DISCUSSION PUBLISHERS
Research Center · Open Access Edition

Biological invasions, climate change and genomics

Steven L. Chown, Kathryn A. Hodgins, Philippa C. Griffin, John Graham Oakeshott, Margaret Mary Byrne, Ary A. Hoffmann

Discussion Research ID	DPR-2026-1022
Year	2014
Field	Biochemistry, Genetics and Molecular Biology
DOI	10.1111/eva.12234
Author ORCID	0000-0001-6069-5105
Licence	CC-BY
Original source	Evolutionary Applications
Permanent link	https://discussionpublishers.com/research/ae4c83f5-bac5-4a35-a93e-4d5b3c107ee4
Publisher	Discussion Publishers discussionpublishers.com

Republished by Discussion Publishers under the original CC-BY licence. Copyright remains with the original authors; please cite the original work.

Cite as: Steven L. Chown, Kathryn A. Hodgins, Philippa C. Griffin, Jo (2014). Biological invasions, climate change and genomics. D

Abstract

The rate of biological invasions is expected to increase as the effects of climate change on biological communities become widespread. Climate change enhances habitat disturbance which facilitates the establishment of invasive species, which in turn provides opportunities for hybridization and introgression. These effects influence local biodiversity that can be tracked through genetic and genomic approaches. Metabarcoding and metagenomic approaches provide a way of monitoring some types of communities under climate change for the appearance of invasives. Introgression and hybridization can be followed by the analysis of entire genomes so that rapidly changing areas of the genome are identified and instances of genetic pollution monitored. Genomic markers enable accurate tracking of invasive species' geographic origin well beyond what was previously possible. New genomic tools are promoting fresh insights into classic questions about invading organisms under climate change, such as the role of genetic variation, local adaptation and climate pre-adaptation in successful invasions. These tools are providing managers with often more effective means to identify potential threats, improve surveillance and assess impacts on communities. We provide a framework for the application of genomic techniques within a management context and also indicate some important limitations in what can be achieved.

Keywords: biological invasions, climate change, invasive species, hybridization, introgression, genetic pollut

Full text

The complete text of this work is hosted by its original publisher.
Read it via the Discussion Publishers page:
https://discussionpublishers.com/research/ae4c83f5-bac5-4a35-a93e-4d5b3c107ee4
Original record: https://doi.org/10.1111/eva.12234
DOI: https://doi.org/10.1111/eva.12234