

KEYNOTE: Olaf Weyl

DST/NRF Research Chair in Inland Fisheries and Freshwater Ecology
South African Institute for Aquatic Biodiversity



Invasive fish and their management in southern Africa

Dr Olaf LF Weyl is the Chief Scientist at the South African Institute for Aquatic Biodiversity, Member of Centre of Excellence for Invasion Biology and hold a South African Research Chair in Inland Fisheries and Freshwater Ecology. My current research focus is geared towards providing information with which to better conserve Africa's aquatic biodiversity. To this end I have worked on freshwater ecosystems in several African countries including Mozambique, Malawi, Namibia, Botswana, Zambia and South Africa. A main focus of my research is understanding how humans alter and benefit from aquatic systems. Recent invasive fish related projects include assessing the impacts of introduced fishes on native fish and invertebrate communities; monitoring the recovery of stream ecosystems after alien fish removal using piscicides; managing fish invasions in protected areas and assessing the role that alien fishes play in subsistence and recreational fisheries in South Africa. I also provide policy support with regards to inland fisheries and legislation on alien fish management. Engagement with stakeholders demonstrated just how complex the management of alien invasive species that have value to humans but also cause environmental harm can be. My most recent work has been focussed on describing these conflicts and attempting to define potential win-win solutions for multiple stakeholders.

KEYNOTE: Dr Tanja Strive

Principal Research Scientist
CSIRO Health & Biosecurity

Biological control of rabbits in Australia – 70 years of landscape-scale management of a vertebrate pest.



Dr Tanja Strive is a Principal Research Scientist within CSIRO Health and Biosecurity as well as the Biocontrol Innovation Domain Leader within the Australian Centre for Invasive Species Solutions (CISS). A molecular virologist by training, she joined CSIRO in 2002. She has since worked on a series of projects investigating lethal and non-lethal, and both GM and non-GM, biocontrol options for a range of feral animal species. During the past ten years Tanja has driven a combination of applied and basic fundamental research projects focussing on improving our understanding of the biology, evolution, epidemiology and interactions of different caliciviruses in Australian wild rabbits, and the implications and possible applications for biological control and landscape scale management of rabbit impacts.

KEYNOTE: Doug Tallamy

University of Delaware



Doug Tallamy is a professor in the Department of Entomology and Wildlife Ecology at the University of Delaware, where he has authored 95 research publications and has taught insect related courses for 40 years. Chief among his research goals is to better understand the many ways insects interact with plants and how such interactions determine the diversity of animal communities. His book *Bringing Nature Home: How Native Plants Sustain Wildlife in Our Gardens* was published by Timber Press in 2007 and was awarded the 2008 Silver Medal by the

Garden Writers' Association. *The Living Landscape*, co-authored with Rick Darke, was published in 2014. Doug's new book *Nature's Best Hope* was released by Timber Press in February 2020. Among his awards are the Garden Club of America Margaret Douglas Medal for Conservation and the Tom Dodd, Jr. Award of Excellence, the 2018 AHS B.Y. Morrison Communication Award and the 2019 Cynthia Westcott Scientific Writing Award.

Presentation 1

Are "Alien" Plants "Bad"?

The expense of fighting introduced plant invasions and the unpopularity of restricting the sale of ornamental invasives have motivated several public figures to question the wisdom of continuing to battle invasive plants. After all, they argue, if an introduced plant helps a particular butterfly, bird, or bee, why not embrace it? Using data from several studies, Tallamy answers this and related questions, showing that we can determine the overall impact of introduced plants on our ecosystems only by comparing what is gained from their use with what is lost when they replace native plant communities. Introduced plants are not the ecological equivalents of the native plants they displace because they do not support the diverse and stable food webs that run our ecosystems. Exchanging plants that support all of our animal diversity for plants that support only a few species is ecologically indefensible.

Presentation 2

A guide to restoring the little things that run the world

A recent UN report predicts that as many as 1 million species will disappear from planet earth because of human activities. Many of these are insects and nearly all species at risk rely on insects. Insects have already declined 45% since 1974. The most alarming part of this statistic is that we don't seem to care, despite the fact that a world without insects is a world without humans! So how do we create beautiful landscapes brimming with life; landscapes that support the pollinators, herbivores, detritivores, predators and parasitoids that run the ecosystems we depend on? Tallamy will remind us of the many essential roles insects play, and describe the simple changes we must make in our landscapes and our attitudes to keep insects on the ground, in the air and yes, on our plants.

KEYNOTE: Dan Tompkins

Project Manager: Science Strategy, Predator Free 2050



Developing the Tools for Predator Free 2050: Progress to date and future strategy

We welcome Dan Tompkins back in 2020 to provide an update on the Predator Free 2050 program. Developing the tools for Predator Free 2050 – progress to date and future strategy

Dan Tompkins leads the science strategy for Predator Free 2050, New Zealand’s initiative to eradicate invasive predators for the benefit of native biodiversity, as the Project Manager Science Strategy of Predator Free 2050 Ltd. Dan is an Honorary Professor at the University of Otago, New Zealand, and member of the International Union for Conservation of Nature (IUCN) Task Force on Synthetic Biology and Biodiversity Conservation. An ecologist and epidemiologist by training, with degrees from Cambridge University and the University of Oxford, Dan’s past research includes: exploring novel high-tech approaches to pest control (including the ‘Trojan Female Technique’ approach to fertility control); understanding the interactions among species in the New Zealand mammal pest community; demonstrating the efficacy of oral BCG vaccination for TB control in brushtail possums; and demonstrating the role of shared diseases in native species declines.

Abstract

In 2016, New Zealand announced a national goal of eradicating introduced predatory mammals critically threatening native biodiversity (brushtail possums, rats and stoats) from the country by 2050. The need for this initiative was driven home by the NZ Parliamentary Commissioner for the Environment’s 2017 report ‘Taonga of an Island Nation: Saving New Zealand’s Birds’, highlighting the fact that over 80% of native bird populations are in decline, primarily due to introduced predators. Predator Free 2050 Limited was formed to coordinate partnership approaches to large landscape projects and breakthrough science. It aims to supercharge local and regional efforts to scale up predator suppression and eradication, working closely with community groups and regional and city councils, and to focus research efforts to achieve a breakthrough science solution capable of eradicating at least one small mammal predator by 2025. Here I update on our activities since the presentation given at last years’ Innovations in Invasive Species Management conference in Nashville, covering the general mission and the large landscape projects that have been initiated, but focussing on the science strategy that has directed research investment to date, and the current process of strategy construction for 2020-24.

KEYNOTE: Dickie Hall

Operational Logistics Manager, RSPB Gough Island Restoration Programme
SGHT Habitat Restoration Project, South Georgia Heritage Trust



RSPB Gough Island Restoration Programme – Saving the Tristan Albatross

Originally from Manchester, Dickie graduated from Salford University with an Environmental Science degree and soon joined the British Antarctic Survey. This launched a ten year career working in Antarctica. Initially employed as terrestrial biologist, he moved into management roles including Base Commander at Rothera and Bird Island, South Georgia. After returning to the UK in 2011 and working for the Scottish Environmental Protection Agency, the draw of the 'South' proved too strong and he gained his first island eradication experience, working as Field Assistant for Phase Two of the South Georgia Heritage Trust's Habitat Restoration project, the world's largest rodent eradication to date.

Dickie returned to South Georgia in 2013, spending a year as BAS Base Commander at King Edward Point, and then rejoining SGHT for Phase 3 of their baiting operations. He was promoted to Deputy and later Project Director which saw him organise Phase 4, the final return to South Georgia to carry out intensive monitoring which demonstrated that the baiting was successful and the island was indeed free of rodents. Dickie believes that the restoration of island habitats is a crucial step towards turning back the tide of man's negative influences on our fragile ecosystems. He also relishes the challenge of tackling projects in demanding environments with complicated logistics. When not working in remote locations Dickie resides in the UK and enjoys running, cycling and exploring the British countryside with his partner Rachel.

Abstract

We welcome back Dickie Hall in 2020 to provide an update on the ongoing RSPB Gough Island Restoration Programme. Gough, a tiny mid-Atlantic island is home to 99% of the global population of the critically endangered Tristan Albatross. These magnificent seabirds are being eaten alive by introduced mice. Many other seabirds rely on Gough as a key breeding island and it is home to the endemic Gough Moorhen and Gough Bunting. Mouse predation is causing the loss of well over 2 million seabird eggs and chicks every year. In 2020, the Royal Society for the Protection of Birds (RSPB) will undertake an areal baiting operation to eradicate invasive mice from Gough Island. This will be concurrent with a captive holding aviculture project to safeguard the endemic moorhen and bunting species. Dickie Hall, RSPB's Gough Island Restoration Programme (GIRP) Operational Logistics Manager, will provide an update for the eradication work currently in progress and the challenges encountered in undertaking a combined eradication and aviculture project on one of the planets most isolated islands.

KEYNOTE: Iain Paterson



The Working for Water programme: Invasive plant control and poverty alleviation

Iain Paterson is a Senior Researcher at the Centre for Biological Control (CBC) in South Africa. He works to develop new weed biocontrol agents, to improve the utilisation of weed biocontrol as a management practice, and to evaluate biocontrol success. He is particularly interested in controlling invasive alien cactus species.

Abstract

Working for Water (WfW) is a large-scale conservation programme that aims to control invasive alien plants (IAPs) in South Africa. In the 1980s, conservationists and scientists started motivating for the control of IAPs primarily within the fynbos biome, a unique and highly diverse vegetation type. Motivating for government expenditure for the protection of biodiversity proved difficult, but once linked to ecosystem services, and especially to the provisioning of water and the associated economic benefits, government support was gained. In October 1995, the visionary politician, Prof. Karda Asmal, launched WfW with an annual budget of 2.5 million USD and the intention of creating 20 000 jobs over 20 years and 'winning the war against invasive plants'. The aims of WfW were to protect ecosystem services, such as water resources and rangeland productivity; protect indigenous biodiversity; and create employment for disadvantaged and impoverished people. From as early as 1995, weed biocontrol was a part of WfW, with the understanding that success was impossible without it. Over 24 years, WfW has grown to an annual budget of over 100 million USD, has created 247 000 jobs, and cleared invasive alien plants from 35 million ha of land. Investment in biocontrol has grown exponentially and it is regarded as one of the most successful components of WfW in terms of reducing IAPs and restoring ecosystem services. Much of the success of WfW can be attributed to the dual approach of tackling poverty through employment and improving ecosystem services through IAP control. The relatively short-term goal of employment was achieved early in the programme, motivating for increased support, and this has allowed for the longer-term goal of restoration of ecosystems to be slowly achieved through a combination of physical clearing and biological control.