KOPPERT

BIOLOGICAL SYSTEMS

New possibilities with old natural enemies

Tom Groot, Manager R&D Entomology

NEED FOR MORE BIOLOGICAL CONTROL

- To ensure the availability of enough and healthy food in the future, the use of biological control will have to increase
- Many species still need to be tested as potential useful natural enemy

We should go and search for new natural enemies!

PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B

Phil. Trans. R. Soc. B (2008) **363**, 761–776
doi:10.1098/rstb.2007.2182
Published online 6 September 2007

Biological control and sustainable food production

J. S. Bale[1,*], J. C. van Lenteren[2] and F. Bigler[3]

BioControl
DOI 10.1007/s10526-011-9395-1

FORUM PAPER

The state of commercial augmentative biological control: plenty of natural enemies, but a frustrating lack of uptake

Joop C. van Lenteren

CHALLENGES TO DEVELOP NEW NATURAL ENEMIES

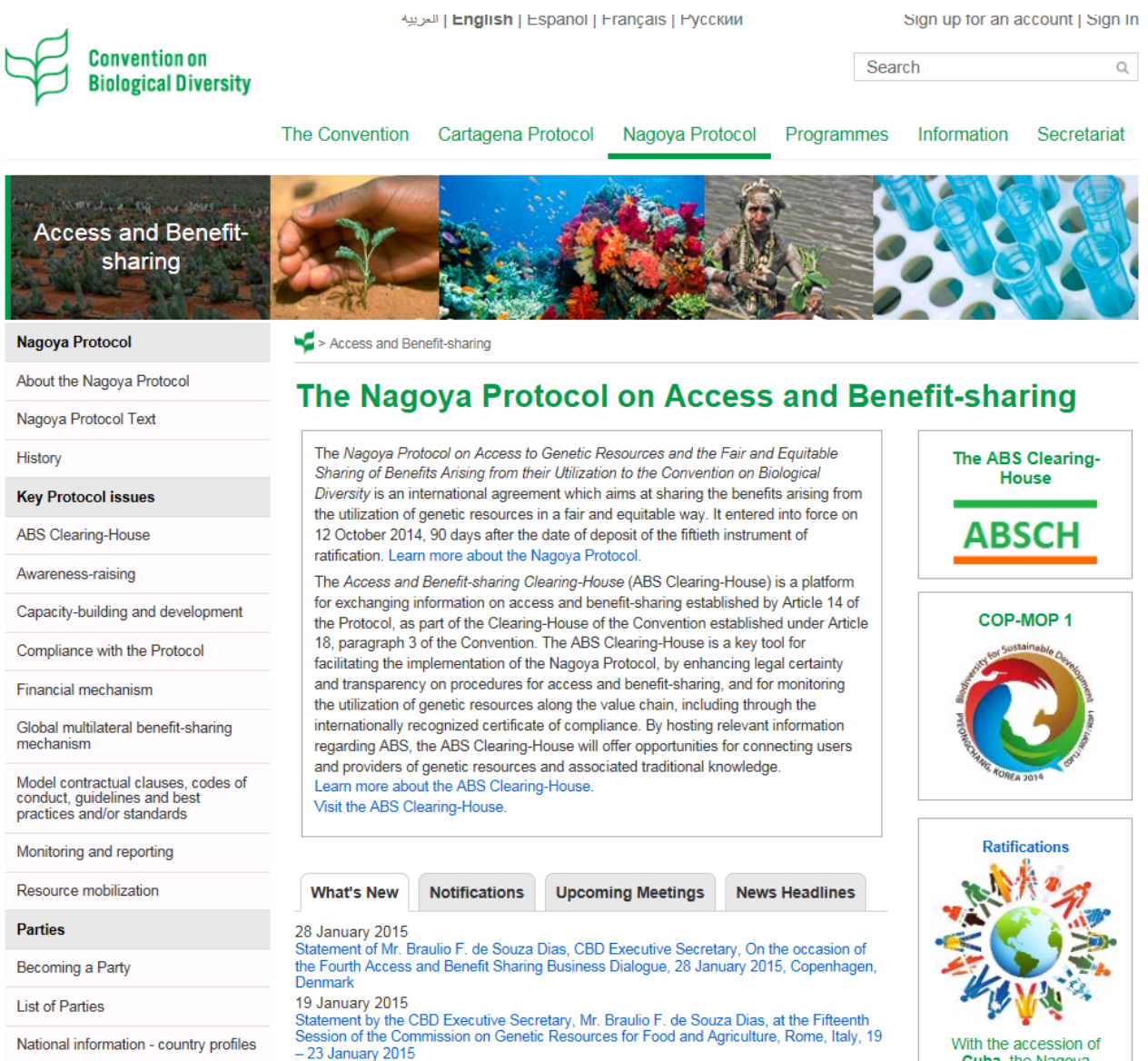
The Nagoya Protocol on Access and Benefit-sharing

- Acknowledges the need to share the benefits of genetic resources
- requires agreement on how to share before organism is collected
- Will provide clarity on fair procedures and sharing

Increasing awareness of potential risks of introducing exotic natural enemies

- Stricter demands in risk analysis
- More complex registration procedures

https://www.cbd.int/abs/



CHALLENGES TO DEVELOP NEW NATURAL ENEMIES

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The conflict

- Need more natural enemies
- It’s harder to develop new species

Solutions

- Search for native natural enemies
  - Need local research
  - Need local production
- Improve the current (old) natural enemies

EXAMPLE FROM THE PAST: INTRODUCTION SYSTEM

Neoseiulus cucumeris

introduction: 1985

improvement: 1991

Benefits of the sachets

- cheaper
- easier to distribute
- no spilling
- extended period
- no carrier material on the crop

EXAMPLE FROM THE PAST: INTRODUCTION SYSTEM

Other improved introduction systems

RECENT EXAMPLE: NEW REARING TECHNIQUES

Cryptolaemus montrouzieri

Mass reared since early 20th century

Fisher 1963: mealybugs on potato sprouts

Expensive

Excellent fliers

Phototaxis

RECENT EXAMPLE: NEW REARING TECHNIQUES

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Cryptolaemus montrouzieri

New rearing method using alternative an food source

Large scale availability of larvae

At a competitive price

FUTURE EXAMPLE: SELECTIVE BREEDING

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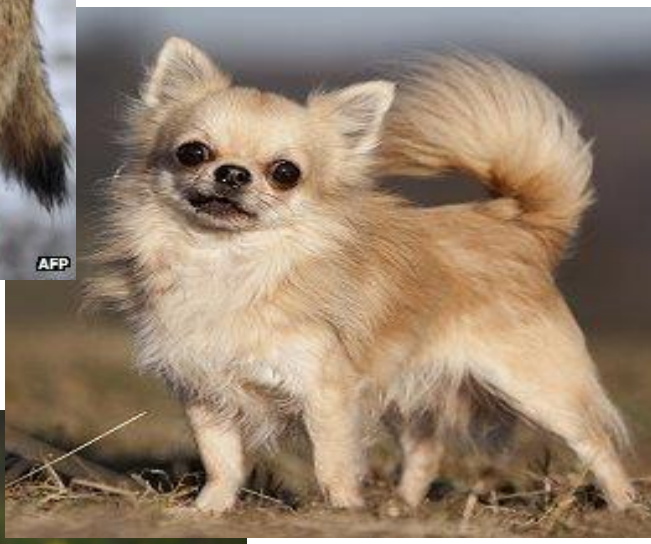
Selective breeding



insects

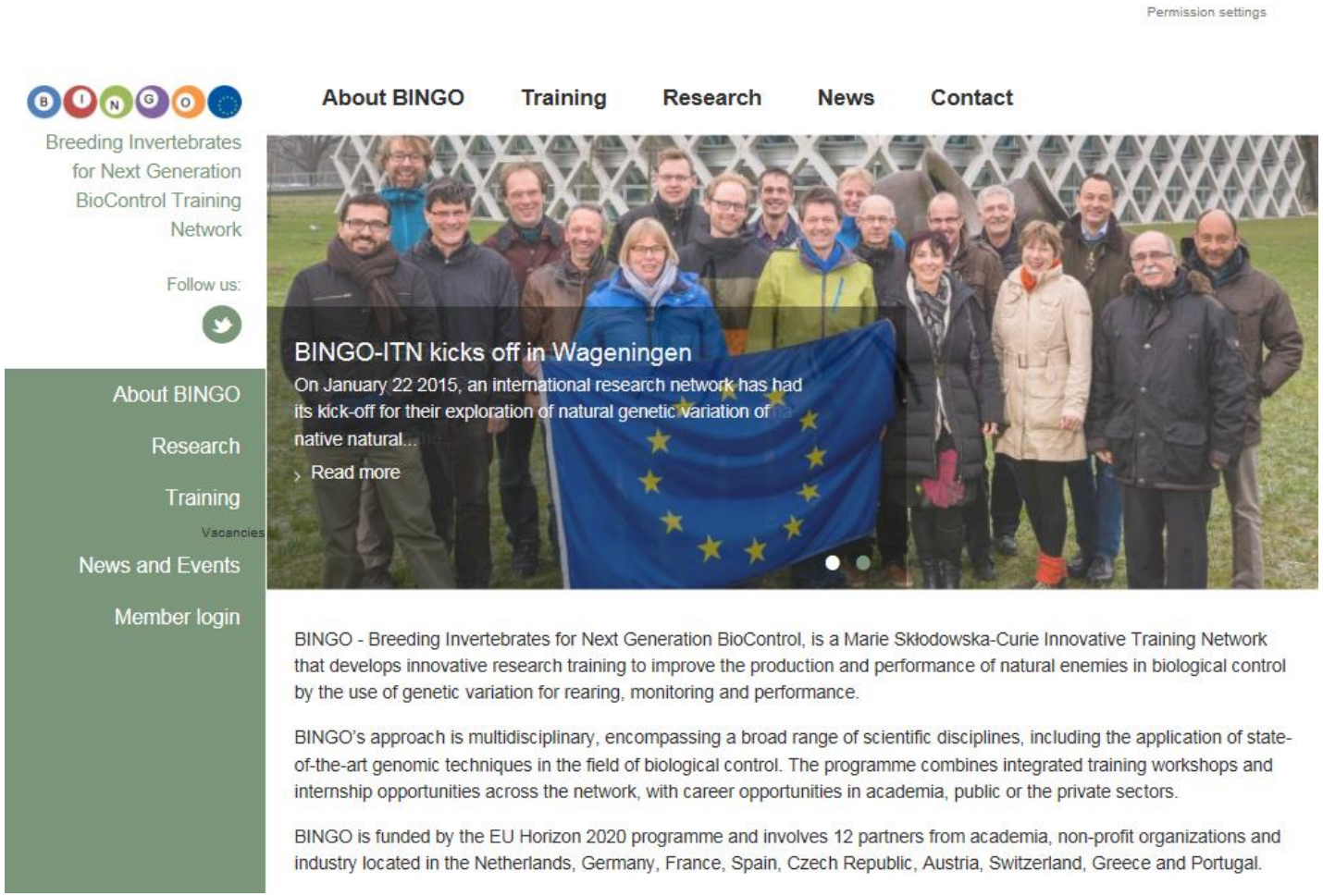
- Silk worms
- Honey bees
- Medfly

FUTURE EXAMPLE: SELECTIVE BREEDING

Started jan 2015

13 projects

http://www.bingo-itn.eu/



FUTURE EXAMPLE: SELECTIVE BREEDING

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RP3 Promoting adaptability of Amblyseius swirskii predatory mites to tomato crop

Instituto Valenciano de Investigaciones Agrarias

FUTURE EXAMPLE: SELECTIVE BREEDING

RP10 Minimizing plant damage through selected *Nesidiocoris tenuis*

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FUTURE EXAMPLE: SELECTIVE BREEDING

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RP11 Expanding the range of uses of Phytoseiulus persimilis

Koppert Biological Systems

TAKE HOME MESSAGE

We do need more species of natural enemies!

But we should not forget the “old” natural enemies