

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

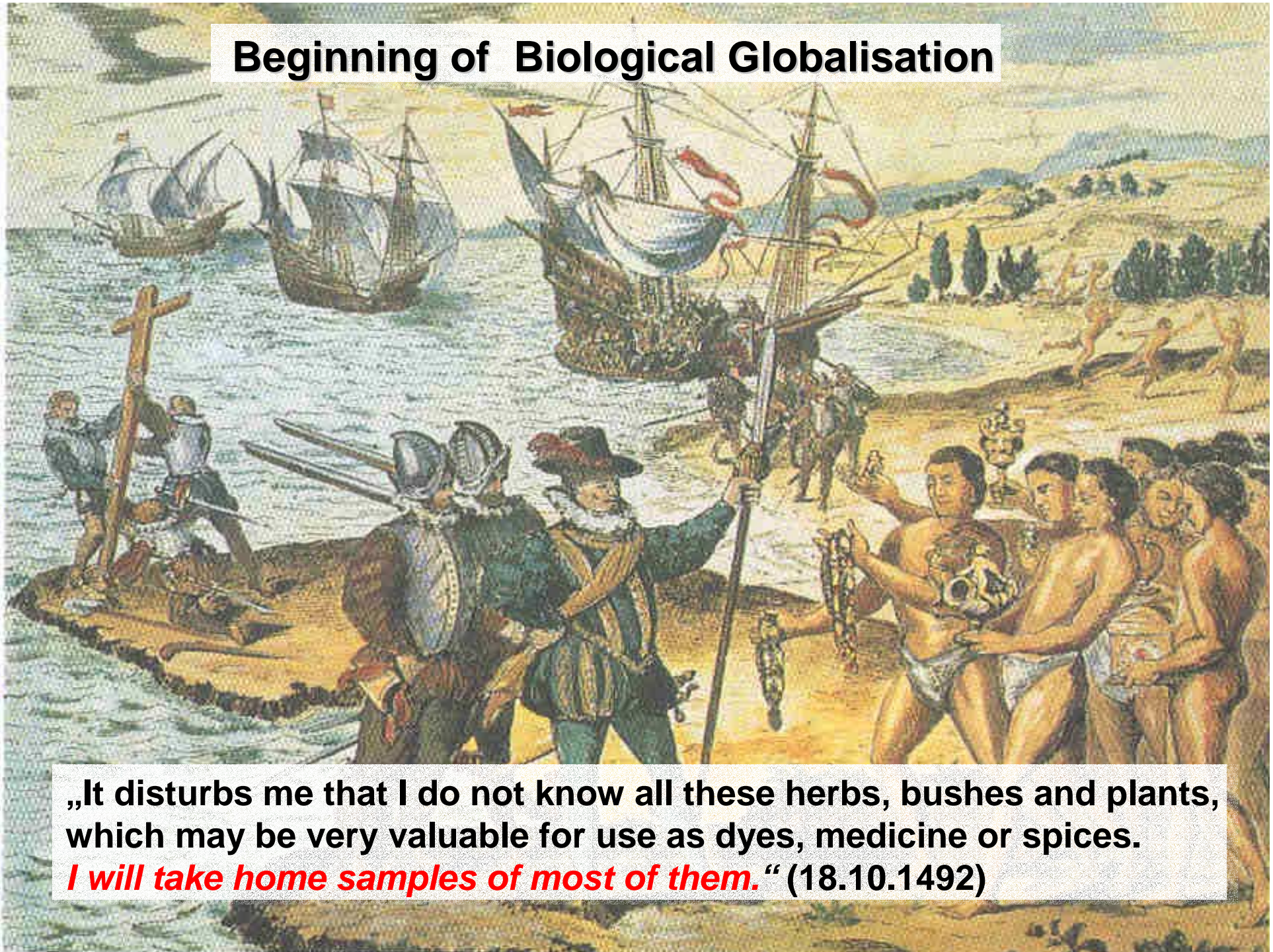
Frank Klingenstein

*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**

## Beginning of Biological Globalisation



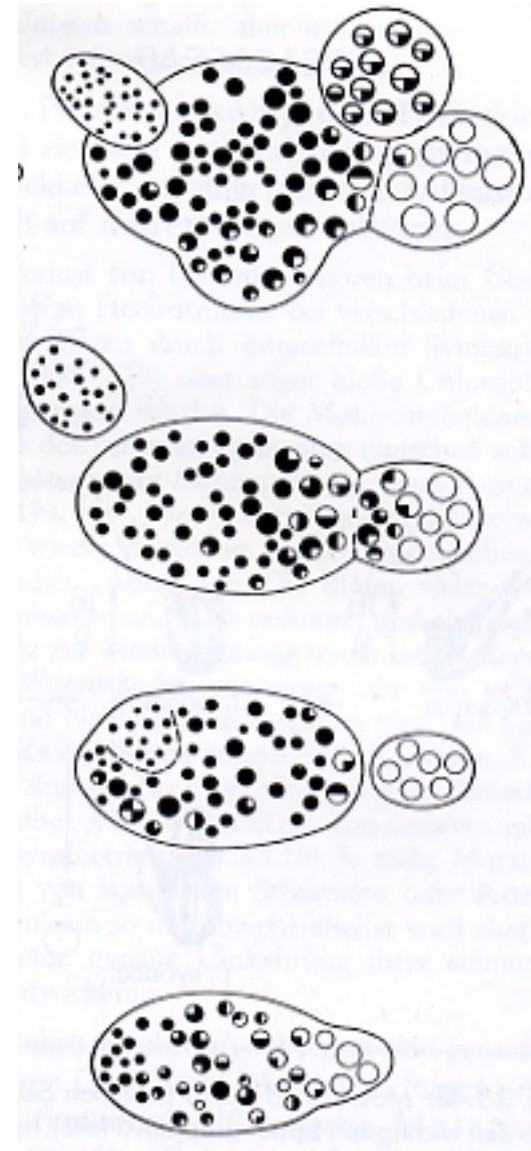
„It disturbs me that I do not know all these herbs, bushes and plants, which may be very valuable for use as dyes, medicine or spices.

*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:**

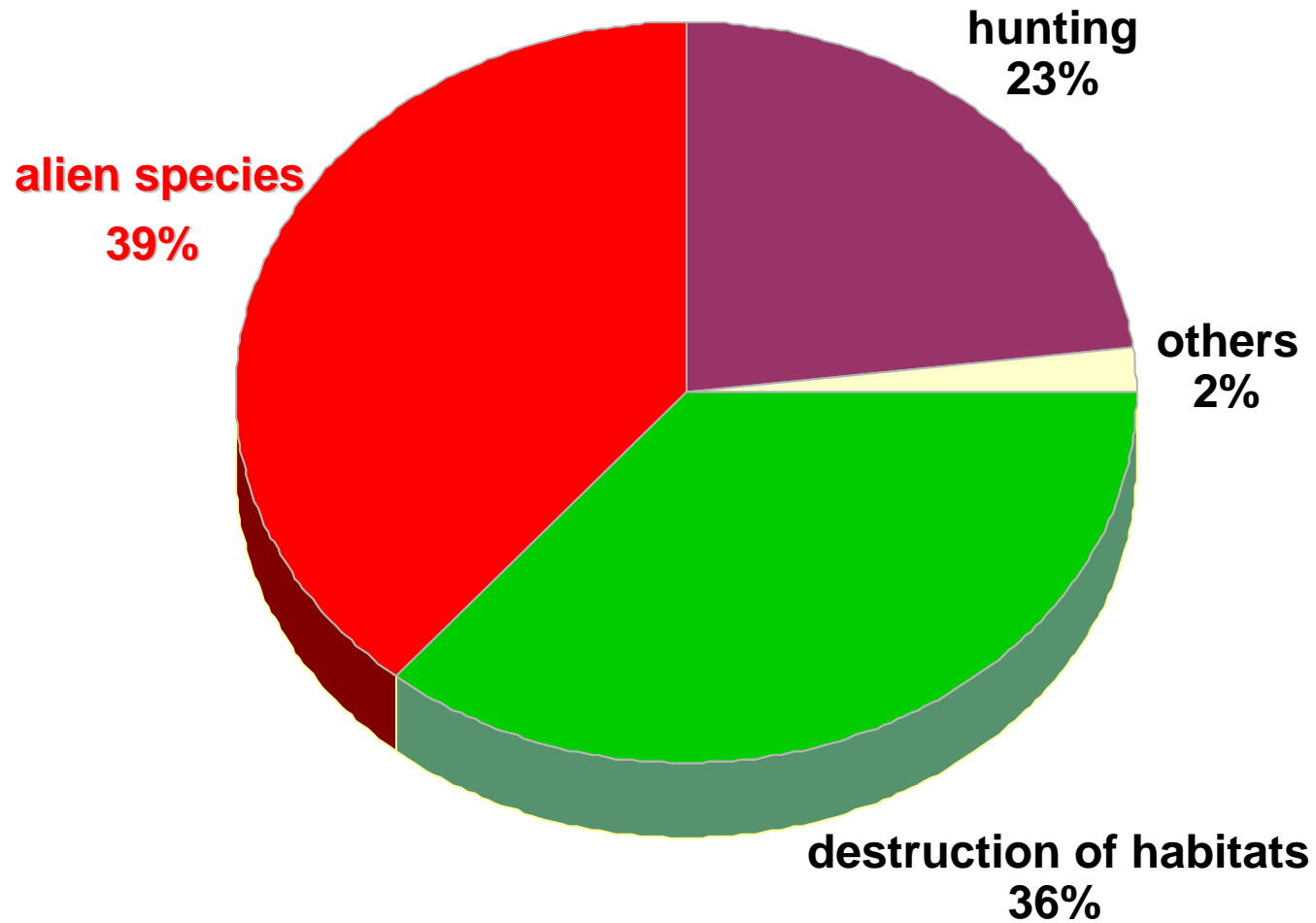
**1 species in 30 years = 45 new species**

**since the discovery by Cook in 1778:**

**1 species in 2 months = 1.000 new species**

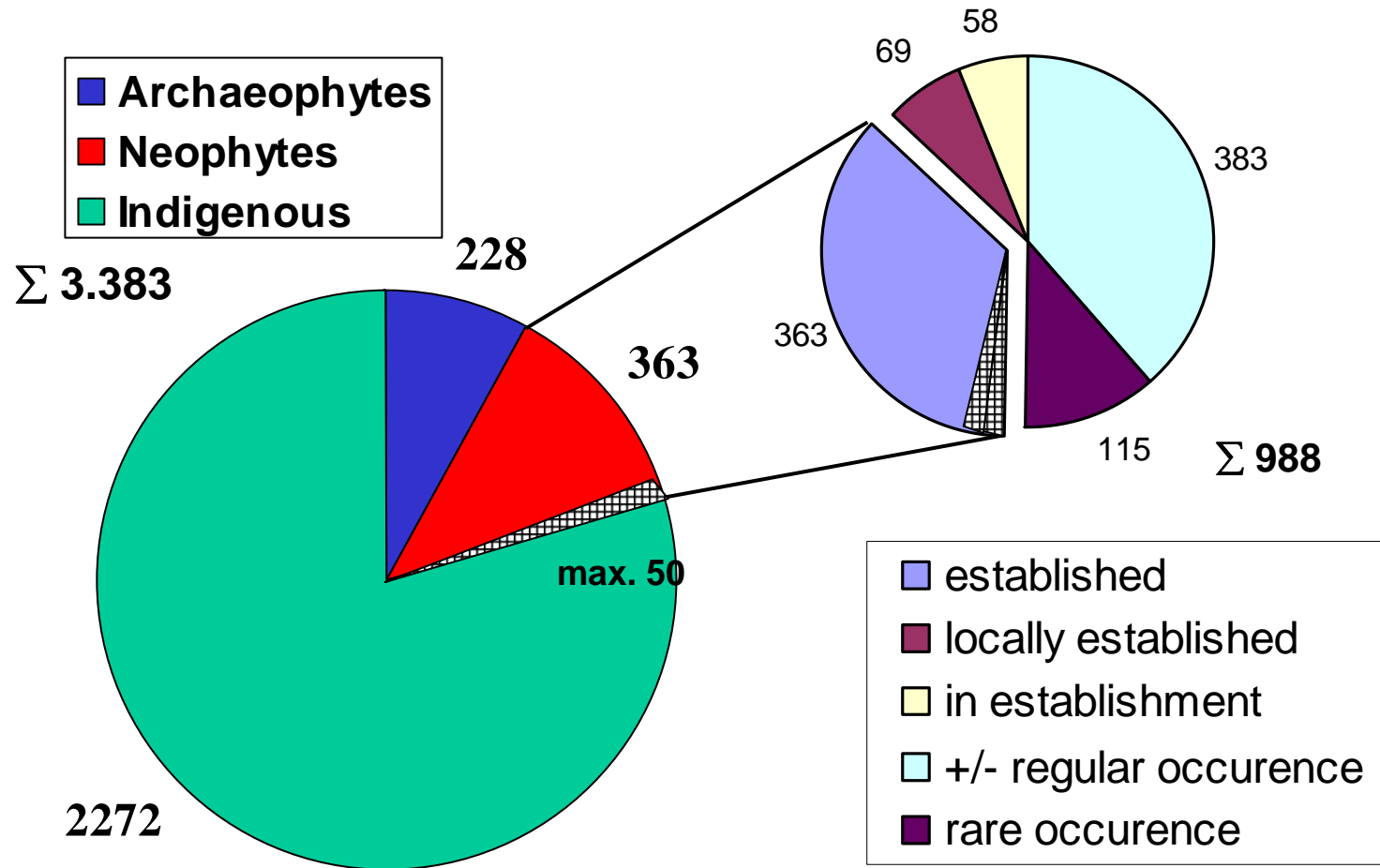
**The biomass of alien species  
exceeds that of indigenous species**

## Reasons for Extinction of Animals since 1600



source: World Conservation Monitoring Centre, „Global Biodiversity“ (1992)

# Neophytes in Germany



# Spread of Agriculture in Europe







# 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**



# Invasiveness = Ecological Threat

---

## 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*)



# Invasiveness = Ecological Threat

---

## 2) competition for habitats or resources

### suppression in the ecological niche

e.g. indigenous *Rosa spinosissima* 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**



## Invasiveness = Ecological Threat

---

### 4) “genetic pollution”

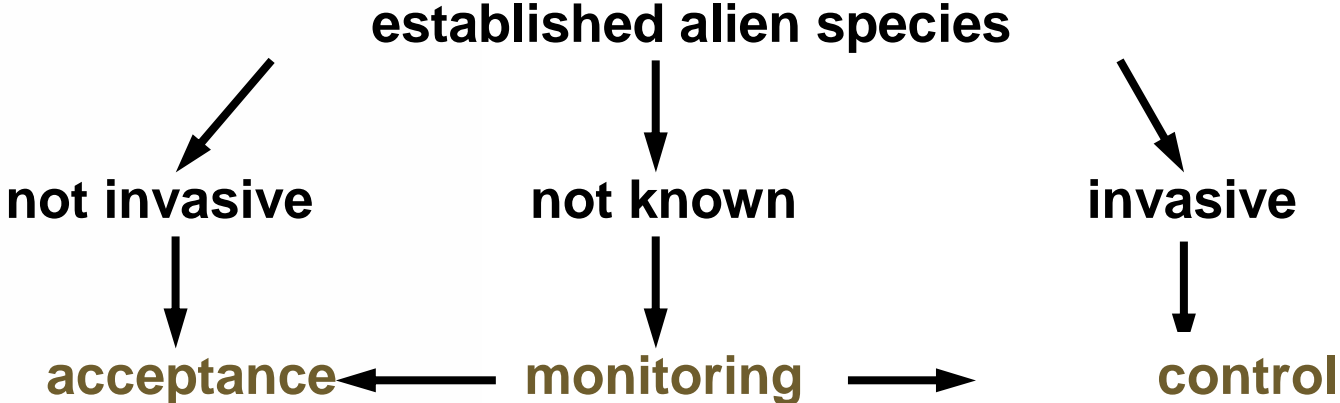
**change of the genetic diversity of indigenous species by crossing with alien species or indigenous species of foreign origin**

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



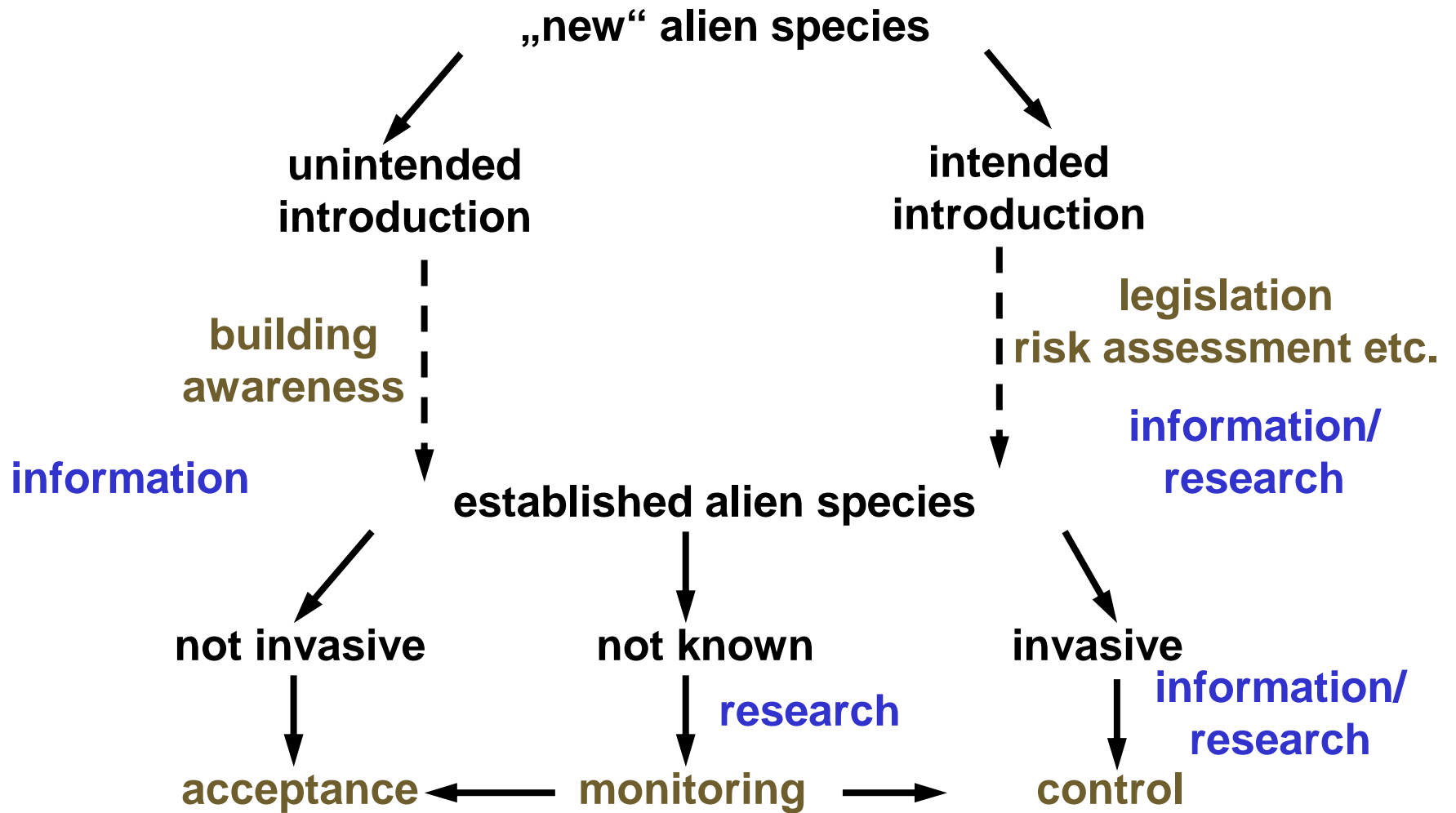
# Options for Action

---





# Options for Action



# 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**

## Relation of Conservation to other Stakeholders



**Giant Hogweed**  
**(*Heracleum mantegazzianum*)**

**alien plant in natural and man made habitats**

**threat to nature, agriculture and human health**

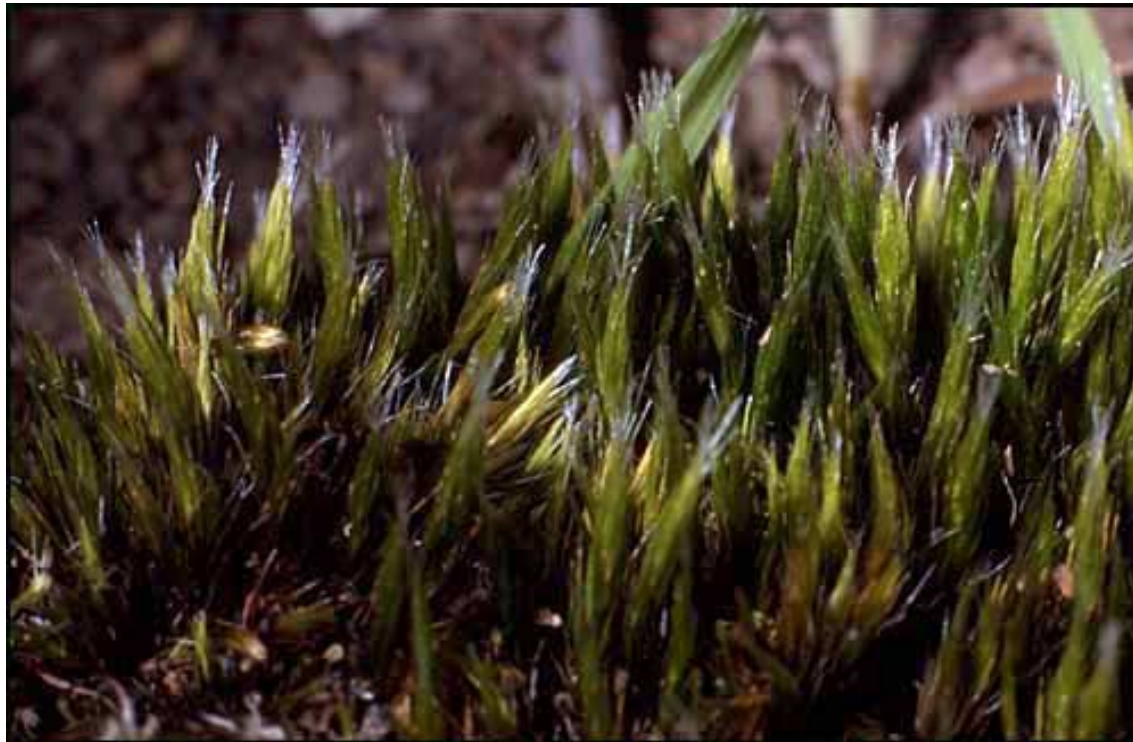


## Relation of Conservation to other Stakeholders

**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**

[www.floraweb.de](http://www.floraweb.de)

- **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.neophyten.de](http://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

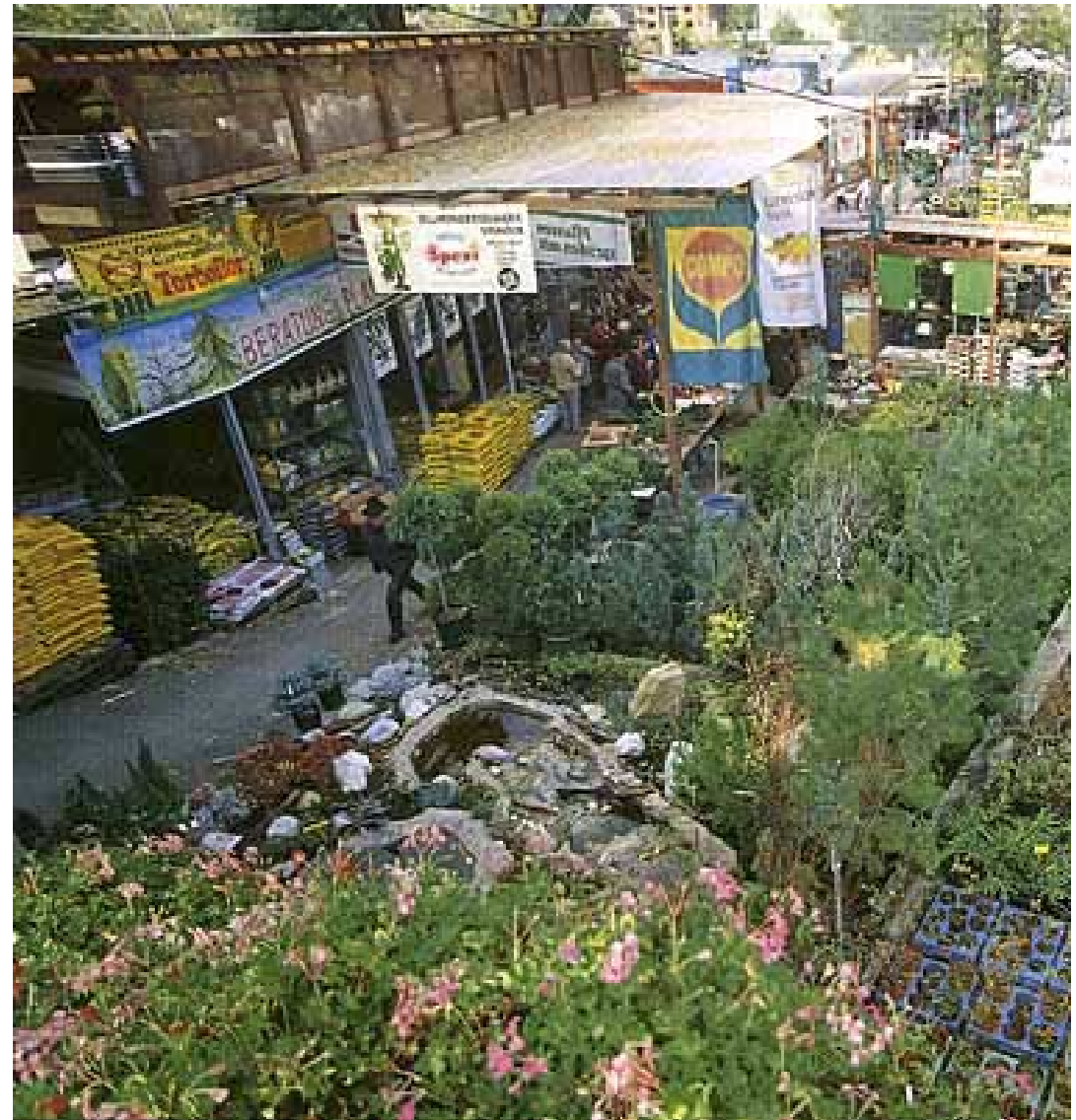
2003



## Improve and Implement Legislation and Regulations

**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**