology and Management of Water Resources, Galway Ireland, 8-10 July 2002, pp74-84.
- Dunn, S. M., Chalmers, N., Stalham, M. Lilly, A. Crabtree, R. and Johnston, L. 2002. Modelling the influence of irrigation abstractions on Scotland's water resources, Proc. of 9th International Conference on Watershed and River Basin Management, Edinburgh Scotland, 11-13 September 2002.
- Crabtree, J. R., Chalmers, N. and Eiser, D. 2001. Voluntary incentive schemes for farm forestry: uptake, policy effectiveness and employment impacts. *Forestry*, 74, 455-465.
- Potts, J. and Crabtree, J. R. 2001. Measuring the benefits from public procurement of recreational access to private woodlands, *Proceedings of a conference on social and economic perspectives of boreal forest ecosystem management*, Edinburgh.
- Wynn, G., Crabtree, J. R. and Potts, J. 2001. Modelling farmers' entry into the Environmentally Sensitive Area Schemes in Scotland, *Journal of Agricultural Economics*, 52, 65-82.
- Christie, M., Crabtree, J. R. and Slee, W. 2000. An economic assessment of informal recreation policy in the Scottish countryside. *Scottish Geographical Journal*. 116 (2), 125-142.
- Macdonald, D., Crabtree, J. R., Weisinger, G., Dax, T., Stamou, N., Fleury, P., Gutierrez Lazpita, J., and Gibon, A. 2000. Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response. *Journal of Environmental Management* 59, 47-69.

- Crabtree, J. R., Potts, J. and Smart, T. 2000. Statistical modelling of incentive design under limited information – the case of public access to farmland. *Journal of Agricultural Economics* 51, 239-251.
- Roberts, D. and Crabtree, J. R. 1999. *Forestry's contribution to the wider economy: a comparison of the economic benefits flowing from different woodland types*, IUFRO Symposium on Forestry and Rural Development, Aberdeen.
- Crabtree, J. R. and Milne, J. 1998. Applications of actions for environmentally sensitive areas: examples in Scotland. *Annales de Zootechnie, Livestock farming, land use and environment*, 47, 491-496.
- Crabtree, J. R., Chalmers, N. and Barron, N.J. 1998. Information for policy design: modelling participation in a farm woodland incentive scheme. *Journal of Agricultural Economics*, 49, 306-320.
- Crabtree, J. R. and Macdonald, D. 1998. Land abandonment in mountain areas of Europe: environmental impacts and policy development, *Second International Conference of the European Society for Ecological Economics*, Geneva, March, 2000.
- Crabtree, J. R. and Brouwer, F. (ed) 1998. *Environmental indicators and Agricultural Policy*, CAB International, Wallingford.
- Crabtree, J. R. and Bayfield, N. 1998. Developing sustainability indicators for mountain ecosystems. *Journal of Environmental Management*, 52(1) 1-14.
- Hanley, N., Macmillan, D. C., Wright, R., Bullock, C. H., Simpson, I., Parsisson, D., and Crabtree, J.R. 1998. Contingent valuation versus choice experiments: Estimating the benefit of ESAs in Scotland. *Journal of Agricultural Economics*. 49, 1-15.
- Crabtree, J. R., Bayfield, N., Wood, M., Macmillan, D. C., Chalmers, N. 1997. Evaluating the benefits from woodland planting. *Scottish Forestry*. 51, 84-92.
- Crabtree, J. R. 1997. Policy instruments for environmental policy: carbon retention in farm woodlands. In: '*Climate-change Mitigation and European Land-use Priorities*', ed. Adger, W.N., Pettenella, D. and Whitby, M. Wallingford, UK: CAB International. pp.187-197.
- Crabtree, J. R. 1997. The supply of public access to the countryside: a value for money and institutional analysis of incentive policies. *Environment and Planning A*, 29, 1465-1476.
- Hanley, N., Simpson, I., Wright, R., Macmillan, D. C., Bullock, C. and Crabtree, J. R. 1997. Valuing the landscape and wildlife benefits of woodlands in an agricultural context. *International Symposium of the Non-Market benefits of Forestry*, Forestry Commission, Edinburgh.