

symposium

Assisted Evolution

a novel tool to overcome the conservation crisis?

Location

Zoological Museum, Kiel

Date

Thursday 7 December, 2017

Organization

Marlene Wall, Thorsten Reusch

Registration

<http://www.kec.uni-kiel.de/>

9:00 Welcome and intro by the organizers

Session 1: Shifting paradigms in conservation: social, public and scientific landscape of conservation genetics

Objective: The aim of session 1 is to (i) discuss new approaches for the conservation of natural environments, such as assisted colonization, assisted evolution and synthetic biology and (ii) introduce the current legal, public and scientific framework of novel methods in conservation.

9:15 **Phil Seddon**, University of Otago, New Zealand

A history of assisted colonization: IUCN Guidelines and the growing need to consider risky conservation translocation

10:00 **Kent H. Redford**, Archipelago Consulting, USA

The role of Synthetic Biology in conserving the new nature

10:45 Coffee break

11:15 **Dirk Petersen**, SECORE, Germany

Coral reef restoration in a changing environment

12:00 Lunch buffet

Session 2: Assisted evolution in corals: Opportunities, applications, challenges, and limitations

Objective: The aim is to introduce how assisted evolution might change our way of restoring natural marine environments. What new tools are available that can improve the selection of environmental stress resistance and be implemented in conservation? What are the promises and perils of such approaches?

13:00 **Iliana Baums**, Pennsylvania State University, USA

Coral conservation genetics in a changing climate

13:45 **Madeleine van Oppen**, University of Melbourne/AIMS, Australia

How assisted evolution and synthetic biology can help address the coral reef crisis

14:30 Coffee break

15:00 **James Guest**, Newcastle University, UK

Assisting coral reef survival in the face of climate change

15:45 Joint discussion - chairs: Thorsten Reusch & Marlene Wall

17:15 End of symposium

For further information see:

<http://www.kec.uni-kiel.de/> or contact:
mwall@geomar.de or treusch@geomar.de



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Iliana Baums is an associate professor at the Pennsylvania State University. She studies ecological and evolutionary processes that shape coral populations to design effective conservation strategies for shallow and deep-water corals. She often collaborates with oceanographers to improve real-time dispersal models that help predict changes in connectivity patterns as a result of environmental variability. Currently, she is particularly interested in how the propensity of corals for hybridization, asexual reproduction, phenotypic plasticity, old age and symbiont fidelity affect their prospects for adaptation and acclimatization to climate change. Iliana is a member of the scientific advisory board of SECORE International and the Caribbean Coral Restoration Network.



James Guest's research covers a diverse range of topics within coral reef science including diseases, reproductive and larval ecology, recruitment dynamics, long term community change, bleaching and restoration ecology. He has held research fellowships at several Universities and until recently was the Powell Fellow based at the Hawaii Institute of Marine Biology working within the Gates Lab. He has recently been awarded an EU Consolidator Grant working at Newcastle University in the UK. His project will examine the feasibility of assisted gene flow coupled with selective breeding to prepare coral populations for climate change. James is also a member of the scientific advisory board of SECORE International



Dirk Petersen is founder and executive director of SECORE International, a coral conservation and restoration organization based in the USA and Germany. He initiated SECORE and the coral breeding approach during his Ph.D. project at the Rotterdam Zoo and the University of Duisburg-Essen. SECORE is a global network of scientists, public aquarium professionals and local stakeholders fostering multidisciplinary strategy combining research, education, outreach and active reef restoration for the conservation of coral reefs. Together with the California Academy of Sciences, The Nature Conservancy and partners of various disciplines, SECORE has recently launched the Global Coral Restoration Project to advance the science, technology and application of innovative coral restoration techniques.



Kent H. Redford devoted his career to conservation strategies and biology. During his time in academia his research focuses on the role of science in conservation practice, evaluating conservation effectiveness and the intersection between synthetic biology and conservation. After academia he joined the nature conservancy in 1993 where he helped develop guidelines for ecoregion-based conservation. Later on he joined the Wildlife Conservation Society to work in the international program on conservation strategies. In 2011 he founded Archipelago Consulting, with the aim to help individuals and organizations improve their practice of conservation.



Phil Seddon is professor at the University of Otago, Department of Zoology and Director of the Postgraduate Wildlife Management Program. His research focuses on restoration of threatened species, reintroduction biology, including assisted colonization and other conservation introductions. He is a member of the IUCN Species Survival Commission and Chair of the Bird Section of the SSC's Reintroduction Specialist Group. He was a member of the SSC Task Force that produced the 2013 IUCN Reintroduction Guidelines, and head of the SSC Task Force that produced the 2016 guidelines on de-extinction for conservation benefit. He also has worked and advised on species restoration projects around the world.



Madeleine van Oppen is professor at the University of Melbourne and a Senior Principal Research Scientist at the Australian Institute of Marine Science. Her research focuses on coral reef restoration, in particular the development of coral stock better able to cope with disturbed environments and predicted future ocean conditions (i.e., assisted evolution and more recently, synthetic biology). This includes the study of microbial symbiosis in corals, and the genetic and epigenetic mechanisms of adaptation/acclimatization to climate change. She also uses population genomic approaches to understand connectivity among coral reefs and signatures of selection in corals.