



## Biological Consequences of Global Change

### Participating Scientists

→ **Table of Researchers**

Name	Location	Species	Methods	Data
John Buckeridge	Australia/ South Pacific	barnacles	sample collecting morphology anatomy biogeography evolution	descriptive modeling
Kung-Sik Chan & Nils Chr. Stenseth	Canada & Norway	lynx & cod	time series analysis (intervention analysis)	long-term observation records
Mauricio Lima	Chile	mice & small rodents	matrix model	long-term observation records
Fuwen Wei	China	giant pandas	molecular biology DNA Sequencing	molecular, descriptive
Yan Xie	China	many	biodiversity research	descriptive, observation records
Zhibin Zhang	China	biological, agricultural disasters or pests	laboratory field	behavioral, physiological, population
David B. Wake	USA	salamanders, amphibians, reptiles	sample collecting morphology, biodiversity informatics	descriptive, observation
Yury Yu. Dgebuadze	Russia	fish fauna fish	laboratory, field, risk assessment, modelling	long-term observation records

Alain Roques	France	forest insects	laboratory, field	Molecular, descriptive
Hari C. Sharma	India	crop insects	laboratory, field	behavioural, physiological, population
Bernard Cazelles	France		biomathematics and modelling	long-term observation records
Boris I. Sheftel	Russia	small mammals, shrews	laboratory, field	long-term observation records
Jianghua Sun	China	forest insects	laboratory, field	Molecular, descriptive
Yiming Li	China	amphibians, vertebrate species	biodiversity research, laboratory, field	descriptive, observation records
Xinhai Li	China	birds, avian species	sample collecting morphology spatial dynamics and modelling	descriptive, observation records
Liudmila A. Khlyap	Russia	small mammals	sample collecting morphology spatial dynamics and modelling	descriptive, observation records
Elena Kotenkova	Russia	biodiversity, invasions, phylogeny, ethology of rodents	sample collecting morphology spatial dynamics and modelling	descriptive, observation records

### → Researcher Profiles

**John Buckeridge:** Natural resources engineering, environmental ethics, marine biology and palaeobiology. Dr. Buckeridge works on barnacle species and other marine invertebrates (e.g. poriferans) from Australasia and the South Pacific; his research is composed of two parts – the description and distribution of new and extant species and the study of the fossil record.

His recent research on climate change, and the diversity and distribution of cirripedes has shown that the group is at risk on both local and regional scales, and that the

species that inhabit polar regions (Antarctic) will be the first to suffer due to loss of their hosts with warming seas. However, in the past, some species appear to have adapted to the changes in the pH of the oceans, and thus survived.

**Mauricio Lima:** Population biology, time series analysis, capture-mark-recapture statistical models, population model with age structure and stage structure, complex dynamical system (chaos), impacts of climate change (mainly focused on rainfall). Dr. Lima mainly researches small mammals in South America (especially Chile) and his studies make conclusions about how climate change effects populations and behaviour, density-dependence in population dynamics, and system feedbacks.

From his research, it is demonstrated the influence of NAO index on the population dynamics and spatial synchrony of aphids, and the relationship between the two. Research results find out that most of them are nonlinear. To be more specific, the key elements determining population fluctuations in green spruce aphid populations are non-linear feedback structure, high potential for population growth and weather condition in winter and next spring.

**Nils Christian Stenseth:** Population biology ecology and genetics, large-scale ecological pattern and evolution pattern, impacts of climate change (ecological and evolutionary). Dr. Stenseth utilizes long term data series on Canadian lynx, Norway cod, Pollock and locusts and through models examines dynamical behaviour (non-linearly, density dependent, disturbance) of systems and how climate change and human activity affect populations.

**Kung-Sik Chan:** Expert in time series analysis, chaos, stochastic differential equations and statistical ecology. Dr. Chan is a mathematician by training and his work on ecology has been conducted with Nils Chr. Stenseth (see above). Dr Chan's work is in two main methods - one is to create a new way to analyze problems and test these against data; the second is to focus on the impacts of climate change.

**Zhibin Zhang:** Head of the Research Group of Animal Ecology in Agriculture and the director of the State Key Laboratory of Integrated Management on Pest Insects and Rodents, China. Dr. Zhang's research interests include animal populations, ecology and management, as well as biodiversity, ecosystem function and theoretical biology.

**Fuwen Wei:** Head of the Key Laboratory of Animal Ecology and Conservation Biology. Dr. Wei's research is aimed at achieving a scientific understanding of the ecology of rare and endangered animals, effective conservation, and sustainable utilization of wildlife resources.

**Yan Xie:** Director of the China Program of the Wildlife Conservation Society. Dr. Xie's research interests are biodiversity conservation, invasive species, vegetation restoration, and bio-geographic divisions.

**David B. Wake:** Professor at the Graduate School at the University of California, Berkeley. His scientific interest covers evolutionary biology; genetics, ecology, speciation, systematics and biogeography of salamanders, especially those in the New World tropics. His main research activities are functional, developmental and evolutionary morphology of amphibians and reptiles, biodiversity and conservation biology, conservation strategies, declining amphibian populations, and biodiversity informatics.

**Yury Yu. Dgebuadze:** Deputy Director at the Institute of Ecology and Evolution of the Russian Academy of Sciences. His scientific interests are biodiversity, ecology, biological invasions, fish fauna, speciation and fish ecology and conservation. Professor Dgebuadze's current research activities include risk assessment of biological invasions in the inland waterways of Europe, Stochastic and deterministic mechanisms structuring aquatic communities invaded by alien species, animal evolution and animal morphology and ecology.

**Alain Roques:** Director at French National Institute for Agricultural Research, France. As a forest entomologist, Dr. Roques has 31 years of experience in the biology, ecology and behavior of forest insects. His present research activities focus mainly on the effect of global warming on the expansion of forest insect populations, ecology and management of invasive insect species.

**Hari C. Sharma:** Principal Scientist of Entomology at the International Crops Research Institute for the Semi-Arid Tropics. Professor Sharma has made significant contributions in the areas of crop protection and crop improvement covering insect bio-ecology and ecology, biological control, natural pesticides, insect resistant varieties, transgenics, and bio-safety of transgenic crops to non-target organisms. Currently his main research activities include insect-resistant varieties, applications of biotechnology in pest management, ecological controls, and plant protection.

**Bernard Cazelles:** Professor at the Université Pierre et Marie Curie in Paris, France. He is a specialist in biomathematics and modeling. Currently, his main research activities include nonstationarity in ecological and population systems, nonlinearity and stochasticity in population dynamics, chaos in biology and modeling self-purification in polluted waters and streams.

**Boris I. Sheftel:** Senior Scientist, the A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences. Currently, his main scientific interests lay in the field of population dynamics, structure of small mammal populations and interrelations between relative species, especially the ecology, systematic and morphology of shrews. He has performed long-term field investigations of small mammal populations for the last 37 years at the Yenisei ecological Station in Central Siberia and, from 2000 onwards, he has been doing similar investigations at the

Khonin-Nuga Biological Station in Northern Mongolia on Southern border of taiga climatic zone.

**Jianghua Sun:** Assistant Director at the Institute of Zoology at the Chinese Academy of Sciences in Beijing, China. He is also a professor at The State Key Laboratory of Integrated Management of Pest Insects and Rodents. Professor Sun's scientific interest covers chemical ecology and invasion biology of forest invasive insects IPM of forest insects. His research activities focus mainly on understanding evolutionary process between host tree and invasive forest insect pest through chemical ecology and molecular analysis, studying invasion biology of forest invasive insect pests and developing monitoring and control technologies based on semiochemicals for those invasive species. Recently, Professor Sun has also investigated the impact of climate change on interactions between soil/host tree/insect pest and forest health.

**Yiming Li:** Professor at the Institute of Zoology at the Chinese Academy of Sciences in Beijing, China. His scientific interests include biology, animal ecology, conservation biology and biological invasions caused by climate change. Professor Li's current research activities include hydroelectricity production and forest conservation in watershed, human influences on bullfrog invasion in China and threats to vertebrate species in China and the United States.

**Xinhai Li:** Associate professor of the Institute of Zoology at the Chinese Academy of Sciences in Beijing, China. He is also the curator of the Biodiversity and Evolution Section of National Zoological Museum of China. Dr. Li's scientific interests include landscape ecology, ecological modeling and statistics. Currently his research activities focus mainly on the spatial dynamics of avian influenza transmission, species distribution and adaptation, systematic conservation planning and climate change.

**Liudmila A. Khlyap:** Senior researcher, A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences. Liudmila's scientific interests include biodiversity and biological invasion. The focus of her current research is medical zoology, small mammals, pest management and commensal rodents, especially the influence of natural and anthropogenic factors on spatial distribution within large regions (Russia and adjacent territories), including urban and agricultural lands.

**Elena Kotenkova:** Senior researcher, A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences. Elena's scientific interests include biodiversity, biological invasion, phylogeny and ethnology of rodents. Currently, she has her research focus on investigating *Mus musculus* superspecies complex.

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