

## CURRICULUM VITAE

### Martyn Greer MURRAY

40 Green Apron Park, North Berwick, East Lothian, EH39 4RE, UK.  
Institute of Evolutionary Biology, University of Edinburgh, EH9 3JT, UK  
Tel: +44 (0)1620 892568; e-mail: [m.murray@ed.ac.uk](mailto:m.murray@ed.ac.uk);  
Personal web site [www.wildnature.org](http://www.wildnature.org)  
Company web site: [www.mgmsolutions.com/mgms.html](http://www.mgmsolutions.com/mgms.html)  
University web page: <http://tinyurl.com/martyn-ed>  
LinkedIn: <http://www.linkedin.com/in/martynmurray>



- 1. NAME:** MURRAY, Martyn Greer,  
BSc Zoology (University of Edinburgh) 1973  
PhD Zoology (University of Zimbabwe) 1980.
- 2. PROFESSION:** **Consultancy:** Biodiversity and Environmental Policy, Natural Resources Management, Rangelands, Ecosystems and Climate Change (**pages 3-5, 9**).  
**Research and Teaching:** Conservation Biology, Natural Resource Management, Community Ecology, Animal Migration (**pages 6-9**).
- 3. PRESENT POSITION** (a) Director, MGM Environmental Solutions Ltd  
(b) Honorary Fellow, University of Edinburgh
- 4. DATE OF BIRTH:** 19 July 1949, Prestwick, Scotland
- 5. NATIONALITY:** British
- 6. KEY EXPERIENCE:**

#### Consultancy

- Martyn Murray has 35 years of experience in protected areas, natural resources, forest and rangeland management, climate change and biodiversity (including project formulation, implementation and evaluation) on over 100 technical and development projects in 37 countries (Europe, Asia, Africa).
- Experience in leading multidisciplinary teams in establishing, developing, managing and evaluating protected areas in forest, grassland and montane habitats (Botswana, Ethiopia, Ghana, Kazakhstan, Kenya, Kyrgyzstan, Lesotho, Mongolia, South Africa, Turkey).
- Programme experience in ecosystem services (PES), NATURA 2000, CITES, FLEGT, climate change studies (REDD+, CDM), natural resource management, forest governance, rural community development, public and private partnership, creative economic activities and entrepreneurship (East Africa, Macedonia, Turkey and Central and South Asia).
- Experience in rangeland/semiarid/desertification and wetlands projects and project proposals (Afghanistan, Jordan, Kenya, Kyrgyzstan, Lesotho, Mongolia, Pakistan, Tajikistan);
- Experience in environmental mainstreaming, planning adaptations and mitigations against climate change (Afghanistan, Albania, Kosovo, Kyrgyzstan, Macedonia, Moldova, Mongolia, Tajikistan, Tanzania, Turkey, Uganda, Zimbabwe);
- Experience in biodiversity surveys, monitoring, information systems and public awareness (Armenia, Croatia, Kazakhstan, Kenya, Mongolia, Tajikistan, Tanzania, Turkey, UK, Zimbabwe); and in coordinating ecosystem modelling workshops (Mongolia, Tanzania, Sumatra, UK).
- Author and editor working on behalf of the European Commission, FAO, IUCN-UK, IUCN-Belgium, UNEP-WCMC, international science journals and various UK publishers.
- Consultant in biodiversity on behalf of the European Commission, World Bank/GEF, FAO, UNDP, UNEP, various international and national NGOs (GWS, IUCN-Belgium, IUCN-International, IUCN-UK, WCMC, WCS) and the Dutch, Belgium and UK governments.
- In 1991 he established MGM Environmental Solutions Ltd, a company specialising in natural resources management, climate change and biodiversity conservation.

#### Research and Teaching

- Martyn is an Honorary Fellow at the Institute of Evolutionary Biology, University of Edinburgh with research interests in natural resources management, competition theory and animal migration.

- From 1978 to 1991, Martyn was Nuffield Research Fellow in Mammalian Ecology at the Physiological Laboratory, University of Cambridge. During this period he was Principal Investigator in charge of a 2-year field programme into the biology of wild figs and figwasps in Malaysian rain forest and a 6-year field programme into herbivore migration and community ecology in Serengeti National Park.
- Martyn has on-going research into environmental policy and ecosystem management at the University of Edinburgh. He has recently pioneered a new model of natural resource use based on ecological competition theory.
- He has on-going research into migration of African and Asian antelope. He is currently developing a model of antelope migration which emphasizes the importance of multiple constraints, including dry season resources (high energy pastures and surface water) and wet season resources (mineral- and protein-rich pasture).
- Martyn facilitated the development of ecosystem-management models to assess impacts of deforestation, climate change, pollution, livestock grazing, ecotourism and other drivers of ecosystem change in Mongolia, Tanzania, Sumatra, and Scotland, UK.
- He teaches graduate and undergraduate classes in natural resources, conservation biology and herbivore ecology.
- Martyn is an author and editor of technical and popular works, writing on behalf of the European Commission, FAO, IUCN-UK, IUCN-Belgium, UNEP-WCMC, international science journals and various UK publishers.

## 7. TRAINING AND EDUCATION:

- Training in teaching undergraduate zoology, University of Edinburgh, 1999.
- Training in GIS (ARC/INFO analysis) and FoxPro database, WCMC, Cambridge, 1995.
- Training in biomathematics and computer modelling at Cambridge University, 1982-1983.
- Training in evolutionary biology from W.D. Hamilton and R.L. Trivers at Harvard University, 1980.
- PhD Zoology, University of Zimbabwe, 1980.
  - Thesis on the behaviour and ecology of impala antelope in the Zambezi Valley, Zimbabwe;
  - Field studies on conservation biology of elephant, rhino, warthog, vultures and miombo woodlands;
  - Laboratory studies on genetic polymorphism at the Blaire Medical Laboratories.
- BSc (Hons) Zoology, University of Edinburgh, 1973.
  - Thesis on population regulation of shelduck in the Forth Estuary, Scotland;
  - Field surveys of intertidal invertebrates with staff of Edinburgh University.

### 8a. COUNTRIES – PROJECT EXPERIENCE (39):

Afghanistan, Albania, Armenia, Belgium, Botswana, Central African Republic, P.R. Congo, Equatorial Guinea, Ethiopia, France, Ghana, Indonesia (Sumatra), Italy, Jordan, Kazakhstan, Kenya, Kosovo, Kyrgyz Republic, Lesotho, Malaysia (including Sabah and Sarawak), Macedonia, Moldova, Mongolia, Namibia, Netherlands, Nigeria, Pakistan, Sao Tome & Principe, South Africa, Tajikistan, Tanzania, Turkey, Uganda, United Kingdom, Zambia, Zimbabwe.

### 8b. COUNTRIES – GEOGRAPHICAL AND TECHNICAL EXPERIENCE (17):

Algeria, Cameroon, Canada, China, D.R. Congo, Guinea-Bissau, India, Ireland, Malawi, Morocco, Nepal, Niger, Rwanda, Spain, Switzerland, United Arab Emirates, USA.

## 9. OTHER SKILLS:

Author and editor – popular and technical publications; statistical analysis; ecosystem modelling (Holling method); database development. Use of editing, graphical and analytical software – Photoshop (CS5), HTML and XHTML (web page design), FoxPro (database), SigmaPlot (statistics) and Maple (computational mathematics). Martyn also enjoys coastal and offshore sailing.

## 10. MEMBERSHIPS:

British Ecological Society, British Ecological Society's Scotland Policy Group, The Ecological Society of America, Society for Conservation Biology, IUCN Sustainable Use Livelihoods Specialist Group; IUCN Antelope Specialist Group, IUCN European Sustainable Use Specialist Group, LinkedIn CBNRM Group, Darwin College Cambridge.

## 11. LANGUAGES:

	Reading	Speaking	Writing
English (native tongue)	Excellent	Excellent	Excellent
French	Fair	Fair (bit rusty)	Fair
Kiswahili	Slight	Some	Slight

## 12. EXPERIENCE RECORD – CONSULTANCY

Date from - Date to	Location	Company & Reference Person	Position	Description
10-2013 to 03-2014	Southern Africa	AGRER <a href="mailto:muriel.vives@agreco.be">muriel.vives@agreco.be</a>	Biodiversity expert	<b>Developing a benchmark 15-year strategy for wildlife conservation in Sub-Saharan Africa on behalf of the European Union (DEVCO C2).</b> My work focusses on southern Africa.
07-2003 to 01-2014	UK	LTSI (DEFRA) E. Young <a href="mailto:darwin-projects@ltsi.co.uk">darwin-projects@ltsi.co.uk</a>	Evaluator and Programme Manager	<b>Review and evaluation of 90+ projects funded by the Darwin Initiative</b> (UK Government's main contribution to global biodiversity conservation under CBD); <b>Evaluation of 60 Darwin project proposals</b> (Covering - protected area and species conservation; surveys; human-wildlife conflict; community participation in conservation; and poverty alleviation).
08-2013 to 09-2013	IUCN	IUCN (SULi). Dr Rosie Cooney <a href="mailto:rosie.cooney@gmail.com">rosie.cooney@gmail.com</a>	Natural Resources Expert	<b>IUCN Sustainable Use and Livelihoods Specialist Group – review and revision of the Specialist Group's strategy.</b> This new cross-Commission group focuses on wildlife economics, technology, governance and sustainability. Key thematic areas include food security, bushmeat, coastal/artisanal fisheries, sustainable use and Community-based Natural Resource Management (CBNRM). Engages with CBD and CITES on sustainable use and equitable benefit-sharing.
01-2013 to ongoing	Ethiopia	MGM – Dr M. Murray <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Biodiversity Expert	<b>Preparation of a complete Handbook on the National Parks, Community Conservation Areas and Wildlife of Ethiopia.</b> In collaboration with two expert Ethiopian co-authors.
11-2012 to 8-2013	Ethiopia	EWCA Lakew Berhanu <a href="mailto:lakew.berhanu@gmail.com">lakew.berhanu@gmail.com</a>	National Park Planner	<b>Developed a tourism strategy for positioning Ethiopian protected areas as prime destinations in the world travel market</b> – on behalf of EWCA (Government of Ethiopia) funded by GIZ.
10-2011 to 05-2012	Ethiopia	HTSPE, EC - Mr. D. Mitchell <a href="mailto:Daniel.Mitchell@htspe.com">Daniel.Mitchell@htspe.com</a>	Protected Area Development Expert	<b>Prepared Development Plans for 4 National Parks in Ethiopia;</b> <ul style="list-style-type: none"> <li>▪ Preparation of Action Fiche and TAPs for EU and Government of Ethiopia (GoE) project.</li> <li>▪ Preparation of Development Plans for Abijata-Shalla Lakes NP and Simien Mountains NP.</li> <li>▪ Full development plans for Awash National Park and Nech-Sar National Park</li> <li>▪ Preparation EU/GoE country-wide plans for conserving Natural Heritage in Ethiopia 5M€</li> </ul>
03-2010 to 12-2013	UK	University of Edinburgh Prof Illius <a href="mailto:a.illius@ed.ac.uk">a.illius@ed.ac.uk</a>	Principal Investigator, Ecology	<ul style="list-style-type: none"> <li>▪ New <b>policy framework for managing fisheries, forests and natural resources</b> which integrates with <b>PES, REDD</b> and other financial mechanisms.</li> <li>▪ Development of Antelope Migration Model for management of ecosystem threats.</li> </ul>
08-2011 to 10-2011	Macedonia, Kosovo, Moldova	UNDP – V. Ieseanu <a href="mailto:valeria.ieseanu@undp.org">valeria.ieseanu@undp.org</a>	Conservation Development Expert	<b>Developing a Policy Framework for Local Action to Address Climate Change (SE Europe) 1m.</b> <ul style="list-style-type: none"> <li>▪ Review of national legal frameworks, key institutions, key programmes, and financial instruments including PES, REDD+ and CDM in Macedonia, Kosovo and Moldova.</li> <li>▪ Review of environmental strategies, policy, land planning, land use, central and regional forest governance, protected areas.</li> <li>▪ Comparative analysis of environmental constraints and opportunities in land-use planning for climate change, ecosystems management and biodiversity.</li> <li>▪ Development of economic tools for environmental protection.</li> </ul>
07-2011 to 08-2011	Tanzania	UNDP – E. Bwatwa <a href="mailto:evelyne.bwatwa@undp.org">evelyne.bwatwa@undp.org</a>	Team Leader (Environmental Expert)	Evaluation of Joint Programme-11 on <b>environmental mainstreaming</b> with a focus on climate change, land degradation/desertification and natural resources management with CDM, PES & REDD+ 2m.
01-2011 to 03-2011	Croatia	AGRECO -Mrs M. Vives <a href="mailto:muriel.vives@agreco.be">muriel.vives@agreco.be</a>	Biodiversity Planner	Prepared technical proposal to develop management plans and monitoring programmes for six <b>NATURA 2000 conservation sites (forests and wetlands)</b> . Full specifications given for: <ul style="list-style-type: none"> <li>• Management plans for NATURA sites;</li> <li>• Monitoring programme for Habitats and Birds Directives</li> <li>• Information, Interpretation and Awareness-Raising programme.</li> </ul>
11- 2010	Mongolia	MGM – Dr. M. Murray <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Natural Resources Planner	Preparation of technical proposal for UNDP national <b>environmental strategy</b> to address the climatic and <b>socio-economic drivers</b> of rangeland, forest and fisheries degradation in Mongolia.

10-2010	Sierra Leone	AGRECO -Mrs M. Vives <a href="mailto:muriel.vives@agrecob.be">muriel.vives@agrecob.be</a>	Biodiversity Planner	Preparation of technical proposal for implementing GEF/World Bank's <b>Biodiversity Conservation Project in tropical forests</b> of Sierra Leone as national contribution to CBD.
12-09 to 02-2010	Ghana	AGRECO-Mme L. Rulle <a href="mailto:lilia.rulle@agrecob.be">lilia.rulle@agrecob.be</a>	Team Leader	<b>Evaluation of the Protected Area Development Programme (phase II)</b> . Recommendations for programme extension were accepted by EU/GoG to undertake: <ul style="list-style-type: none"> <li>• conservation of tropical rain forest and West African rare fauna;</li> <li>• further development of community economic activities and</li> <li>• new development of ecotourism in the Ankasa and Bia Conservation Areas. 1.5 m</li> </ul>
10-09 to 04-10	Turkey	AGRER-Mr. F. Feys <a href="mailto:frank.feys@agrere.com">frank.feys@agrere.com</a>	Biodiversity Monitoring Expert	<b>Prepared framework for monitoring UNESCO Biosphere Reserve;</b> <ul style="list-style-type: none"> <li>▪ Established a framework for managing a UNESCO Biosphere Reserve in the Yildiz Mountains of northern Turkey.</li> <li>▪ Developed information systems for biodiversity and socio-economic monitoring to support sustainable use and management of forest natural resources and livelihoods.</li> <li>▪ Delivered training in participatory methods for conducting surveys of biodiversity, forest resources &amp; livelihoods. 2 m</li> </ul>
Mar –Apr 2009	European Parliament	MGM – Dr. M. Murray <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Project Manager	Preparation of project document to <b>Support Activities for the Development of Practical Measures to Facilitate the Implementation of the Biofuels Sustainability Scheme</b> . 1m
Oct 08 – Feb 09	Mongolia	UNDP-Mr. O. Heuvel <a href="mailto:onno.heuvel@undp.org">onno.heuvel@undp.org</a>	Team Leader and Conservation Development Expert	<b>Midterm evaluation of UNDP/GEF Altai Sayan Biodiversity Project</b> <ul style="list-style-type: none"> <li>▪ Evaluation of rangeland, lake &amp; forest resources, community development and transboundary conservation;</li> <li>▪ Problem analysis of overgrazing, overuse of timber, unsustainable lake fishing and illegal hunting in the Altai and Sayan Mountains;</li> <li>▪ Formulation of a fully revised programme to (a) develop sustainable use of natural resources, (b) mainstream biodiversity at regional level, and (c) to empower herder communities to develop economic activities 3 m</li> </ul>
Aug – Sep 2008	Tanzania	HTSPE, EC - Mr. T. Clarke <a href="mailto:Timothy.Clarke@ec.europa.eu">Timothy.Clarke@ec.europa.eu</a>	Team Leader – Conservation Development Expert	<b>Review of EU Project “Support to Tanzania Game Reserves”</b> <ul style="list-style-type: none"> <li>▪ Evaluated <b>management of 7 Game Reserves</b> and a programme to conserve black rhino within Selous Game Reserve.</li> <li>▪ Analysed institutional reforms needed in the Tanzanian wildlife sector. 2.5 m</li> </ul>
Mar – Jun 2008	Uganda	AGRER-Mr. F. Feys <a href="mailto:frank.feys@agrere.com">frank.feys@agrere.com</a>	Team Leader	Prepared project document for <b>Environmental Sensitivity Atlas</b> of Albertine Rift lakes to support Oil Spill Contingency Plan in world's richest biodiversity hotspot. 3.5 m
Jan 2007 – Dec 2008	Kyrgyzstan, Tajikistan	AGRECO -Mrs M. Vives <a href="mailto:muriel.vives@agrecob.be">muriel.vives@agrecob.be</a>	Biodiversity and Conservation Development Expert	<ul style="list-style-type: none"> <li>▪ <b>Implemented EU project to protect biodiversity and natural resources of Pamir-Alai Transboundary Conservation Area</b> – experiencing climate change and deforestation.</li> <li>▪ Implemented fauna &amp; flora surveys, forest surveys and forest damage assessments with national teams and remote sensing imagery.</li> <li>▪ Prepared first Management Plan for the transboundary conservation area (PATCA).</li> <li>▪ Developed Online Biodiversity Information Monitoring System &amp; database. 11 m</li> </ul>
Nov 2006 - Mar 2007	Republic of Macedonia	Carl Bro & SOFRECO <a href="mailto:Valerie.FERNANDEZ@sofreco.com">Valerie.FERNANDEZ@sofreco.com</a>	Biodiversity and Natura 2000 Expert	<b>Prepared strategy for full approximation of EU legislation in Nature &amp; Forestry Sectors on behalf of Government of Macedonia</b> <ul style="list-style-type: none"> <li>• <b>Implemented Habitats and Birds Directives,</b></li> <li>• Reviewed and Strengthened Trade in Endangered Species Regulations,</li> <li>• Reviewed and Strengthened Environmental Impact Assessment Regulations,</li> <li>• Reviewed and Strengthened Forest Monitoring Regulations.</li> <li>• <b>Reviewed proposed NATURA 2000 sites in forest, grassland, wetland and lacustrine habitats</b> with onsite inspections (4 m)</li> </ul>

Jun-Sep 2006	Kenya	AGRECO- Mrs M. Vives <a href="mailto:muriel.vives@agreco.be">muriel.vives@agreco.be</a>	Team Leader – Biodiversity and Conservation Development Expert	<b>Final evaluation of the EC's Biodiversity Conservation Programme:</b> <ul style="list-style-type: none"> <li>37 community focused biodiversity projects with public and private partnerships and wide range of economic activities and biodiversity entrepreneurship.</li> <li>Forest restoration and protection, wetlands restoration, climate change strategy, ecotourism, natural resource management.</li> </ul>
May-Aug 2006	Mongolia	World Bank-Dr. A. Whitten <a href="mailto:Twhitten@worldbank.org">Twhitten@worldbank.org</a>	Expert in Developing Ecosystem Management Models	<ul style="list-style-type: none"> <li>Further development of interactive <b>ecosystem management model</b> for the World Bank/GEF Project on Lake Hovsgol catchments.</li> <li>Explored effects of <b>climate change and livestock management</b> on permafrost and loss of Taiga forest.</li> <li>Coordinated team of 45 ecologists and modellers. See also Mar-May 2005.</li> </ul>
April-May 2006	Mongolia	Netherlands Gov / World Bank <a href="mailto:Twhitten@worldbank.org">Twhitten@worldbank.org</a>	Team Leader– Environmental Expert	<b>Final review of 23 environmental projects</b> funded by the World Bank and GoN which covered forest protection, afforestation, tourism, forestry policy, forest governance, urban pollution, mining and petroleum exploration, and illegal wildlife trade.
March 2006	Armenia	ONF/SOFRECO <a href="mailto:Anne.PERDRIER@sofreco.com">Anne.PERDRIER@sofreco.com</a>	Team Leader- National Park Development	<b>Prepared biodiversity monitoring programme &amp; training programmes for Sevan and Dilijan Parks, including forest inventory and conservation</b> – on behalf of World Bank/GEF and GoA.
Feb 2006	Central Asia	AGRER- Mrs G. LAPAGE <a href="mailto:Genevieve.lapage@agrер.com">Genevieve.lapage@agrер.com</a>	Environmental Development Specialist	Preparation of strategy and revised ToR for EU's Development of National Environmental Strategies for Sustainable Development Project, Tajikistan, Kyrgyzstan & Kazakhstan including <b>forest conservation</b> and impacts of mining and petroleum industries.
Oct-Nov 2005	Belgium / Europe	AGRECO-Mrs M. Vives <a href="mailto:muriel.vives@agreco.be">muriel.vives@agreco.be</a>	Environmental Expert	Preparation of Part 1 of the <b>Environmental Integration Handbook for EC Development Cooperation on behalf of EuropeAid Unit E6 to guide EC Development and Cooperation Aid.</b>
June-Sept 2005	Lesotho and South Africa	World Bank-Mr. C. Warner <a href="mailto:cwarner@worldbank.org">cwarner@worldbank.org</a>	Team Leader– National Park Development Expert	<b>Regional review of the World Bank/GEF Maloti Drakensberg Transfrontier Project</b> which protects 2,520 flowering plants, 600 rock art sites, and the catchments that provide 25% of South Africa and Lesotho's water supply. <ul style="list-style-type: none"> <li>Advised on institutional strengthening, montane conservation &amp; ecotourism.</li> </ul>
May 2005	Mongolia	LTSI (DEFRA) E. Young <a href="mailto:darwin-projects@ltsi.co.uk">darwin-projects@ltsi.co.uk</a>	Expert in Community Conservation	Reviewed project developing community conservation of saxaul forests and key species (argali sheep, ibex, snow leopard, black-tailed gazelle) in the Little Gobi.
Mar - May 2005	Mongolia	World Bank-Dr. A. Whitten <a href="mailto:Twhitten@worldbank.org">Twhitten@worldbank.org</a>	Expert in Developing Ecosystem Management Models	<ul style="list-style-type: none"> <li>Formulated a World Bank/GEF project for developing an <b>ecosystem management model</b> of the 6-valley region on the eastern shore of Lake Hövsgöl</li> <li>Developed model over a one-year period, leading a team of 45 ecologists.</li> <li>The model assessed the impact of climate change, livestock management and grazing on permafrost melt, loss of taiga forest, primary productivity and <b>biodiversity</b> based on the Holling method (see also May-Aug 2006).</li> </ul>
February 2005	Uganda	AGRER-Mr. F. Feys <a href="mailto:frank.feys@agrер.com">frank.feys@agrер.com</a>	Natural Resources Expert	Preparation of Belgium Technical Cooperation technical proposal for national wetlands monitoring system. Methodology presented for GIS-linked biodiversity database on a web-based platform.
Oct 04 – Jan 05	Pakistan	AGRIFOR-Mr. F. Fontaine <a href="mailto:f.fontaine@agrifor.be">f.fontaine@agrifor.be</a>	Conservation Development Specialist	<ul style="list-style-type: none"> <li>Evaluation of the Palas <b>Conservation &amp; Development Project</b> in Western Himalayas;</li> <li>Advised on management of pine, cedar and oak forests, ecotourism development &amp; <b>community conservation.</b></li> </ul>
Sep 04 – Oct 04	Zambia	Carl Bro birthe.tesdorph. <a href="mailto:sorensen@grontmij-carlbro.dk">sorensen@grontmij-carlbro.dk</a>	Institutional Expert in Conservation	Evaluation of the <b>Forest Support Programme</b> in support of a new autonomous Forestry Commission with recommendations on institutional strengthening, forthcoming FLEGT, controlling illegal charcoal producers, finance and private sector management.
Aug 04	Kazakhstan	IUCN Robin Sharp, CB; <a href="mailto:robisharp@googlemail.com">robisharp@googlemail.com</a>	Antelope Migration Specialist	<ul style="list-style-type: none"> <li>represented IUCN at Saiga Conservation and Management meeting/ workshop in Almaty</li> <li>advised on conservation plans for the critically endangered Saiga antelope</li> </ul>

Jun 04 – Aug 04	Mongolia	World Bank-Dr. A. Whitten Twhitten@worldbank.org	Team Leader	<b>Mid-term Review of Lake Hövsgol Programme funded by World Bank</b> <ul style="list-style-type: none"> <li>GEF project on climate change, livestock management, loss of taiga forest and biodiversity; inputs in ecosystem dynamics, <b>forest conservation, community use of natural resources, and sustainable resource use.</b></li> </ul>
Apr 04 – Jun 04	Tanzania	Carl Bro birthe.tesdorph. sorensen@grontmij-carlbro.dk	Team Leader	<b>Evaluation of the Special Programme for Refugee Affected Areas</b> in the Great Lakes Region bordering Uganda and Rwanda: environmental disaster management, afforestation & community development.
Feb-Jun 2003	Kenya	AGRER/EC -Mr Frank Feys frank.feys@agrere.com	Conservation Development Expert	<b>Mid-term evaluation of the Biodiversity Conservation Programme</b> and 19 community-based projects. Developed land-use strategy and introduced the concept of Water Tower conservation in Kenya to counter climate change and conserve forests and catchments.
Apr 02-May 03	United Kingdom	IUCN-UK C. Mahon (chair) mahon276@btinternet.com	Biodiversity and Natural Resources Expert	<b>Audit of natural resources in the United Kingdom</b> on behalf of IUCN including native and plantation forests, timber, NTFPs and wetlands resources; preparation of 113 page illustrated report
Nov 02 – Jan 03	Mongolia	Wildlife Cons. Soc. L. Kruger lk2430@columbia.edu	Team Leader– Conservation Development	<b>Evaluation of UNDP project: Biodiversity Conservation and Sustainable Livelihood Options in the Grasslands of Eastern Mongolia</b> on behalf of the Wildlife Conservation Society.
Nov – Dec 02	Kenya	LTSI (DEFRA) E. Young darwin-projects@ltsi.co.uk	Team Leader–	<b>Evaluation of Darwin Initiative Project on community ecotourism on Maasai Ranches</b> and Maasai Mara National Reserve (Serengeti ecosystem) – on site assessment and analyses.
Sep 02 – Jan 03	Afghanistan	UNEP-Mr. D. Jenzen david.jensen@unep.ch	Conservation Development and Natural Resources Expert	<b>Ecologist for UNEP’s Post-Conflict Environmental Assessment of Afghanistan</b> <ul style="list-style-type: none"> <li>Assessed <b>status of natural resources</b> in northern and eastern Afghanistan, including coniferous and Pistachio forests, rangelands, wildlife, and government expert institutions.</li> <li>Prepared development and environmental disaster management plans.</li> </ul>
Oct 01- Jan 02	Ghana	Dutch Embassy, Ghana Wild. Soc. Prof Ntiamoah-Baidu (Tel 233-302-500381)	Team Leader – Conservation Planning	<b>Preparation of a Community Conservation Strategy &amp; Ecotourism Plan</b> for the tropical forests of Afadjato-Agumatsa Community Nature Reserve, Volta Region, Ghana
Mar – Sep 01	Italy	FAO (FORC) Rene.Czudek@fao.org	Author – Specialist in Biodiversity	Prepared FAO publication of 30,000 words entitled: ‘ <b>Current Issues in Biodiversity Conservation</b> ’.
Jan 1997– Oct 2000	United Kingdom	EU-LIFE/FEF- s.manson@forthestuaryforum.co.uk	Conservation Planning Expert	<b>Nature Conservation Strategy for the Forth Estuary (UK) coastal and marine habitats including 4 NATURA 2000 sites</b> (3 SPAs and 1 SAC); <ul style="list-style-type: none"> <li>Prepared Nature Conservation Strategy for major users of the Forth Estuary through 3-year programme of participatory meetings with all stakeholders;</li> <li>Organised ecosystem management workshops bringing scientists, conservationists, flood risk managers and estuary users together for the first time;</li> <li>Developed ecosystem management model to predict impacts of N &amp; P enrichment from agricultural/ municipal discharges, overfishing, sedimentation and rising sea levels.</li> </ul>
Jun – Oct 00	Belgium / Europe	EC/IUCN/DFID Dr Davies GDavies@wwf.org.uk	Author – Specialist in Biodiversity	<b>Prepared EC/IUCN biodiversity briefs</b> (illustrated summaries of key issues in biodiversity, targeting European Union professionals); and report on guiding principles for conservation.
Jan – Mar 00	Ghana	MGM/Dutch Embassy m.murray@ed.ac.uk	Conservation Development Sp.	<b>Prepared institutional strengthening programme for the Wildlife Division of Ghana.</b> <ul style="list-style-type: none"> <li>Prepared National Park development plan for Mole National Park.</li> </ul>
Aug 97 – Jul 99	Zimbabwe	EC-SADC-UoE Prof. Illius aillius@staffmail.ed.ac.uk	Coordinator and Lecturer, Ecology	<b>Coordinated Edinburgh University’s training support for the Masters in Tropical Resource Ecology (MTRE) Course at the University of Zimbabwe</b> <ul style="list-style-type: none"> <li>Delivered teaching in ecology, conservation and biodiversity; supervised graduate students.</li> </ul>
Jun – Dec 99	Mongolia	UNDP-K. Svadlenak-Gomez <a href="mailto:kvsadlenak@yahoo.com">kvsadlenak@yahoo.com</a>	Conservation Development Specialist	<b>UNDP/GEF Eastern Steppes Biodiversity Project</b> <ul style="list-style-type: none"> <li>Implemented rangeland monitoring and biodiversity surveys;</li> <li>Supervised Mongolian ecologists in preparing multiple conservation projects;</li> <li>Prepared species conservation plans and livelihoods development plan.</li> </ul>

Jan – Feb 99	Sumatra	CIFOR-Prof. J. Vanclay <a href="mailto:jvanclay@scu.edu.au">jvanclay@scu.edu.au</a>	Specialist in Developing Ecosystem Management Model	<b>Ecosystem modelling of ecological &amp; socio-economic influences on rain forest conservation.</b> <ul style="list-style-type: none"> <li>Developed <b>village-based decision making</b> model of forest use and management with a team of over 50 scientists and conservationists;</li> <li>Coordinated modelling workshop and model development based in Bukittingi, Sumatra</li> </ul>
Jul – Dec 98	Kenya	MGM/EC Delegation <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Team Leader– Conservation Development Specialist	<b>Evaluation of KWS elephant conservation programme.</b> <ul style="list-style-type: none"> <li>Major problem analysis of elephant conservation in Kenya contained in evaluation report with 48 original tables of information on elephant conservation;</li> <li>Prepared national elephant management plan;</li> <li>Advised on protection of intact tropical forests of Mount Kenya.</li> </ul>
Apr – Jul 98	Ethiopia	MGM/EC DGVIII Dr. Murray <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Team Leader– Conservation Development Specialist	<b>Evaluation of National Parks Rehabilitation in Southern Ethiopia.</b> <ul style="list-style-type: none"> <li>Reviewed and revised park management plans, community revenue-sharing, law enforcement, tourism development, safari hunting and crocodile ranching.</li> </ul>
Nov – Dec 97	Tanzania	EDC-Mr. D. Dunnells Fax: 00 353 1 661	Park Development Specialist	<b>Evaluation of Serengeti National Park</b> Visitor Interpretation Centre and Community Conservation Programme. Review and Revision of Park Management Plan and Zoning Plan.
Nov 96 – Mar 97	Botswana	MGM Dr. M. Murray <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Team Leader– Conservation Development Specialist	<b>Mid-term review of Wildlife Conservation in Northern Botswana Project.</b> <ul style="list-style-type: none"> <li>Reviewed Management Plans for Chobe National Park, Moremi Game Reserve, Nxai Pan National Park and Makgadikgadi National Park;</li> <li>Formulated regional strategy for biodiversity conservation.</li> </ul>
Jun 96 - Aug 96	Jordan	UNDP Jordan Mr Shasha'a, Fax: 00 9626676582	Conservation Development Expert	Evaluation of UNDP/GEF programme - <b>Conservation of the Dana and Azraq Protected Areas, Jordan.</b> <ul style="list-style-type: none"> <li>Formulated restoration plan for degraded Wadi Dana and Asraq Oasis.</li> </ul>
Mar 96 – Jun 96	Ghana	MGM/EC DGVIII Dr Murray – <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	PA Establishment Expert	Preparation and Formulation of Programme to establish new protected areas and conservation strategies in the intact, tall rain forest in Bia, Ankasa and Nini Suhien Protected Areas.
Jun - Dec 95	United Kingdom	DFID/UNEP-WCMC <a href="mailto:mjbgreen@googlemail.com">mjbgreen@googlemail.com</a>	Protected Area Expert	<b>GIS gap-analysis of protection and investment in moist forest types and ecofloristic zones in 99 countries in Africa, tropical and insular Asia, Central America and South America;</b> <ul style="list-style-type: none"> <li>Prioritised forest types requiring additional conservation inputs. Prepared publication.</li> </ul>
Jul-Aug 94	Central African Rep.	MGM/EC DGVIII Dr Murray – <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Conservation Development	Evaluation of phase 1 and project formulation for phase 2 - <b>EDF project: “Northern Region Development Project, Central Africa Republic”</b>
Mar, Apr 93	Nigeria	MGM/EC DGVIII Dr Murray – <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Team Leader– Conservation	<b>Evaluation of prequalification and restricted Invitations of forest conservation development programme</b> in Nigeria (Oban Hills) working directly with DGVIII in Brussels.
Apr. May 92	Equatorial Guinea	MGM/EC DGVIII Dr Murray – <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Conservation Development	Project <b>formulation for EDF funded project: “Conservation et Utilisation Rationnelle des Ecosystemes Forestiers, Equatorial Guinea”</b> designed to conserve tropical rain forest.
Jun 91– Dec 93	Belgium & Central Africa	MGM/EC DGVIII Dr Murray – <a href="mailto:m.murray@ed.ac.uk">m.murray@ed.ac.uk</a>	Team Leader – Conservation Development	<b>Evaluation of technical quality of prequalification and restricted invitations of forest conservation development programmes</b> in Africa (ECOFAC, CUREFAC, Oban Hills) working directly with DGVIII in Brussels.
Aug 85 – Jun 90	Tanzania	Nuffield Foundation – Mr A. Tomei tel: 020 7631 0566	Principal Investigator, Ecology	<b>Ecological research programme into the Serengeti ecosystem</b> with special studies on a) the ecology of grazing antelope; (b) the causation of wildebeest migration in the Serengeti-Mara ecosystem; (c) participatory conservation with local communities.
Aug 80 – Sep 82	Malaysia and Indonesia	Science Research Council- Mr A Lewis tel: 01793 444000	Principal Investigator, Biodiversity	Ecological studies and surveys over 24 months in <b>primary and secondary rain forest in Malaysia (including Sabah and Sarawak) and Sumatra</b>
Sep 74 – Jul 78	Zimbabwe	Dept of National Parks/Univ of Zimbabwe	Principal Investigator	Ecological and behavioural studies of impala in the Zambezi Valley (Sengwa); Assistant in research and management projects – <b>mammal surveys, elephant-woodland management.</b>

## 13. EXPERIENCE RECORD – RESEARCH

### **University of Edinburgh, (Honorary Fellow) 1993-present:**

- Human use of natural resources, including sustainability, competition and socio-economic pressures on ecosystems.
- Theory of resource competition in animal communities.
- Modelling of antelope migrations in relation to dry and wet season resources.
- Developed ecosystem management models using the Holling method to work with collaborative interdisciplinary teams in four major applications: (i) Serengeti-Mara Model for assessing impacts of climate change (precipitation), disease outbreaks and socio-economic pressures on the sustainability of the wildlife populations; (ii) Sumatran Village-Rainforest Model for exploring land use options in forested landscapes and their impacts on biodiversity and rural poverty; (iii) Mongolian Taiga-Steppe Ecosystem at Lake Hovsgol for modelling the impact of climate change (temperature) and herding policy on permafrost and forest retreat; (iv) Forth Estuary Modelling System (UK) – the product of a considerable partnership effort - this is primarily an illustrative model describing the broad dynamics of the complex ecological system to assist in the transfer of scientific knowledge from researchers to coastal managers.
- Co-founded the Biodiversity Unit spanning departments and institutes in the Division of Biology at Edinburgh University. The unit provided a forum for meetings and research in the area of biodiversity and provided a platform for a joint University – Scottish Natural Heritage publication – Biodiversity in Scotland.
- Supervised (a) PhD studies on forest elephant ecology in northern Republic of Congo; (b) NERC-funded research programme that developed a GIS model to predict herbivore species richness in Africa ( $\alpha$  and  $\beta$  diversity) in relation to climate change, incorporating satellite NDVI sensor imagery, soils, vegetation class, and topographical databases. (First results published in *Ecology*.); (c) WCS-funded study of migration by Mongolian gazelle in the Eastern Steppes of Mongolia predicted by remote NDVI imagery and mineral and chemical analysis of forage.
- Studies of sexual selection in fig wasps to test the theory of kin selection. Results confirmed that Hamilton's theory does not apply in most natural systems due to the conflicting influence of increased competition between relatives.

### **Nuffield Research Fellow, University of Cambridge; Principal Investigator - Serengeti National Park 1985-1993:**

Field studies were conducted over a five-year period from 1985 to 1990 into the large grazing herbivores of the Serengeti National Park, with particular emphasis on grazing competition, migration, niche separation and ecosystem processes. The following research projects are representative of the studies undertaken:

- Community ecology of grazing ungulates: an investigation of the ecological niche involving the energy exchanges associated with habitat selection, foraging behaviour, locomotion, daily activity and reproduction in free ranging wildebeest, hartebeest, topi, waterbuck and zebra.
- Theory of competition: extended the standard model of resource competition developed by Volterra, Lotka, MacArthur and Tilman for use in animal communities by incorporating foraging theory.
- Comparative nutrition of grazing ungulates: an investigation of energy metabolism, diet selection, food intake and digestion in wildebeest, hartebeest and topi, with data collected from wild-caught animals kept in stables at the Serengeti Research Institute.
- Migration of wildebeest in the Serengeti-Mara ecosystem: an investigation of mineral deficiencies, energy requirements and predation of wildebeest in relation to annual patterns of movement.
- Comparative investigation of skeletal muscle physiology in migratory and residential antelope.
- An article on the value of biodiversity was published by *Earthscan*.

These studies stimulated my current work on competition for natural resources in exploited ecosystems. They also inform on-going modelling of antelope migration in relation to climate change and socio-economic development.

### **SERC Research Fellow, University of Cambridge; Research Associate, University of Malaya, 1980-1985:**

Field studies over 24 months from 1980 to 1982 in primary and secondary rain forest on the Malay peninsula and in the Bornean states of Sabah and Sarawak. Research conducted on male conflict and sexual selection in pollinating and parasitic fig wasps to test new models of animal conflict and mate competition (published in *Nature* and the *Journal of theoretical Biology*). Research in this period included a study of coevolution involving pollination and seed dispersal in *Ficus* which is published in the *Biological Journal of the Linnean Society*. A survey of ecosystem values of tropical rainforests was published in *Biological Conservation*.



**Yvonne Parfitt Fellow, University of Zimbabwe and Department of National Parks and Wildlife, 1974-1980:**

Field studies were conducted over a 4-year period from 1974 to 1978 into the behaviour and ecology of impala within the wooded savannas of the Zambezi Valley in northern Zimbabwe. Methodology centred on a study of 450 individually marked animals from which data were collected on movements, habitat preference, foraging associations, social behaviour, age, morphology and genetic markers. The focus of the research was a study of mate competition which began my long-term interest in the theory of resource competition and its current application to human-exploited ecosystems.

**Undergraduate, University of Edinburgh; Research Assistant, Nature Conservancy, Edinburgh 1973-74:**

I studied the population of shelduck in the Firth Estuary, Scotland over a two year period with detailed investigations of nesting success, duckling survival and breeding territories using colour-ringed birds. Surveys of the invertebrate fauna available as food in tidal mud flats at Aberlady and Gosford Bays were undertaken to assess the quality of breeding territories. Results were published in the *Journal of Animal Ecology*. This early work was useful subsequently in preparing the Nature Conservation Strategy for the Forth Estuary (1997-00) which explored the full range of ecosystem values, and also in developing an ecosystem management model of the Forth estuary.

## **14. EXPERIENCE RECORD – TEACHING**

### **Graduate teaching**

- World Bank instructor and graduate project supervisor for ecosystem research programme in NW Mongolia on “Dynamics of Biodiversity Loss and Permafrost Melt in Lake Hövsgöl National Park, Mongolia”, 2004-06.
- Delivered training support for the Masters in Tropical Resource Ecology course at the University of Zimbabwe (EU programme: “SADC Wildlife Management Training Project”).
- Supervised PhD students at Universities of Cambridge, Edinburgh and Massachusetts – David Baird (The Role of Resource Competition in Ungulate Diversity and Community Structure in Africa), Steve Blake (The Ecology of Forest Elephant Distribution and its Implications for Conservation), Kirk Olson (Ecology and Conservation of Mongolian Gazelle, *Procapra guturosa* Pallas 1777, in Mongolia) and Neil Stronach (Grass Fires in Serengeti National Park, Tanzania: Characteristics, Behaviour and Some Effects on Young Trees ) – and Masters students – David Baird (Predicting East African ungulate diversity from satellite sensor imagery), Awarded Departmental prize.
- Guest lecturer in sustainable utilisation of wildlife at Centre for Tropical Veterinary Medicine, MSc module; guest lecturer in biodiversity studies at the Open University MSc Course in Human Ecology held at the Centre for Human Ecology, Edinburgh.

### **Undergraduate teaching**

- Guest lecturer at the University of Edinburgh (ongoing). Lectures in the following courses: Zoology IV – herbivory (plant-animal interactions); Ecology IV wildlife and protected areas management; Zoology III - behavioural ecology; Ecology III - sustainable utilisation of natural resources.
- Supervised numerous honours projects.

### **Curriculum Development and Course Validation**

- External expert adviser to Faculty of Applied Sciences, De Montfort University (2001), serving on the validation panel for the BSc (Hons) Conservation Biology (Animal Behaviour) degree.
- Developed core course in biodiversity for Open University-validated MSc in Human Ecology (1998).

## **15. M.G. MURRAY – PUBLICATIONS:**

- Murray, M.G. (2014). Surviving resource competition in an era of limits. (containing a new framework for natural resource management): **Ecology**, MS (submitted).
- Murray, M.G., Illius, A.W., Campbell, K & N.Stronach (MS). Water and essential minerals drive the migration of Serengeti wildebeest. (MS).
- Kirk A. Olson, **Martyn G. Murray** (2014). Conserving the world’s finest grassland amidst ambitious national development. *Conservation Biology*. In press.
- Murray, M.G. (2013). The narrow road of PES (Payment for Ecosystem Services). *SULiNews* Issue 4; published by IUCN CEESP/SSC Sustainable Use and Livelihoods Specialist Group.  
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<[http://www.whittlespublishing.com/The\\_Storm\\_Leopard](http://www.whittlespublishing.com/The_Storm_Leopard)>.
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- Olson, K.A., Fuller, T. K., Schaller, G. B., Odonkhuu, D. & **Murray, M. G.** 2005. Estimating the population density of Mongolian gazelles *Procapra Guturosa* by driving long-distance transects. **Oryx** 39: 164-169. (Available at: [http://www.mgmsolutions.com/martyns\\_publications.html](http://www.mgmsolutions.com/martyns_publications.html)).
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- Murray, M.G. (2003). Sustainable yield and conservation goals. **Science** 301: 309.
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- Murray, M.G. 2001. Solving the Masai Mara Mystery – What drives the great ungulate migrations? In: **The New Encyclopaedia of Mammals** (ed. By David Macdonald), Oxford University Press, Oxford, pp556-557.
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## 16. TECHNICAL REPORTS (Small selection only)

- Murray, M.G., Hunnam, P., Badam-Ochir, D., Munkhtuvshin, G. and Olson, K. (2009). Community-based Conservation of Biological Diversity in the Mountain Landscapes of Mongolia's Altai Sayan Eco-Region - Mid-term Evaluation. UNDP/GEF, New York and Mongolia.
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Murray, M.G. 1973. The regulation of shelduck numbers in Aberlady Bay. Unpublished Honours Thesis, University of Edinburgh.

## **17. M.G. MURRAY: PROJECTS BY EXPERIENCE CATEGORY:**

(Each project is mentioned under one category only, but the experience may be relevant in others.)

### **A. BIODIVERSITY CONSERVATION**

**AFRICA - 2013/14:** Developing benchmark 15-year EU strategy for wildlife conservation in Sub-Saharan Africa **SIERRA LEONE 2010:** Technical proposal for GEF/World Bank's Biodiversity Conservation Project in tropical forests  
**MONGOLIA –2008/09:** Team leader for evaluation of UNDP/GEF Altai Sayan Biodiversity Project  
**CROATIA – 2007:** Biodiversity expert. Prepared PHARE technical proposal for biodiversity information system.  
**MONGOLIA – 2005:** Facilitator. Modelling workshop for management of the loss of boreal forest. Formulation.  
**MONGOLIA - 2004:** Team leader. Biodiversity Loss and Permafrost Melt in Lake Hovsgol NP. Mid-term evaluation.  
**KENYA – 2003:** Biodiversity sp. Biodiversity Conservation Programme. Mid-term evaluation.  
**UK – 2002/03:** Natural Resources sp. Uses of wild living resources in UK. An audit.  
**MONGOLIA – 2002/03:** Biodiversity sp. Eastern Steppes Biodiversity Project. Five year review.  
**ITALY – 2001:** Biodiversity sp. Authored FAO publication: 'Current Issues in Biodiversity Conservation'.  
**SUMATRA – 1999:** Facilitator. Modelling workshop for management of moist forest. Formulation  
**MONGOLIA – 1999:** Biodiversity sp. Biodiversity Management Plan for the Eastern Steppe. Formulation.  
**UK – 1997/00:** Coordinator. Biodiversity Management Plan, Forth Estuary, Scotland. Participatory development.  
**UK – 1992:** Biodiversity sp. Authored chapter in Earthscan Publication: 'The Value of Biodiversity'.  
**TANZANIA – 1992:** Grassland ecologist. Developed management model of the Serengeti ecosystem. Formulation

### **B. PROTECTED AREA MANAGEMENT**

**ETHIOPIA – 2013:** Developed tourism strategy for positioning Ethiopian protected areas in world travel market  
**ETHIOPIA - 2011/12:** Preparation of EU development plans for 4 National Parks  
**GHANA – 2009/10:** Evaluation of the Protected Area Development Programme (phase II)  
**TURKEY – 2009/10:** Prepared framework for monitoring resource use in UNESCO Biosphere Reserve  
**TANZANIA – 2008:** Team leader for evaluation of support programme for 7 game reserves and Selous rhino conservation.  
**KYRGYZ REP. & TAJIKISTAN – 2006/07:** Biodiversity expert: Implementing transboundary PA project.  
**SOUTH AFRICA & LESOTHO – 2005:** Team Leader. Review of Maloti Drakensberg Transfrontier Project.  
**MONGOLIA – 2005:** PA sp. Review and strategy formulation of Gobi desert conservation project.  
**TANZANIA - 2004:** Team Leader. Game Reserve Management in western Tanzania (refugee affected areas). Evaluation.  
**CZECH REPUBLIC - 2004:** PA sp. Development of proposals for upgrading management of 15 Natura 2000 sites.  
**ALBANIA - 2003/04:** PA sp. Development of proposals for managing Datji National Park.  
**KENYA – 2002:** Biodiversity sp. Community-driven conservation in the Mara ecosystem. Mid-term review.  
**GHANA – 2001/02:** PA sp. Development of community nature reserve in Ghana. Mid-term review.  
**GHANA – 2000:** Coordinator. Wildlife division support for Mole National Park. Project formulation.  
**ETHIOPIA – 1998/99:** Team leader. National Parks Rehabilitation in Southern Ethiopia. Project evaluation.  
**TANZANIA – 1997:** Conservation sp. Serengeti Conservation and Development Project. Evaluation.  
**BOTSWANA – 1996/97:** Team leader. Wildlife Conservation in Northern Botswana. Evaluation/formulation.  
**GHANA – 1996:** Team leader. Protected Areas Development Programme. Project design.  
**JORDAN – 1996:** Conservation sp. Conservation of the Dana and Asraq Protected Areas. Project evaluation.  
**CENTRAL AFRICAN REPUBLIC – 1994:** Project Manager. Northern Regions Dev. Project. Evaluation.  
**ZIMBABWE – 1994:** EC (DG VIII) representative. PA and habitat conservation in Africa. Strategy dev.  
**NIGERIA – 1993:** Team leader. Oban Hills Protected Areas Programme. Project design.

### **C. FOREST CONSERVATION**

**ZAMBIA - 2004:** Institutional expert. European Commission's Forest Support Programme  
**GHANA – 2001/02:** Team leader. Afadjato-Agumatsa Community Forest Conservation. Management plan.  
**SUMATRA – 1999:** Developed first FLORES model of deforestation in SE Asian forests. Workshop facilitator.  
**GHANA – 1996:** Team leader. Protected Areas Development Programme, SW Ghana. Project design.  
**PANTROPICS – 1992:** Forest cons. sp. Programme for Research on Forestry & Agroforestry. Principal Invest.  
**EQUATORIAL GUINEA – 1992:** Proj. Manager. Conservation et Utilisation des Ecosystemes Forestiers.  
**CENTRAL AFRICA, SIX STATES – 1991:** Proj. Manager. Conservation & Utilisation of Forest Ecosystems.  
**MALAYSIA – 1980 to 1982:** Principal investigator. Figs and insect pollinators in rain forests of Malaysia.

### **D. SPECIES CONSERVATION**

**UK – 2000 to 2005:** Biodiversity sp. Darwin Initiative Projects (DEFRA). Site reviews, report evaluations.  
**MONGOLIA – 1999 to 2006:** Project supervisor. Migration and conservation of Mongolian gazelle.  
**PAKISTAN - 2004:** Biodiversity sp. EU's Palas Conservation Project (Western Tragopan Pheasant & habitat).  
**KAZAKHSTAN - 2004:** IUCN representative. Conservation and management of siaga antelope.  
**PR. CONGO – 1998 to 2003:** Project supervisor. Ecology and conservation of forest elephants.  
**KENYA – 1998/99:** Team leader. Elephant conservation and community wildlife programme. Proj. evaluation.

**GUINEA – BISSAU – 1996/97:** Project supervisor. Behaviour and conservation of Buffon's kob.  
**UK – 1995/96:** Principal investigator. Island populations of leaf-mining and dead-wood insects in native forests.  
**MALAYSIA – 1980 to 1982:** Principal investigator. Figs and insect pollinators in moist forests of SE Asia.

#### **E. RANGELAND MANAGEMENT**

**LESOTHO-2005:** Biodiversity specialist assessing rangeland degradation and land-use. Mid-term review.  
**AFGHANISTAN – 2002/03:** Natural resource mgmt. sp. Rangeland & forest surveys. Post-conflict assessment.  
**MONGOLIA – 1999:** Rangeland monitoring sp. Eastern Steppes Biodiversity Project. Implementation.  
**JORDAN – 1995:** Rangeland conservation sp. Conservation of the Dana and Azraq Protected Areas. Proj. evaluation.  
**TANZANIA – 1985 to 1992:** Principal investigator. Use of natural pastures in the Serengeti-Mara ecosystem.

#### **F. CONSERVATION BIOLOGY / ENVIRONMENTAL POLICY**

**EAST EUROPE = 2011:** Environmental mainstreaming for UNDP on climate change and natural resources management  
**EUROPE – 2009:** Development of EU Measures to Facilitate Implementation of Biofuels Sustainability Scheme  
**UGANDA – 2008:** Team leader – project preparation for Environmental Sensitivity Atlas for the Albertine Rift.  
**MONGOLIA – 2006:** Evaluation of Netherlands/Mongolia Environmental Programme (25 projects in policy and practice).  
**CENTRAL ASIA – 2006:** Preparation of ToR to develop National Environmental Strategies for European Commission.  
**BELGIUM – 2005:** Preparation of part of 1 of Environmental Manual for European Commission.  
**ITALY – 2001:** Current Issues in Biodiversity Conservation. Authored FAO publication.  
**BELGIUM – 2000:** Biodiversity in Development Programme. Authored IUCN briefing articles and reports.  
**ZIMBABWE – 1997 to 1999:** Coordinator. Masters in Tropical Resource Ecology – link programme.  
**UK – 1995:** Protected Area sp. Investments in Conservation Areas in the Tropics. GIS gap analysis for WCMC.  
**UK – 1990 to 2004:** Published scientific articles and supervised students in conservation biology.