

# RGS-IBG Ralph Brown Expedition Award Recipients

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**Year:** 2009

**Principal Investigator:** Dr Peter Long (University of Bath)

**Co-Investigators:** Dr Sama Zefania and Dr Marcel Mapetoke (University of Toliara, Madagascar)

**Project Title:** Ecosystems services currently provided by wetlands in Madagascar and resilience in future environmental scenarios: a case study of the lower Mangoky watershed

**Abstract:** Wetlands are some of the most important and threatened ecosystems in Madagascar as they provide vital services and functions for the human population. The aim of the project is to map the distribution and quantify the value of the ecosystem services provided by wetlands in the watershed and evaluate how provision of these services will change in future environmental scenarios, including population growth, agricultural practices and global climate change. It is envisaged that one legacy of this interdisciplinary project will be an enhanced capacity at the University of Toliara, Madagascar to use GIS for environmental modeling.

**Year:** 2008

**Principal Investigator:** Dr Ruth Robinson, St Andrews University

**Co-Investigators:** Professor Michael Bird (St Andrews University), Dr Nay Win Oo (University of Pyay), Dr Sandur Khin (University of Pyay), Daw Swe Lhaing (Yangon University of Distance Education), U Aung Swe (Yangon University), U Tin Tun (University of Mawlamyine), Dr Richard Bates (University of Edinburgh), Dr Michael Singer (St Andrews University), Dr Susan Waldron (University of Glasgow), Associate Professor Higgitt (National University of Singapore), Associate Professor Xi Xi (National University of Singapore)

**Project Title:** Sources and Quantities of Sediment and Carbon in the Irrawaddy River System

**Abstract:**

The Irrawaddy River is a tropical river that runs entirely through Myanmar along its almost 2000km length, from the peaks of the eastern Himalayas to its delta that debouches into the Indian Ocean. This ongoing research includes measuring the seasonal fluxes of water, sediment and carbon at Pyay and Seiktha in order to establish modern annual material fluxes for the river. This project aims to document the quantity and characteristics of the sediment and water transported along the length of the Irrawaddy in order to link the flux of sediment and carbon to its source areas in the catchment.

**Year:** 2007

**Principal Investigator:** Dr Eduard Reinhardt, McMaster University, Canada

**Co-Investigators:** Dr. Patricia A. Beddows (McMaster University)

**Project Title:** Thecamoebians and Foraminifera as a Palaeoenvironmental Tool in the Subterranean Flooded Cave Systems of the Yucatan Peninsula, Mexico

**Abstract:**

The submerged caves along the Yucatan coastline of Quintana Roo, Mexico form a network of passages and sink holes (cenotes) that have evolved over Quaternary sea-level cycles and have come under increased pressure due to encroaching urbanization. There are no rivers in this region, and the groundwater and cave systems are the only natural source of potable water. The aim of this research was to document the distribution of thecamoebians and foraminifera in the cave environment and to determine whether they can be used as an environmental proxy to: a) better understand cave evolution and b) reconstruct groundwater

response to climatic variations (e.g. droughts and the collapse of Classic Maya Civilization) and anthropogenic impacts (e.g. groundwater extraction). Such an environmental proxy would be a valuable tool for many diverse disciplines in cave science.

**Year:** 2006

**Principal Investigator:** Iwona Conlan, University of Melbourne, Australia

**Co-Investigators:** Dr Bounthanh Bounvilay (National University of Laos), Phoumyenh Khounthikourmanne, Prof Ian Rutherford (University of Melbourne), Prof Brian Finlayson (University of Melbourne), Dr James Grove (Dept of Civil Engineering).

**Project Title:** The Geomorphology of Pools along the Lower-Mekong River in Southeast Asia and the Transboundary Impacts of River Basin Development.

**Abstract:**

This research project investigated the geomorphic processes and hydrological conditions responsible for the maintenance of large pools on the lower-Mekong River. Pools on the currently unregulated Mekong form an important dry-season habitat for numerous fish species and are at risk of filling in with sediment if large scale hydropower development proceeds on the upper-Mekong in China.

**Year:** 2005

**Principal Investigator:** Dr Colin Breen, Centre for Marine and Coastal Research, University of Ulster

**Project Title:** An Integrated Marine Survey of the Bagamoyo / Zanzibar Channel, Tanzania.

**Abstract:**

This project involved a multi-disciplinary marine survey of the coastal zone, waters and seabed of the channel between Zanzibar and Bagamoyo on the Tanzanian coast. A research partnership between the University of Ulster in Northern Ireland and a number of agencies within Tanzania and Zanzibar was established. The research was the first of its kind in this area and contributed significantly to understanding of landscape development, marine biodiversity and cultural heritage in the study area.

**Year:** 2004

**Principal Investigator:** Dr Terence Dawson, University of Oxford

**Project Title:** Cuban Collaborative Coral Reef Research Expedition

**Abstract:**

The project focused on the status of two reefs on the southeast coast of Cuba, near Santiago de Cuba. One of these sites, Aguadores, had undergone significant stress from a nearby source of effluent. The other, Sardinero, was relatively undisturbed and sits within a marine protected area. A principal goal of the expedition was to train Cuban members of participating organisations in the implementation of international protocols and standards for reef monitoring. This has laid the foundation for a sustainable and productive long-term monitoring programme. The research on these sites has provided an increased and urgently needed understanding of the effects of human and natural disturbances on these reef systems

**Year:** 2003 (Multiple Recipients)

**Principal Investigator:** Dr Ellinor Michel, University of Amsterdam

**Project Title:** Biodiversity and Ecosystem functioning of the Malagarasi Wetlands, Western Tanzania

**Abstract:**

The team surveyed the fluvial wetlands of Malagarasi to provide baseline scientific data on the biodiversity and functioning of this extensive yet under-explored environment. The project aimed to establish short-term field studies with an interdisciplinary research team in Nguruka and Urambo villages for a total of six weeks sampling. The team compared the biodiversity and biogeography of aquatic animals and the limnological functioning in two large lakes near Nguruka and fluvial systems around Urambo, with sampling excursions to northern headwater sites. The scientific data generated is an important contribution to understanding this ecosystem and the teams contact with regional policy maker's facilitated application of survey results to establishing and pursuing conservation priorities.

**Principal Investigator:** Dr Richard Taylor, University College London

**Project Title:** Climate Change Threatens Aquatic Ecosystems of the Rwenzori Mountains, East Africa.

**Abstract:**

The expedition's aims were to assess the impact of recent climate change on aquatic ecosystems of the Rwenzori Mountains to: analyse environmental archives stored in lake sediments and ice; assess the magnitude of glacial recession on the Central Rwenzori Massif; and assess the impact of glacial recession on alpine hydrology. Of immediate scientific interest was the collection of an invaluable archive of tropical environmental change from the alpine glaciers before they disappear. Closely coincident environmental archives in the alpine lakes and glacial ice also provided a unique opportunity to assess recent environmental change in tropical Africa.

**Year:** 2002

**Principal Investigator:** Colonel Mike Allen, Independent and Zoological Society of London

**Project Title:** Wildlife Conservation, Fish Resources and Biodiversity Studies in the Babai River Valley, Royal Bardia National Park, Nepal.

**Abstract:**

This expedition aimed to carry out a complete and detailed fish and biodiversity survey of the navigable stretch of the Babai River where it enters the extension area to Bardia National Park to the Babai Dam where it leaves the National Park. The expedition carried out a detailed survey of biodiversity assessing key taxonomic groups, including fish, aquatic and terrestrial invertebrates, aquatic and terrestrial reptiles and amphibians. The research project provides essential baseline data for a longer-term project and a conservation management plan for the Royal Bardia National Park area and buffer zones.

**Year:** 2001 (Multiple Recipients)

**Principal Investigator:** Dr Andrew Plater, University of Liverpool

**Project Title:** The Mkuze Wetland, South Africa – Understanding the System and Establishing Baselines and Recent Trends.

**Abstract:**

The expedition studied the nature of the sedimentary record in the perennial plains (floodplain lakes) and on their margins to investigate recent trends in sedimentation that have been affected by accelerated soil erosion caused, for example, by the excavation of canals, clearing of riparian forest, small-scale forestry and intensification of agricultural activities. Long-term trends in pan hydrology brought about by changing sedimentation patterns and the impact of water management works are also investigated in the sedimentary record. In

addition to the sedimentary research, ecological data establishes baseline data from which to identify future changes in hydrology and water quality.

**Principal Investigator:** Daniel Bennett, University of Aberdeen

**Project Title:** BUI Hippo Project 2001, Ghana

**Abstract:**

The principal aims of this project, based in the largely unstudied BUI National park, was to encourage widespread participation in conservation projects and to determine the absolute abundance of hippopotamus on the Black Volta River whilst recording food plant distribution and the abundance of the slender-snouted crocodile. An additional objective was to establish the basic infrastructure in BUI National Park, with the view to facilitate anti-poaching activity, biological research and tourism along the Black Volta River.

**Principal Investigator:** Dr Scott McMurry, Texas Tech University, USA

**Project Title:** Exposure and Response of Morelet's Crocodile Populations to Endocrine Disrupting Compounds in Belize, Central America

**Abstract:**

This expedition examined the exposure and response of Morelet's crocodiles to endocrine disrupting compound exposure in contaminated and reference lagoons in Belize due to Crocodylians readily bioaccumulating environmental contaminants due to their high trophic status and long life span. Crocodiles in the Maya Mountains are isolated from lowland individuals to a large degree. Depending on the degree of mixing that occurs between the mountain and lowland populations, crocodiles in the Maya Mountains could represent a Morelet's subspecies.

**Principal Investigator:** Professor Peter Smart, University of Bristol

**Project Title:** Hydrochemical Processes and Cave Development along the Caribbean Coast, Yucatan Peninsula, Mexico

**Abstract:**

The aim of this research was to explore the nature and behaviour of the extensive underwater cave systems (and associated aquifer) which extends some 10km inland from the Caribbean coast of the Yucatan Peninsula, Mexico. This inter-disciplinary project focussed mainly on interlinked studies of the hydrological, geochemical and microbiological function of the systems, but also completed studies of the aquatic ecology, geomorphology and Quaternary history of the caves.

**Year:** 2000 (Multiple Recipients)

**Principal Investigator:** Jennifer Sampson, 10,000 Years Institute. Washington, USA.

**Project Title:** Research of the Aquatic Communities of the Selenga River, Russia.

**Abstract:**

The Selenga river drains north and east through the northern steppe and boreal forest of Mongolia before becoming the largest tributary to Lake Baikal, Russia. Baikal is globally recognised as an aquatic system of unparalleled evolutionary significance but its unique biodiversity may be threatened by chemical releases from industry. The purpose of the work was to characterise the extent of mercury and organochlorine contamination of the Selenga-Baikal ecotone and to determine the effects of these contaminants on aquatic communities and human uses of the Selenga river.

**Principal Investigator:** Falk Huettmann, University of New Brunswick, Canada

**Project Title:** The Sea of Okhotsk 2000 Expedition, Russia

**Abstract:**

The Sea of Okhotsk, far-east Russia, and its surroundings present a huge wilderness area, offering a large inter-tidal area near to Arctic breeding grounds for over a million migratory birds. It is unclear what role this area plays in the migration of these birds along the Asian-Australasian Flyway. The project investigated the importance of the complex Sea of Okhotsk ecosystem using migrating shorebirds and their habitat as indicators. This involved two expeditions in the Spring (27 April-25 May 2002) to study migratory shore birds on Shanklin island, and in the summer (29 July-25 August 2000) on southwest Kamchatka and the Magadan region.

**Principal Investigator:** Dr David Higgitt, Durham University

**Project Title:** Yangtze 2000: River Sedimentation and Environmental Change.

**Abstract:**

The Yangtze is the world's third longest river and has the third highest sediment load delivered to the oceans. The Sichuan Basin and Yangtze Plain are some of the most densely populated agricultural regions in the world. The devastation of the 1998 Floods and the construction of the Three Gorges Project have intensified discussion of the environmental stability of the Yangtze. Work focussed around two sub-projects: 1) soil erosion, sediment delivery and hydrological change in areas affected by recent land use change, western Sichuan; 2) palaeo-flood stratigraphy of the Three Gorges - interpretation of sediments that will soon be lost.

**Year:** 1999 (Multiple Recipients)

**Principal Investigator:** Peter Meadows, University of Glasgow

**Project Title:** International Expedition to the Hindu Kush, Pakistan 1999

**Abstract:**

The expedition studied human impact on mountain environments in the Chitral area of the Hindu Kush. These are some of the least accessible and scientifically explored parts of northern Pakistan. The expedition focused on natural resources and biodiversity, rural communities and land use - including irrigation, river function and environmental degradation, hillside stability, glaciers and natural hazards. The team included biologists, civil engineers, geographers, geologists and social scientists. There was also an interest from archaeologists and anthropologists (Alexander the Great's army was in the area in the 370's BC - the Kalash people are thought by some to be its remnants and the Buddhist religion was very active during the first few centuries AD).

**Principal Investigator:** Dr Steve Ormerod, Cardiff University

**Project Title:** River Biodiversity of Mustang and the Kali Gandaki Valley, Nepal.

**Abstract:**

By virtue of their dynamism, physical diversity, biogeographical location, large biological richness and high rate of endemism, the biodiversity of the Himalayan Mountains is globally significant. This importance extends into Himalayan Rivers, which hold the world's greatest richness of river birds, some invertebrates and some fish. However rapid environmental change threatens these rivers systems. The principal aims of this expedition to Mustang and the Kali Gandaki valley of Nepal were to understand biological structure and function of rivers in this unique and biologically little known region. The expedition used well established

methodology developed in Nepal, relying on collaboration between experienced international groups and local scientists. The expedition helped Nepal to discharge its duties under the Biodiversity Convention - improving knowledge about biodiversity and building the capacity to better understand and manage natural resources sustainably.

**Year:** 1998

**Principal Investigator:** Dr David Minter, CABI

**Project Title:** The Pripjat Marshes of Ukraine:1998

**Abstract:**

Ukraine has varied landscapes, many of which were severely affected by fallout from Chernobyl. However, western Polissya is clean and contains many forests, meadows, bogs, rivers & lakes. The major features are well documented but the smaller are almost unknown, both in terms of physical geography and their biodiversity. The expedition's first objective was to study the natural corridor between the Baltic & Black Seas, formed by the Pripjat river, the West Bug, the Dnieper and the Desna. The team searched for new locations of rare organisms, surveyed & described areas suitable for conservation, recommended practical conservation measures to local government agencies and trained local post graduate students as field specialists. Plans for eco-tourism in this, the least polluted forest region of Ukraine, which is ideal for sympathetic development, have also been drafted.