

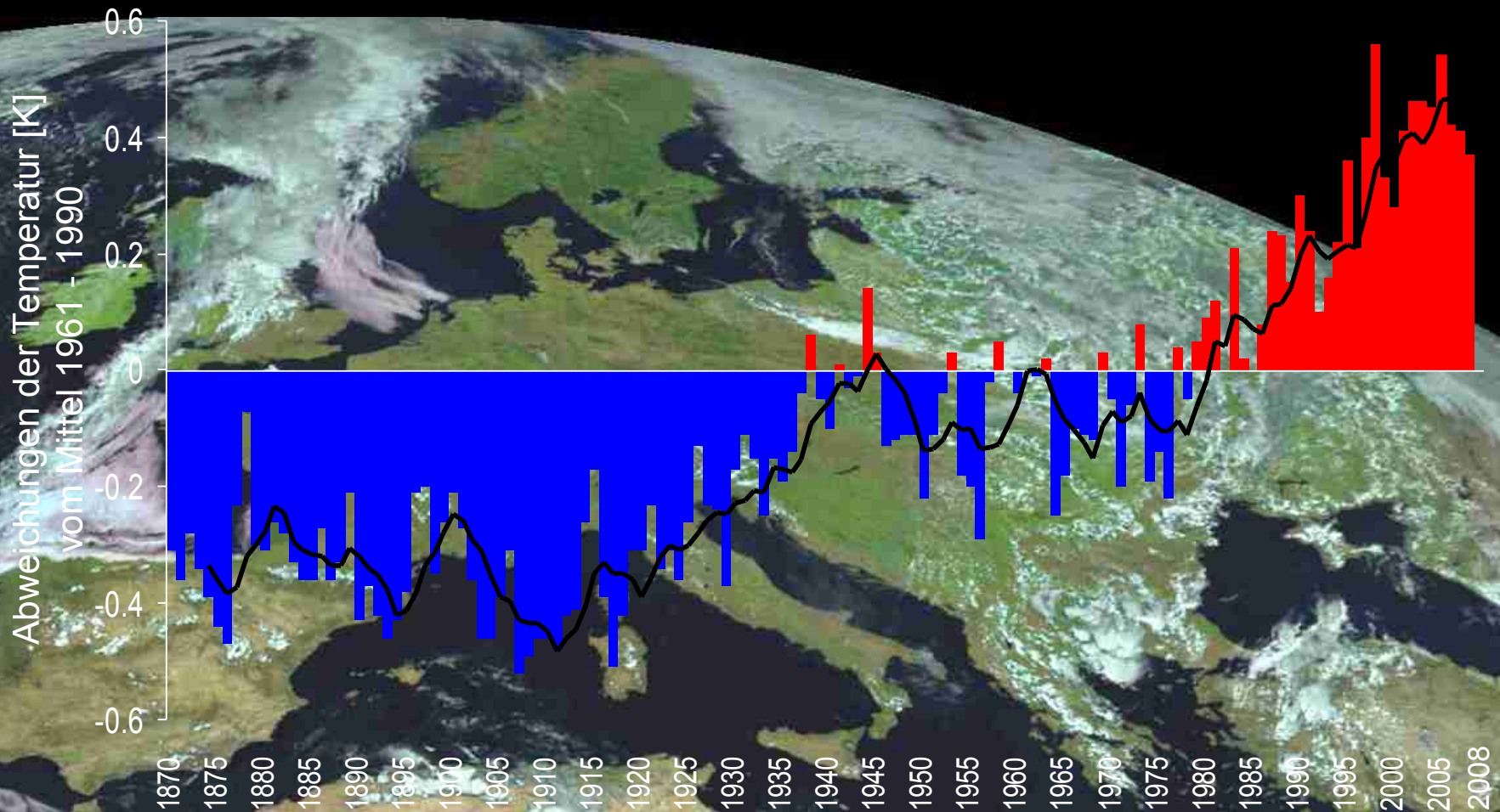
Migration versus Invasion



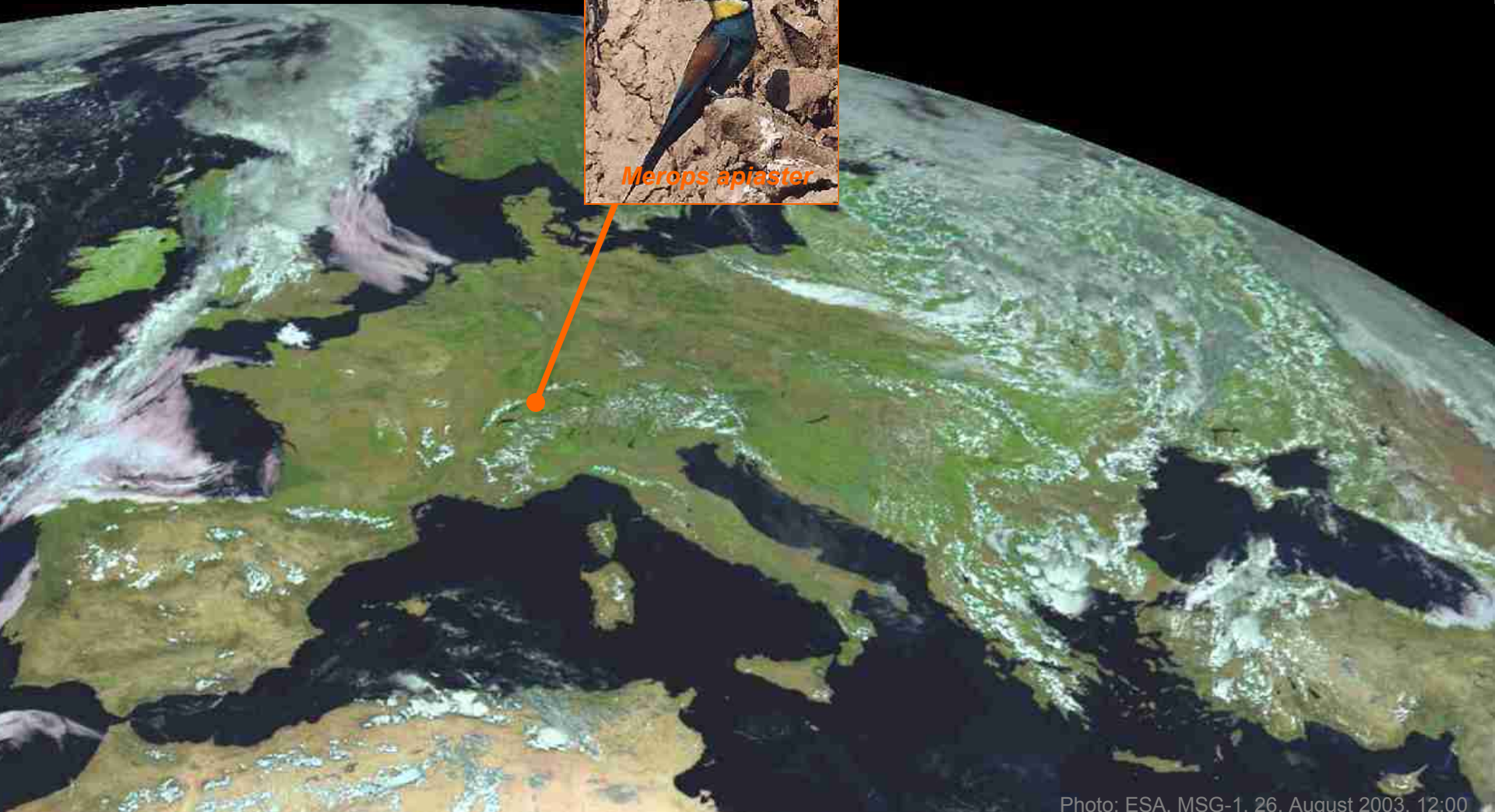
Werden sich nebst dem Klima
auch unsere Konzepte und Einstellungen
gegenüber Neobiota ändern (müssen)?

Photo: ESA, MSG-1, 26. August 2003, 12:00

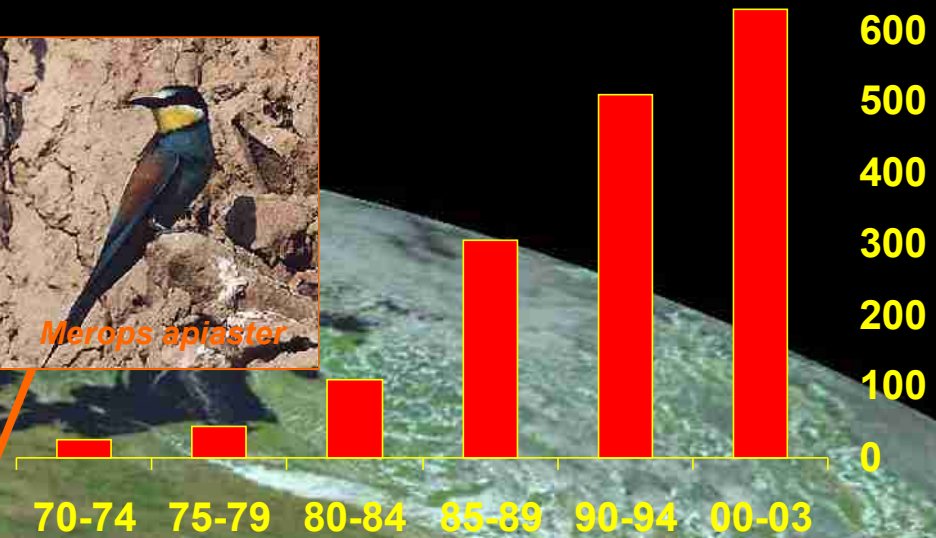
Globale Mitteltemperatur



Bienenfresser



Bienenfresser



Einführungsweg

➡ autonom



Feuerlibelle



Crocothemis erythraea



Einführungsweg

- ➔ autonom(?)
- ➔ antropogen(?)



Meerpfau



Thalassoma pavo

Einführungsweg

 autonom

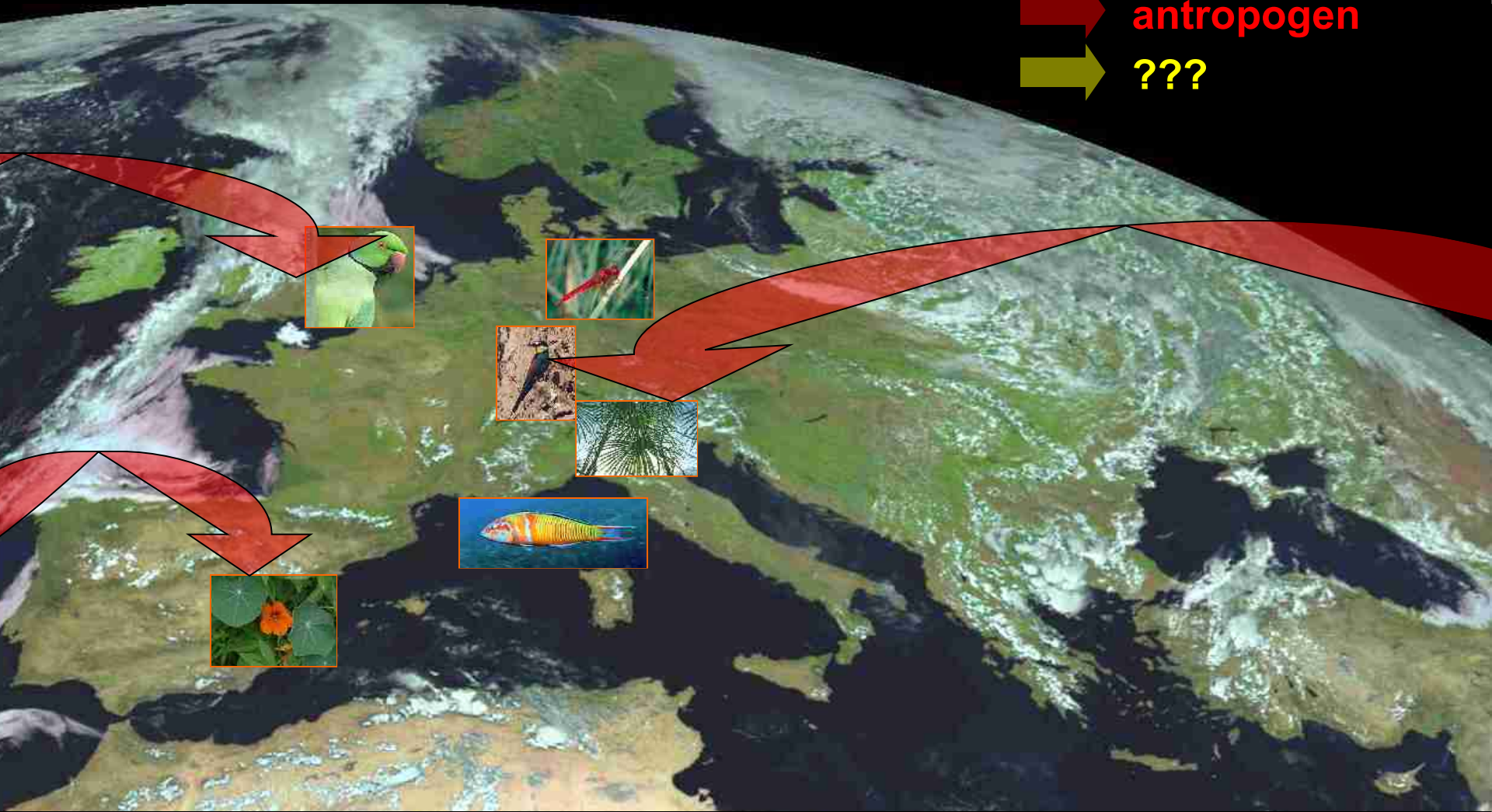
 antropogen

 ???



Einführungsweg

- autonom
- antropogen
- ???



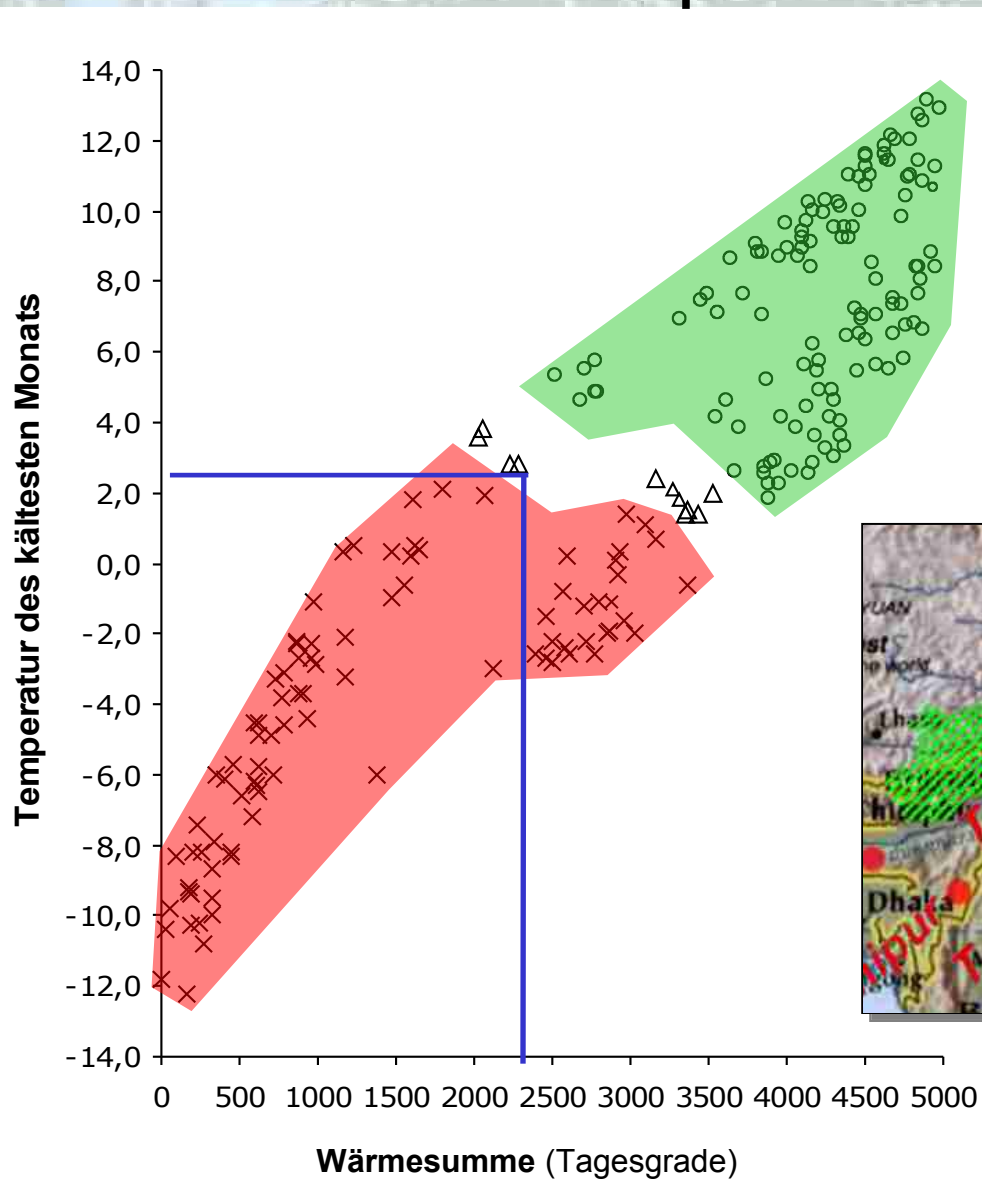
Hanfpalmen

(*Trachycarpus fortunei*)

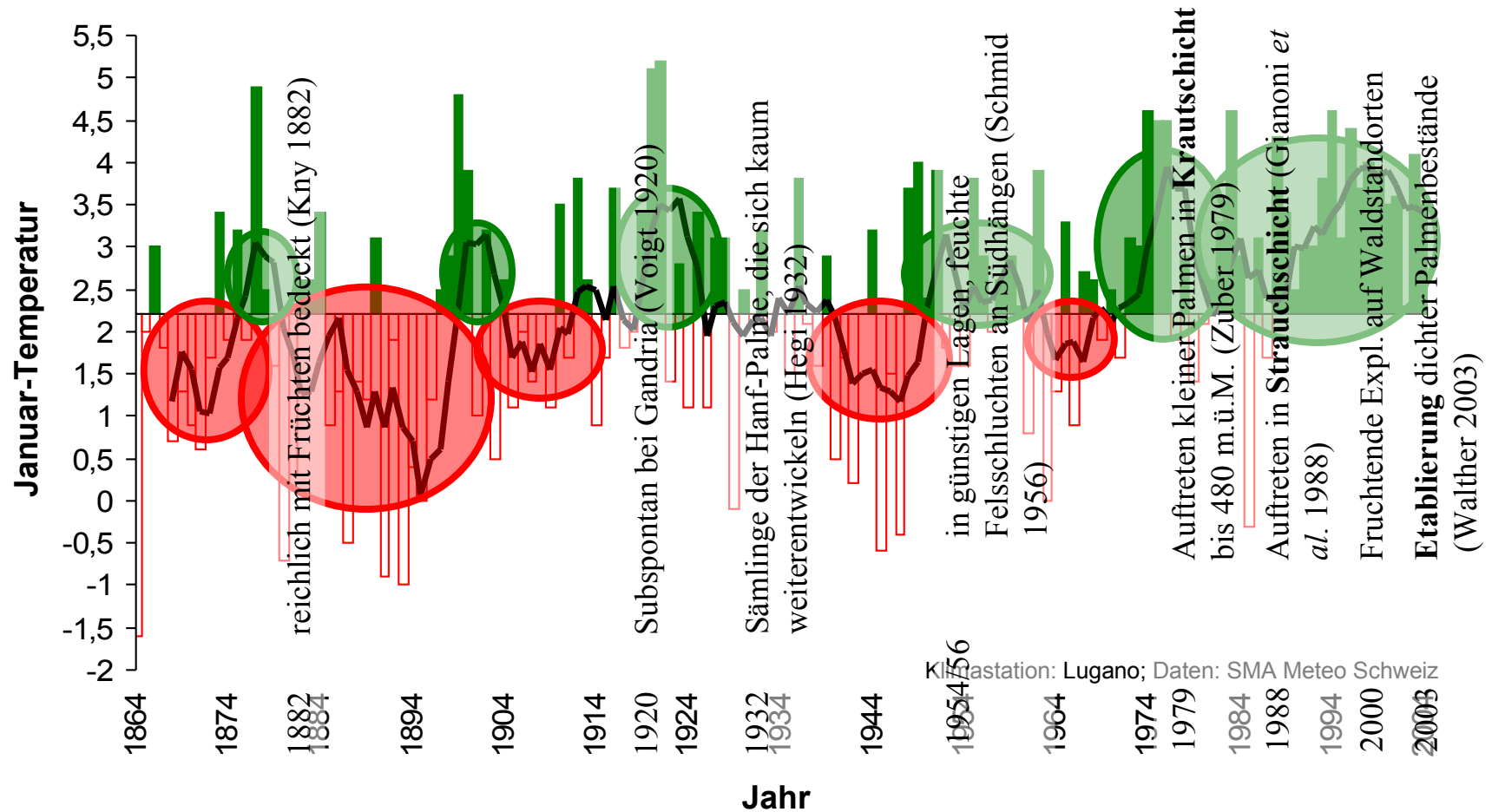
in Wäldern am Alpensüdfuss




Klimatische Ansprüche im Heimatgebiet



Entwicklung der Januar-Mitteltemperaturen (1864-2004)





Lorbeer
(Laurus nobilis)
Mittelmeerraum
>> 1000 Jahre

Stechpalme
(Ilex aquifolium)
heimisch

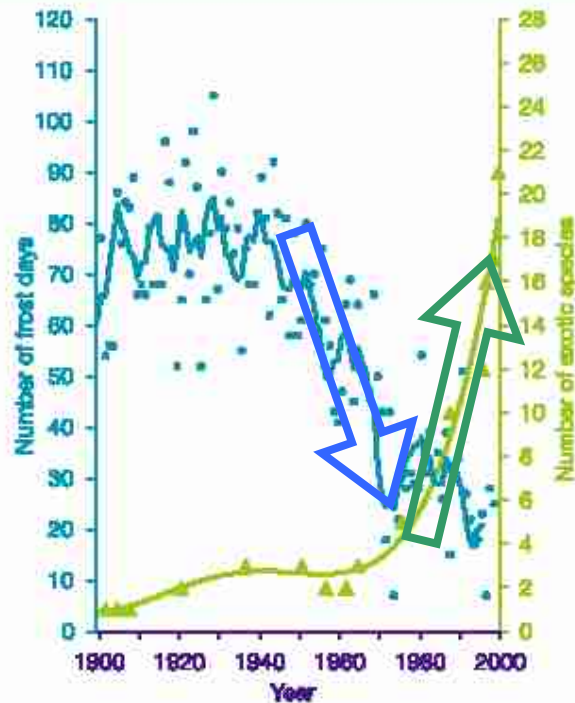
Hanfpalme
(Trachycarpus fortunei)
SO-Asien
< 1795

Lorbeerkirsche
(Prunus laurocerasus)
**SO-Europa/
Kleinasien**
1576

Ecological responses to recent climate change

Gian-Reto Walther*, Eric Post†, Peter Convey‡, Annette Menzel§, Camille Parmesan||, Trevor J. C. Beebee¶, Jean-Marc Fromentin#, Ove Hoegh-Guldberg* & Franz Bairlein**

Climate change and invasions



Frontiers in Ecology and the Environment

Garden plants get a head start on
climate change

Sebastiaan Van der Veken, Martin Hermy, Mark Vellend, Anne Knapen, and Kris Verheyen

Front Ecol Environ 2008; 6, doi:10.1890/070063

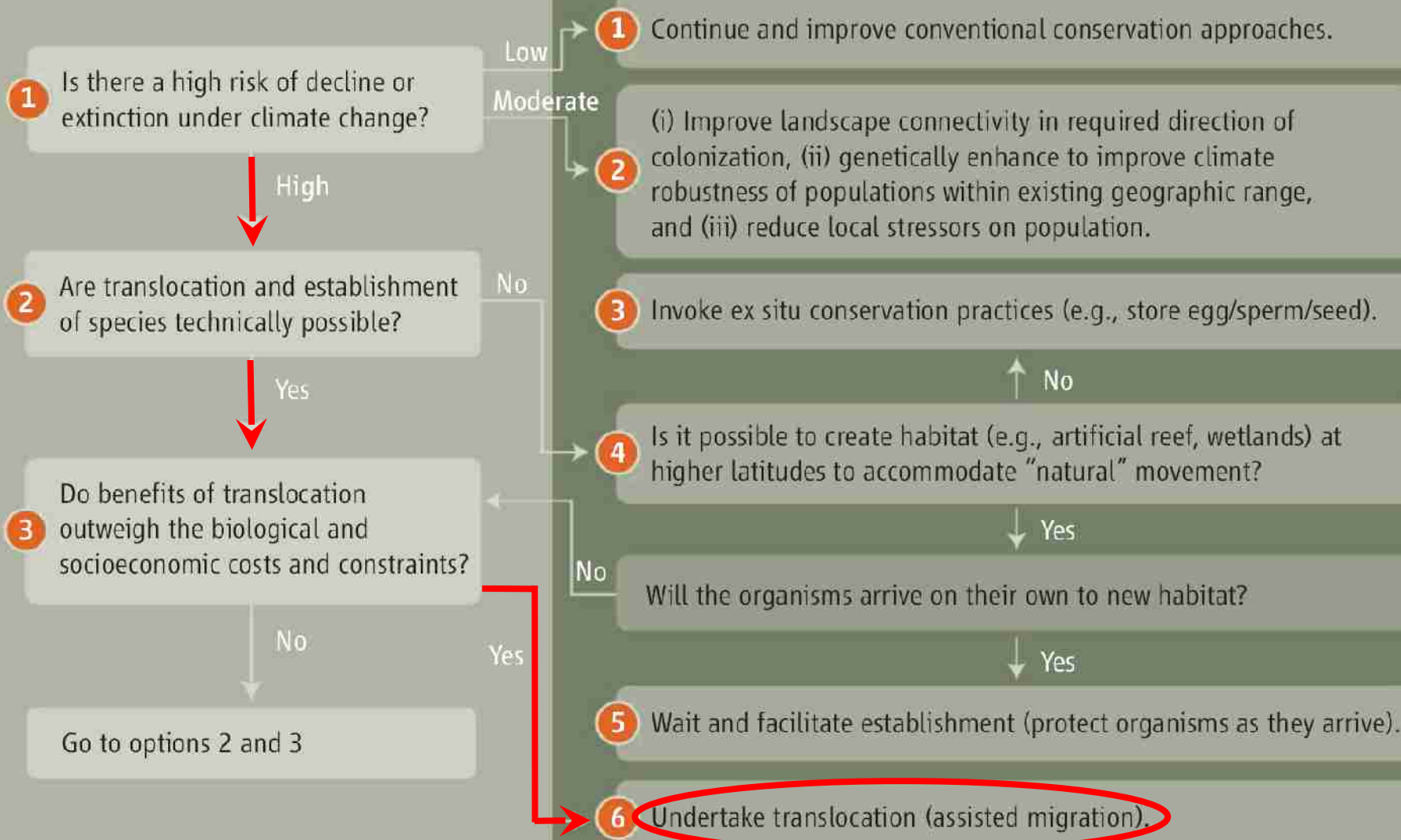
Comparison of the natural ranges of 357 native European plant species with their commercial ranges, based on 246 plant nurseries throughout Europe.

“In 73% of native species, commercial northern range limits exceeded natural northern range limits, with a mean difference of ~ 1000 km.”

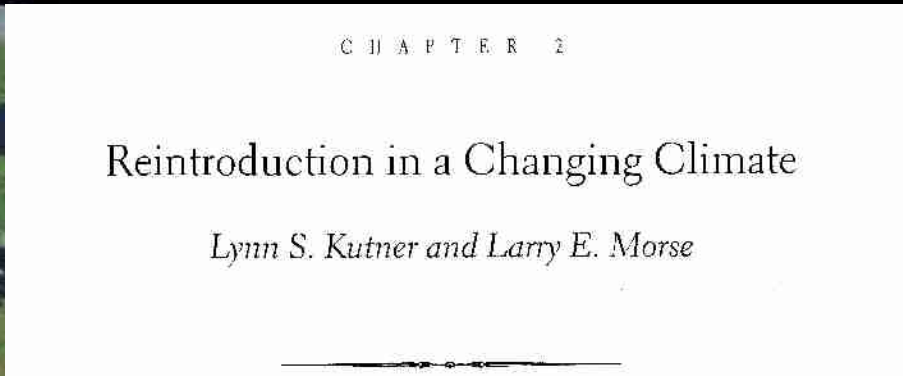
Assisted Colonization and Rapid Climate Change

O. Hoegh-Guldberg,^{1*} L. Hughes,² S. McIntyre,³ D. B. Lindenmayer,⁴ C. Parmesan,⁵
H. P. Possingham,⁶ C. D. Thomas⁷

Moving species outside their historic ranges may mitigate loss of biodiversity in the face of global climate change.

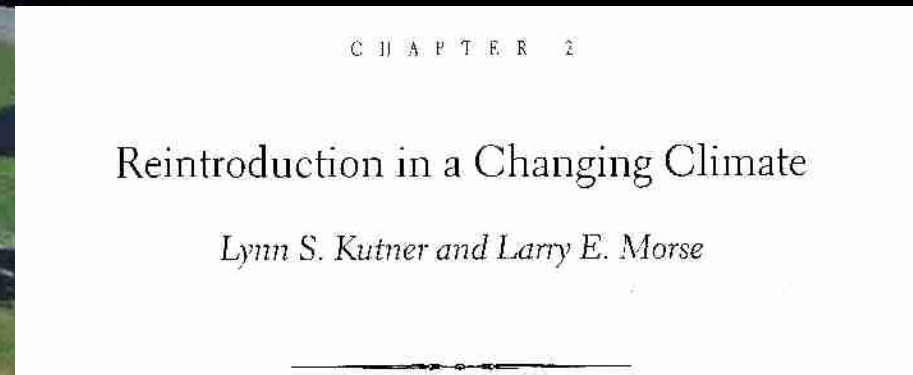
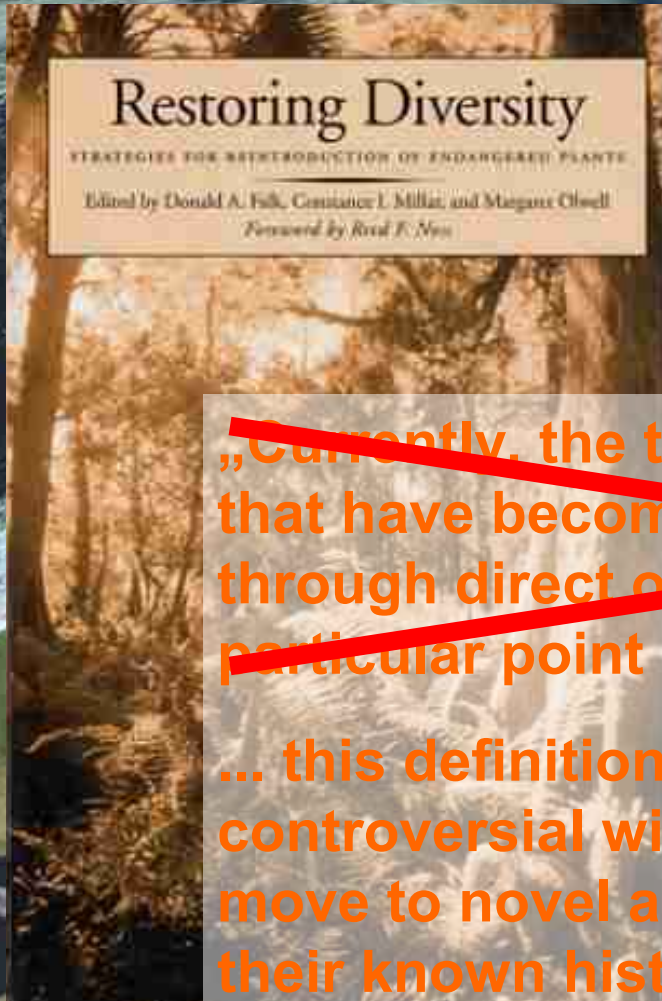


Definition: 'exotisch'



„Currently, the term exotic is commonly used for species that have become established beyond their historic range through direct or indirect human intervention at some particular point in time.“

Definition: 'exotisch'



~~„Currently, the term exotic is commonly used for species that have become established beyond their historic range through direct or indirect human intervention at some particular point in time.[...]~~

... this definition will become increasingly outdated and controversial with climate change as native species move to novel areas or are introduced to sites other than their known historical or current occurrences.“

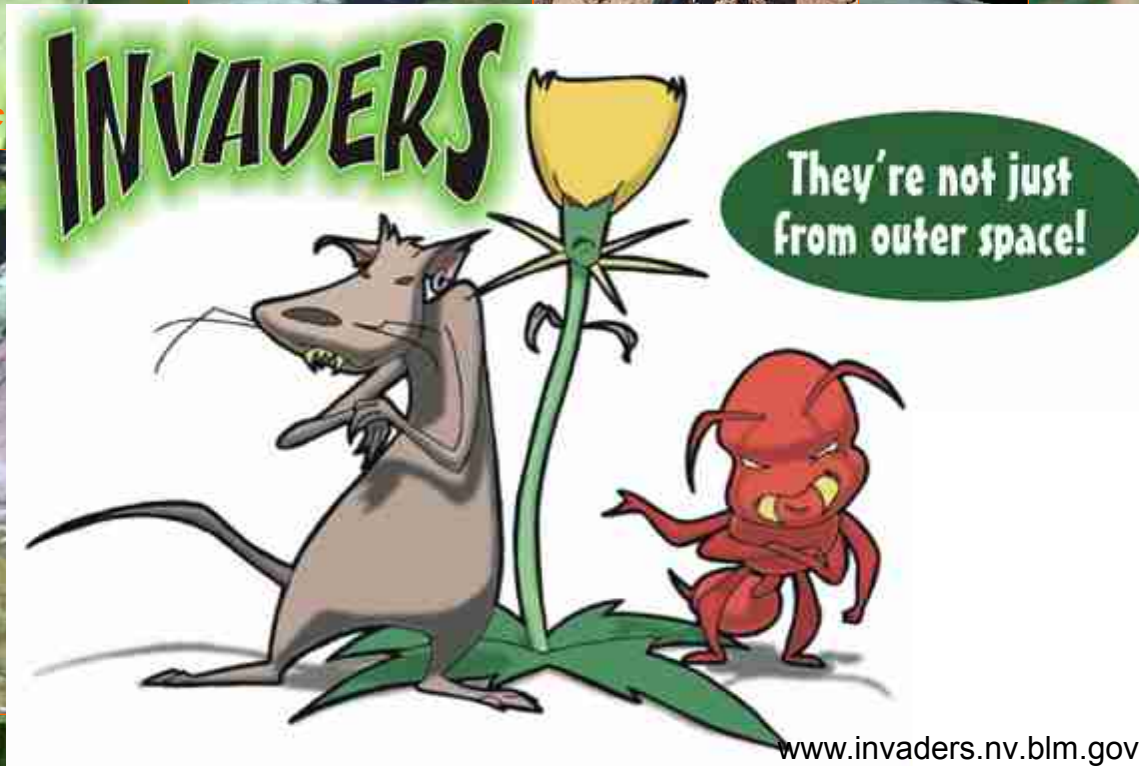
“Alien invaders“?



Psittocolumma



Zygoptera erythraea



INVADERS

They're not just from outer space!

www.invaders.nv.blm.gov



Lycopodium fortunei



Trapaeolum majus



Thalassoma pavo

Alternativen?

Ecology Letters, (2004) 7: 975–989

doi: 10.1111/j.1461-0248.2004.00657.x

REVIEW

A meta-analysis of biotic resistance to exotic plant invasions

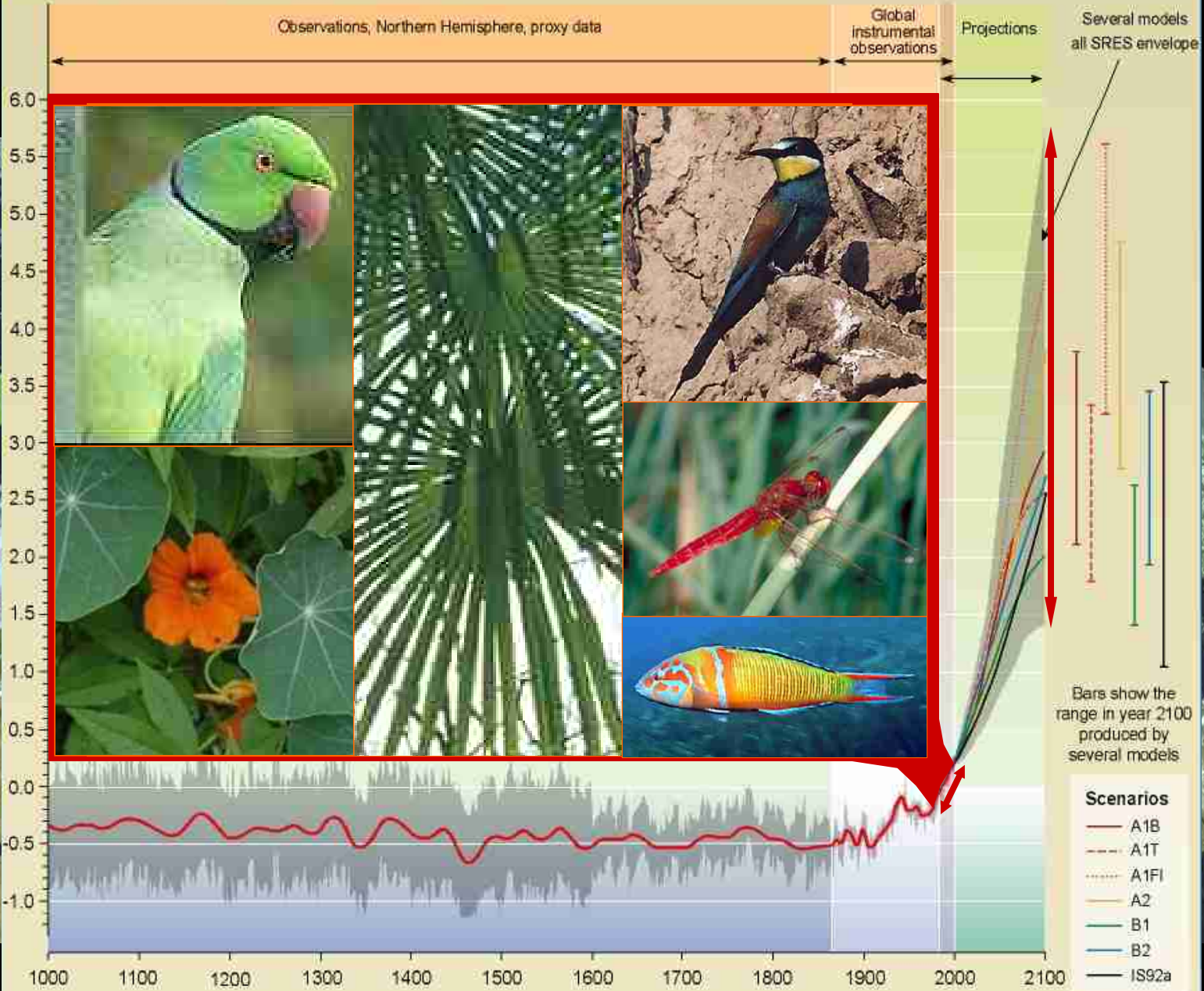
Jonathan M. Levine,*
Peter B. Adler and
Stephanie G. Yelenik
*Department of Ecology,
Evolution, and Marine Biology,
University of California, Santa
Barbara, CA 93106, USA*
*Correspondence: E-mail:
levine@lifesci.ucsb.edu

What factors allow native species to persist with invaders once the latter have established?

*“[...] it has received **almost no attention** in the invasions literature. Perhaps this reflects an assumption that spread and impact are inevitable outcomes once invaders establish, yet only a small fraction of invaders ever reach high abundance or exert large impacts“*

Variations of the Earth's surface temperature: year 1000 to year 2100

Departures in temperature in °C (from the 1990 value)



Nutzen?

Assessment and
Management of Plant
Invasions



James O. Luken
John W. Thieret
Editors

 Springer

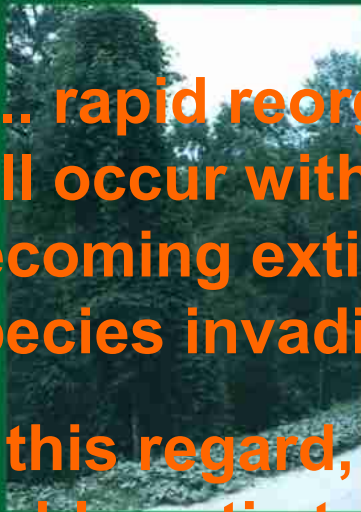
Potential Valuable Ecological Functions of Nonindigenous Plants

Charles E. Williams

„ ... rapid reorganization of ecological communities will occur with indigenous species shifting ranges or becoming extinct, and preadapted non-indigenous species invading vacant niches [...].“

Nutzen?

Assessment and
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Potential Valuable Ecological Functions of Nonindigenous Plants

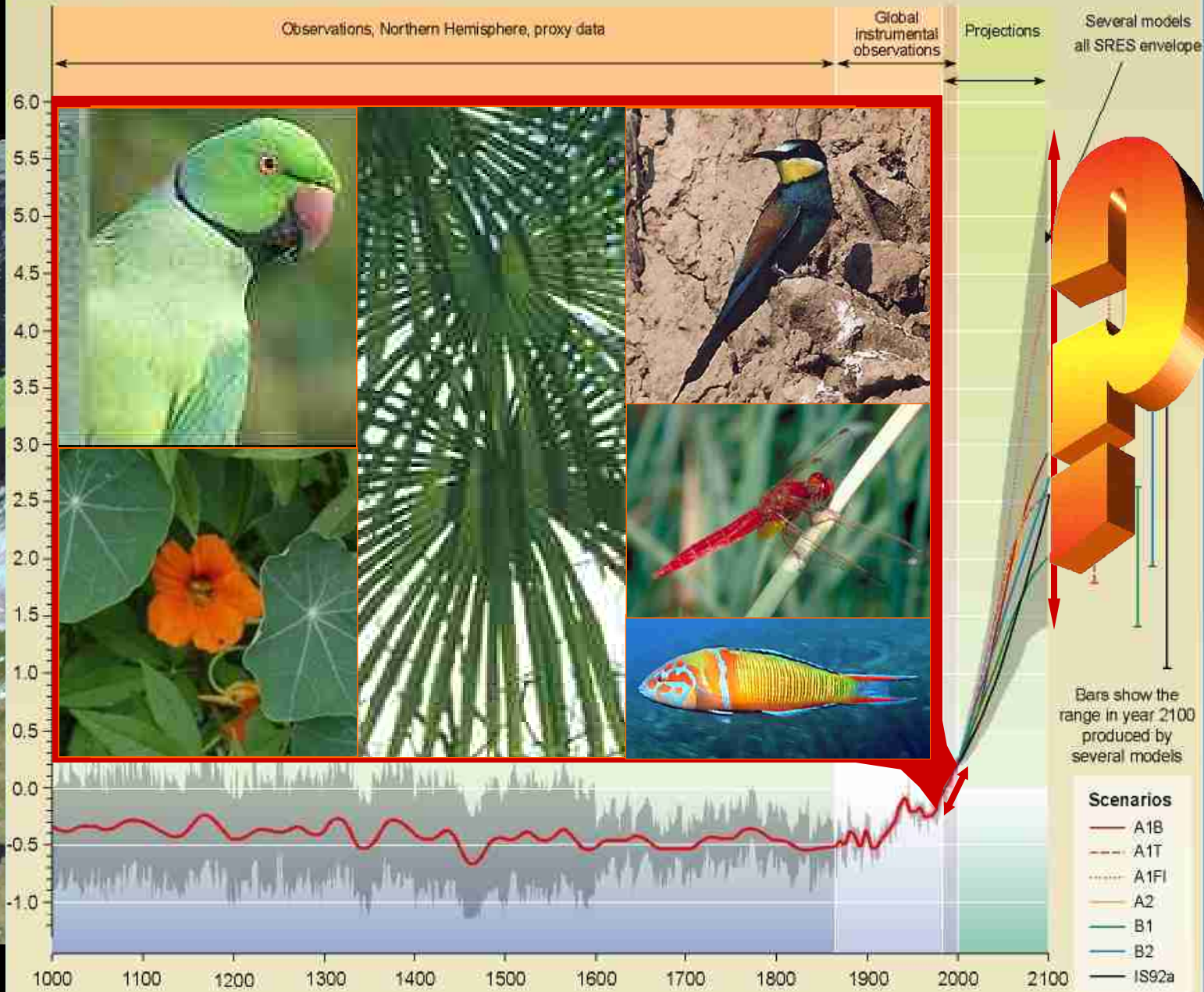
Charles E. Williams

„ ... rapid reorganization of ecological communities will occur with indigenous species shifting ranges or becoming extinct, and preadapted non-indigenous species invading vacant niches [...].

In this regard, an non-indigenous species considered problematic today may have considerable ecological value in the future, perhaps playing key structural and functional roles in post-climate change communities.“

Variations of the Earth's surface temperature: year 1000 to year 2100

Departures in temperature in °C (from the 1990 value)



Variations of the Earth's surface temperature: year 1000 to year 2100

Departures in temperature in °C (from the 1990 value)



Welche Arten sind am besten angepasst?

Sind es nach wie vor die heimischen Arten?

Welche Arten erfüllen die ökologischen Funktionen?

Wo überleben die heimischen Arten?