Nature conservation and phytosanitary measures: The German federal perspective and activities on IAS

Frank Klingenstein

For technical reasons presentation with a reduced number of pictures
Nature conservation and phytosanitary measures: The German federal perspective and activities on IAS

1) Biological globalisation:
   a) global situation
   b) situation in Germany

2) Criteria of invasiveness for conservation

3) Options for action

4) Relation to other stakeholders

5) National activities in Germany
„It disturbs me that I do not know all these herbs, bushes and plants, which may be very valuable for use as dyes, medicine or spices. I will take home samples of most of them.“ (18.10.1492)
Geographical Isolation as Basis for Evolution = Diversity

varieties of Great Tit
(Parus major)
Biological Globalisation: the Case of Hawaii

natural migration:
1 species in 50,000 years = 1,200 species

Polynesian settlers 1,400 years ago:
1 species in 30 years = 45 new species

since the discovery by Cook in 1778:
1 species in 2 months = 1,000 new species

The biomass of alien species exceeds that of indigenous species

source: Davis et al. 1995, WWF & IUCN
Reasons for Extinction of Animals since 1600

- Alien species: 39%
- Destruction of habitats: 36%
- Hunting: 23%
- Others: 2%

Spread of Agriculture in Europe

[Benecke 1994]
Red List of Vascular Plants in Germany

2,272 indigenous species
+ 228 archaeophytes
= 2,500 rated species

653 threatened / extinct

59 aliens = archaeophytes (~10%)

~20% of all archaeophytes are threatened / extinct

→ archaeophytic alien species are often of special concern for conservation
„alien“ ≠ „bad“
→ need for criteria
1) direct:

increased consumption by predators
e.g. European Mink (*Mustela vison*)
Bullfrog (*Rana catesbeiana*)

increased parasitism and spread of
diseases
e.g. Dutch elm disease by the Large
Elm Beetle (*Scolytus scolytus*) or Swim
Bladder Nematode (*Anguillicola crassus*) by American, Japanese or
Asian Eels (*Anguilla rostrata*, *A. japonica*, *A. latirostris*)
2) competition for habitats or resources

suppression in the ecological niche
e.g. indigenous *Rosa spinossisima* by the alien *R. rugosa*, Raccoon Dog (*Nyctereutes procyonoides*) versus Fox (*Vulpes vulpes*)

suppression of communities
e.g. by Knotweeds (*Fallopia* spec.)
Invasiveness = Ecological Threat

3) indirect: change of ecological conditions

change of site conditions
e.g. eutrophication by False Acacia (*Robinia pseudacacia*), toxic alien algae

change of food chains
4) “genetic pollution”

change of the genetic diversity of indigenous species by crossing with alien species or indigenous species of foreign origin

e.g. garden plants of European Columbine (*Aquilegia vulgaris*)
Options for Action

established alien species

- not invasive
  - acceptance
- not known
  - monitoring
- invasive
  - control
Options for Action

„new“ alien species

unintended introduction

intended introduction

building awareness

information

established alien species

not invasive

not known

invasive

acceptance

monitoring

control

legislation

risk assessment etc.

information/research

information/research

research
Relation of Conservation to other Stakeholders

Galinsoga
alien weed on fields
no ecological threat
agricultural / economical damage
→ control measures are not conservation measures
Relation of Conservation to other Stakeholders

Douglas Fir (*Pseudotsuga menziesii*)
- cultivated forestry tree
- ecological threat
  - conflict between conservation and forestry
Relation of Conservation to other Stakeholders

Common Ragweed
(*Ambrosia artemisiifolia*)

alien plant in man made habitats

agricultural weed and threat to human health

→ *until now* no ecological threat
Giant Hogweed
(*Heracleum mantegazzianum*)

alien plant in natural and man made habitats

threat to nature, agriculture and human health

Relation of Conservation to other Stakeholders
Relation of Conservation to other Stakeholders

Campylopus Moss (*Campylopus introflexus*) threatens plant communities on rock and sand → applicability of phytosanitary measures?
Consequences

measures to prevent and control invasive alien species should be harmonized and cooperative

Disadvantages of the Plant Protection System:
- only plants as subjects of protection
- mainly covers prevention of introductions
- no implementation for IAS yet
- possible conflicts with nature conservation with regard to measures and species

Disadvantages of Nature Conservation:
- no established system
- no regular international coordination
- reduced possibilities for prevention
up to 55 characteristics on taxonomy, morphology, ecology, threat, use, butterflies etc. from 13 scientific standard works or ongoing projects

including degree of naturalisation

distribution maps on the basis of the national floristic mapping program

photos

for all 3,500 wild growing vascular plants in Germany

www.floraweb.de
www.neophyten.de

- basic information on alien plants in Germany
- handbook with data sheets for 30 invasive species
- including discussion forum for these species
- possibility to exchange and assess information
Early Warning System

intended extension of the existing forum and floristic mapping activities

vor 1950  1980  2003
30% of all alien plant species have been introduced as ornamental plants.

→ develop measures for market control.
development of criteria and establishment of a certification system for native seed stocks of known local proveniences to implement § 8h of the CBD and § 41(2) of the National Conservation Act on a genetic scale
Survey of the Regional Conservation Agencies

- occurring and controlled invasive species
- experiences with measures (effectiveness, costs etc.)
National Strategy

to implement the Guiding Principles of the CBD by suggesting
- enhancement / harmonization of legislation and measures
- commitment of cooperation / responsibilities of stakeholders