Living with Resistance

**Award Year:**
2016

**Principal Investigator:**
Peter Søgaard Jørgensen, Royal Swedish Academy of Sciences
Scott Carroll, University of California Davis

**Associated Program:**
Pursuit Program [1]

The evolution of organismal resistance to human eradication, control, and harvest measures is one of the most pervasive responses of the living environment to our own species’ activities. Evolved resistance to agents such as pesticides and antimicrobial drugs threatens to reverse some of the greatest advances of modern agriculture and medicine. This Pursuit will address the socio-ecological dilemmas that constrain society’s response to resistance evolution, whether in pathogens that affect personal, public, and animal health, biocide resistance in food production, harvest selection in wild populations, or invasive species challenges to environmental management. The focus of the Pursuit will be three-fold:

1. To advance socio-ecological understanding of resistance governance across sectors of society, so as to build a multidisciplinary foundation for future research.
2. To identify opportunities and standards for bringing together social sciences and biology in a large-scale, data-driven synthesis of the socio-ecological dynamics of resistance emergence and governance.
3. To make this state-of-art knowledge on emergence and governance widely available to policy makers and the public via policy briefs and an interactive web-platform.

This data-driven pursuit will thus advance socio-ecological understanding of resistance governance across sectors of society beyond single case studies. To achieve this, we harmonize a recently developed cross-disciplinary framework for applied evolutionary biology with the socio-ecological systems framework created by Elinor Ostrom. The Pursuit aims to be an important stepping stone for formalizing socio-ecological strategies to address one of the most serious issues facing humanity in the 21st century: the sustainable governance of resistance evolution.

**Participants:**
Maja Schlueter, Stockholm Resilience Centre
Athena Aktipis, Arizona State University
Yves Carriere, University of Arizona
Robert Dunn, North Carolina State University
Jennifer Kuzma, North Carolina State University
Didier Wernli, University of Geneva
Nicholas Storer, Dow AgroSciences
Nestor Mojica, CDDEP
Eili Klein, CDDEP
Yrjo Grohn, Cornell University
Graham Epstein, University of Waterloo
Zachary Brown, North Carolina State University
Ramanan Laxminarayan, Center for Disease Dynamics Economics & Policy
Thomas Van Boeckel, Swiss Federal Institute for Technology (ETH)
David Mota-Sanchez, Michigan State University
Sharon Downes, CSIRO Agriculture and Food
Govind Tikarams Gujar, Ex-Indian Agricultural Research Institute
David Hawthorne, SESYNC
Dusan Jasovsky, Uppsala University, React
Guillaume Lhermie, Cornell University
Cornelia Ludwig, Stockholm University
Celso Omoto, Universidade de São Paulo
David Mota-Sanchez, Michigan State University
H. Morgan Scott, Texas A&M University
Franziska Klein, Global Economic Dynamics and the Biosphere

Associated SESYNC Researcher(s):
dhawthorne [2]

Source URL: https://www.sesync.org/project/living-with-resistance

Links
[1] https://www.sesync.org/opportunities/research-thematic-pursuits/pursuit-program