

**FORESTRY COMMISSION**

Description of the Research Project or Services

1.	<b>Research Purchasing Manager (C&amp;FS)</b>	<b>Pat Snowden</b>
	<b>Relevant PAG</b>	<b>Social and Urban Greening</b>

2.	<b>Name of FR Programme Manager (PgM) or Project Manager (PM) and staff</b>	<b>Gregory Valatin</b>
	<b>Name of Institution/company</b>	<b>FR</b>
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	<b>Programme Life (years)</b>	<b>4 Years</b>
	<b>Start Date</b>	<b>1<sup>st</sup> April 2011</b>
	<b>Completion Date</b>	<b>31<sup>st</sup> March 2015</b>
	<b>Revision Dates</b>	<b>31<sup>st</sup> March 2012/2013/2014</b>

**3. Title of Research Project or Service**

Realising the Economic Value of Ecosystem Services from Woodlands (REVES)
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**4. Abstract of proposed research (Summary to be used on website/FRCC etc) (200 words)**

This research programme applies tools of economic analysis to help deliver a research base and supporting communications to assist the Forestry Commission and UK forestry sector in adopting an ecosystem services approach to achieving sustainable forest management. It covers the following elements:

- **Payments for ecosystem services:** A review of potential approaches to aide consideration of future development of the Woodland Carbon Code, and a review of schemes covering multiple ecosystem services (carbon+). These reviews will inform further development of standards and mechanisms designed to ensure that the value of ecosystem services is taken into account in land use and land management decisions.
- **Ecosystem Services valuation:** Development of a prototype ecosystem services optimal rotation length model linked to other Forestry Research models, and input into interdisciplinary case studies coordinated through the Land Use and Ecosystem Services Group. This will assist further development of evidence-based spatial and temporal analyses of the ecosystem services provide by UK woodlands.

- **Valuing Ecosystem Services from small woodlands:** input into EU MORFOPOL project considering good practice in design and implementation of policy tools for sustainable and optimal resource use for small woodlands across Europe.

## 5. Aims and objectives (word limit 500)

### 5.1 Aim of the research

The principal aim of the research is to fill important knowledge gaps and meet Forestry Commission priorities for improving the existing evidence base in assisting the FC and UK forestry sector in adopting an ecosystem services approach to achieving sustainable forest management. The programme focuses on two elements (payments for ecosystem services and ecosystem service valuation). These have distinct, but related, aims.

- **Payments for ecosystem services:** The over-arching aim of these aspects of the programme is to investigate potential mechanisms and approaches to developing incentive mechanisms to help ensure that the social value of ecosystem services provided by woodlands is fully taken into account in decision-making. (Until recently, many ecosystem services have been essentially regarded as free goods, with little incentive for land owners and managers to take their value into account in making decisions). Building upon previous work on carbon valuation and additionality, work is planned with the aim of aiding the further development of the Woodland Carbon Code. (The precise focus of this study remains to be agreed after discussions at the next FC carbon Advisory Group meeting, but is likely to focus on approaches to incorporating carbon substitution benefits to ensure projects account not just for the carbon sequestration benefits of woodland creation, but also for the carbon benefits of using wood products instead of concrete and steel and of using wood as an energy source instead of fossil fuels). An additional aim is to build up a picture of payments for ecosystem services related research by other institutes and related initiatives, and, by undertaking horizon scanning, to assess the potential for developing future research partnerships.

- **Ecosystem Services valuation:**

The over-arching aim of these aspects of the programme is to explore spatial and temporal variation in ecosystem service values associated with UK woodlands. A particular aim is to develop a prototype ecosystem services optimal rotation length model linked directly to Forestry Research carbon and wood production estimates (e.g. the C-SORT model) drawing upon previous work by others (e.g. the CARBMOD carbon/timber optimal rotation length model developed by Prof Colin Price of Bangor University) including considering ways to extend the model to other ecosystem services (e.g. provision of habitat/biodiversity). Another aim is to contribute to interdisciplinary research exploring spatial variation in ecosystem service provision by UK woodlands and associated valuation issues in collaboration with the Land Use and Ecosystem Services group (and other programme groups). The initial case study remains to be agreed but may focus on the impacts of the Glastir woodland creation scheme and aim to explore the spatial distribution of ecosystem services that could be expected to arise from this scheme. A further aim is to build up a picture of ecosystem service valuation related research and initiatives in order to reduce potential overlap and realise synergies with work being undertaken in other institutes, and to help assess the potential for developing future research partnerships. The programme aims to build upon research undertaken under the National Ecosystem Assessment and to link

with associated new initiatives - including activities of the NERC valuation network (<http://www.valuing-nature.net/>).

**- Valuing Ecosystem Services from Small Woodlands (MORFOPOL) project:** the aim of this project (currently at proposal stage and subject to EU approval) is to compare policy tools for sustainable and optimal forest resource use across Europe with a view to helping identify and promote good practice.

**-Knowledge Exchange activities:**

The aim is to provide economic advice in response to ad hoc requests from others within FR, CFS, and external enquiries, to participate in relevant meetings and steering groups as requested by CFS, and in relevant meetings, workshops and conferences to present research and assimilate new evidence, ideas and methods. There are no KE aims specific to individual work areas at present. Participation in the steering group for the scoping study on valuing ecosystem services across GB (and potential for PES) fits with both work areas 1 and 2 below, for example, with the resultant study by external consultants expected to help inform future work within the Commission in both areas.

**-Links with other programmes:**

Economic research focused on climate change topics is supported through the Climate Change PAG (covered separately under MANFORC and Adaptation programmes), with a few days also allocated to explore the potential for developing economic analyses of the forestry wood chain under the Timber Properties Programme proposal. Work on the 'Slowing the Flow' ecosystem services appraisal is a collaboration with the Protecting Soil and Water Resources programme, while that on developing an optimal rotation length model is a collaboration with the two climate change programmes. Apart from these and links with the Land Use and Ecosystem Services and other programmes through the ecosystem services case studies, any exploration of potential economic analyses linked to other CFS programmes (e.g. Tree Breeding) would need to be covered by any remaining time allocated to the Programme Management and Development work area. (The latter also covers external networking and income generation activities aimed at increasing the overall impact of the programme). In addition, links with other programmes exist through externally funded studies (e.g. with the Societal Benefits, and Urban Trees and Greenspace programmes on monitoring and evaluation of WIAT projects for FCS).

To take into account the development of work plans under other programmes, to respond to future changes in policy priorities, and to take advantage of synergies with other institutes and external funding opportunities, the work programme will need to remain flexible.

**5.2 Work Areas**

Please list your work Areas as shown in the table below and show how they further sub-divide. Work Areas should be individually costed and be time bound – see 13. below. Please state key desired outcomes from each work area. First two years should be detailed, the next two in outline. See also Note for this Section below.

<b>Work Area 1</b>	<b>Payments for Ecosystem Services (30%) [2011/2-2014/5]</b> (Staff involved: Gregory Valatin and Vadims Sarajevs)
Work package 1.1	Carbon:
Work package 1.2	Multiple ecosystem services
Work package 1.3	MORFORPOL:

	Input into EU project focusing on policy tools for sustainable and optimal forest resource use (ecosystem services from small woodlands)
Work package 1.4	Horizon scanning, and building overview of related research and initiatives (e.g. through participation in Defra PES workshops)
<b>Work Area 2</b>	<b>Ecosystem Service Valuation (25%)</b> [2011/2-2014/5] (Staff involved: Gregory Valatin and Vadims Sarajevs (economists), Stephen Bathgate (computer programmer), Robin Gill (ecologist), Darren Moseley (spatial ecologist) Robert Matthews (timber yield and green house gas balances expert), Andy Peace (statistician) and Chris Quine)
Work package 2.1	Woodland creation and Flood risk reduction ('Slowing the Flow' project)
Work package 2.2	Temporal variation, synergies and trade-offs (optimal rotation length)
Work package 2.3	Spatial variation: input into inter-disciplinary case studies
Work package 2.4	Horizon scanning, and building overview of related research and initiatives (e.g. through participation in the NERC valuation network)
<b>Work Area 3</b>	<b>Knowledge Exchange (20%)</b> [2011/2-2014/5] (Staff involved: Gregory Valatin, Vadims Sarajevs and Chris Quine)
Work package 3.1	Payments for Ecosystem Services
Work package 3.2	Ecosystem Services Valuation
Work package 3.3	Previous studies (e.g. on woodfuel supply chain) outwith work areas 1 and 2
Work package 3.4	Economic appraisal techniques
<b>Work Area 4</b>	<b>Programme Management and Development (20%)</b> [2011/2-2014/5] (Staff involved: Gregory Valatin and Vadims Sarajevs)
Work package 4.1	Payments for Ecosystem Services
Work package 4.2	Ecosystem Services Valuation
Work package 4.3	Development outwith work areas 1 and 2
Work package 4.4	Strategic overview
<b>Work Area 5</b>	<b>PAG Proposal and CFS Reporting (5%)</b> (Staff involved: Gregory Valatin and Vadims Sarajevs)

\* Add new work areas and packages as required

**6. Please indicate which of the FC's 6 Climate change priority actions this work fits into**

Protect what we already have	<input checked="" type="checkbox"/>	Reduce deforestation	<input checked="" type="checkbox"/>
Restore the world's forest cover	<input checked="" type="checkbox"/>	Use wood for energy	<input checked="" type="checkbox"/>
Replace other materials with wood	<input checked="" type="checkbox"/>	Plan to adapt to our changing climate	<input checked="" type="checkbox"/>

**7. Comment on how this research will address Country Strategy needs/targets (175 words)**

Research proposed on **payments for ecosystem services** will help increase understanding about how markets for ecosystem services designed to promote sustainable forest management could be developed, and fits, inter alia, with government aims of developing markets for Ecosystem Services. The work on carbon fits closely with interests in quality assurance standards for emerging markets in forestry carbon that

provide sustained incentives for carbon sequestration by the forestry sector and further potential development of the Woodland Carbon Code.

Research proposed on **ecosystem services** will help develop the evidence base on different ecosystem services provided by woodland, including synergies and trade-offs. The work fits well with government aims of adopting an ecosystem services approach, as well as concerns that forestry should remain multi-purpose and not be unduly slanted towards climate change mitigation.

**8. Identify and comment on any associated business risk of undertaking/not undertaking the research and how that will be managed**

Risks of not undertaking the research include a lack of evidence in policy-making, failure to optimise the potential of sustainable forest management, and a failure to exploit opportunities for new instruments to deliver sustainable forestry.

**9. Research impact (economic, social, or biodiversity)**

**Who will benefit from this research?** Government policy advisors and the wider forestry sector. (Elements covered by this research programme reflect prior discussions with FC policy advisors).

**How will they benefit from this research?** Through internal reports and external publications, and through knowledge transfer.

**What will be done to ensure that they have the opportunity to benefit from this research?** Internal reports will be circulated within the FC to interested parties and external publications published through appropriate means (e.g. the FR website and scientific journals).

**Potential for innovation and new markets?** Although the research on PES is directly related to innovation and the development of new markets, any intellectual property rights created by this research (or that on other elements covered by this programme) are not currently envisaged to be directly commercialisable by the Forestry Commission.

**10. Communication Strategy**

**Publications:**

**Reports:** A report will be produced and circulated within the FC for each study undertaken. Where possible, it is aimed to convert each report into a form suitable for external publication. To minimise delays, it is envisaged that initial publication will be on FR's website in most instances (e.g. as part of the FR e-monograph series).

**Seminars/conferences:** Participation in relevant conferences and seminars will be planned to disseminate research findings, as well as an aide to horizon scanning, and to developing research networks.

**Decision support systems:** Research undertaken is expected to help inform wider consideration of potential development of decision support systems, including within the Land Use and Ecosystem Services group.

**Website:** It is aimed to produce a 2 page project summary sheet and material for a FR web page for each project undertaken.

**Peer review papers:** It is aimed to produce a peer reviewed publication from as many studies as possible (selection being determined in consultation with CFS advisors once internal FC reports have been completed). Programme development activities will also include producing peer reviewed papers from selected studies for which internal reports have previously been completed.

**11. Under government survey control procedures, Ministerial approval must be sought before statistical surveys of businesses or local authorities can proceed. Please indicate any intention to carry out a survey.**

Yes  No

- If yes please give brief details

**12. Details of support agreed or to be sought from funding bodies for project (including in-kind support)**


**13. Resources (times and fees) requested from the Forestry Commission**

14. Deliverables and associated costs to Forestry Commission

Work Area number	Output	Year 1				Year 2				Year 3				Year 4				Output Unique Identifier	Total Cost
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4		
1	Journal article on carbon additionality		X																
1	PES Carbon review					X				X						X			
1	PES multiple ecosystem services review											X					X		
1	Input into MORFORPOL study						X			X					X				
1	Horizon Scanning (ongoing)																		
<b>1</b>	<b>Total cost of Work Area 1:</b>																		
2	Slowing the Flow at Pickering: completion of initial Ecosystem Services Economic Appraisal	X																	
2	Agroforestry for Ammonia abatement: completion of Economic Appraisal of Climate Change Mitigation benefits		X																
2	Development of Optimal Rotation Length Model linked to other FR models				X			X				X							
2	Literature review on evidence of links between rotation length choice and biodiversity benefits				X														
2	Input into interdisciplinary case studies						X			X					X				
2	Horizon Scanning (ongoing)																		
<b>2</b>	<b>Total cost of Work Area 2:</b>																		
3	Journal article on woodfuel resource cost curves		X																
3	input to greenspace benefits and urban governance presentation on at European Forum on Urban Forestry conference in Glasgow (collaboration with social researchers and a spatial ecologist)	X																	
3	Knowledge transfer (ongoing)																		
<b>3</b>	<b>Total cost of Work Area 3</b>																		
4	Programme Development: Book Chapter for a					X													



## Proposal for funding Agreement Number CFS 6-2011-15

	section on the Economics of Forestry (likely collaboration with Prof Colin Price)																		
4	Programme Management & Development (ongoing)																		
<b>4</b>	<b>Total cost of Work Area 4:</b>																		
5	PAG proposal	X																	
5	Provide a report on advisory work to CFS			X			X			X						X			
<b>5</b>	<b>Total cost of Work Area 5:</b>																		

## Proposal for funding Agreement Number CFS 6-2011-15

Signed.....Research Provider/HOD  
Date.....

Signed.....C&FS Advisor  
Date.....



**Proposal Approved**

CFS

Date 31<sup>st</sup> August 2011

15. Agreed Changes

Description of change:		
<p>Signed.....Research Provider      Date.....</p> <p>Signed.....C&amp;FS                              Date.....</p>		
<p>Signed.....Research Provider      Date.....</p> <p>Signed.....C&amp;FS                              Date.....</p>		
<p>Signed.....Research Provider      Date.....</p> <p>Signed.....C&amp;FS                              Date.....</p>		

<b>16. Detailed communications plan:</b>
<b>Year 1</b>
<b>Year 2</b>
<b>Year 3</b>
<b>Year 4</b>