MANAGEMENT OF INTRODUCED TREE SPECIES IN THE DONAU-AUEN NATIONAL PARK

INTERNATIONAL CONFERENCE: INTRODUCED TREE SPECIES TO EUROPEAN FORESTS

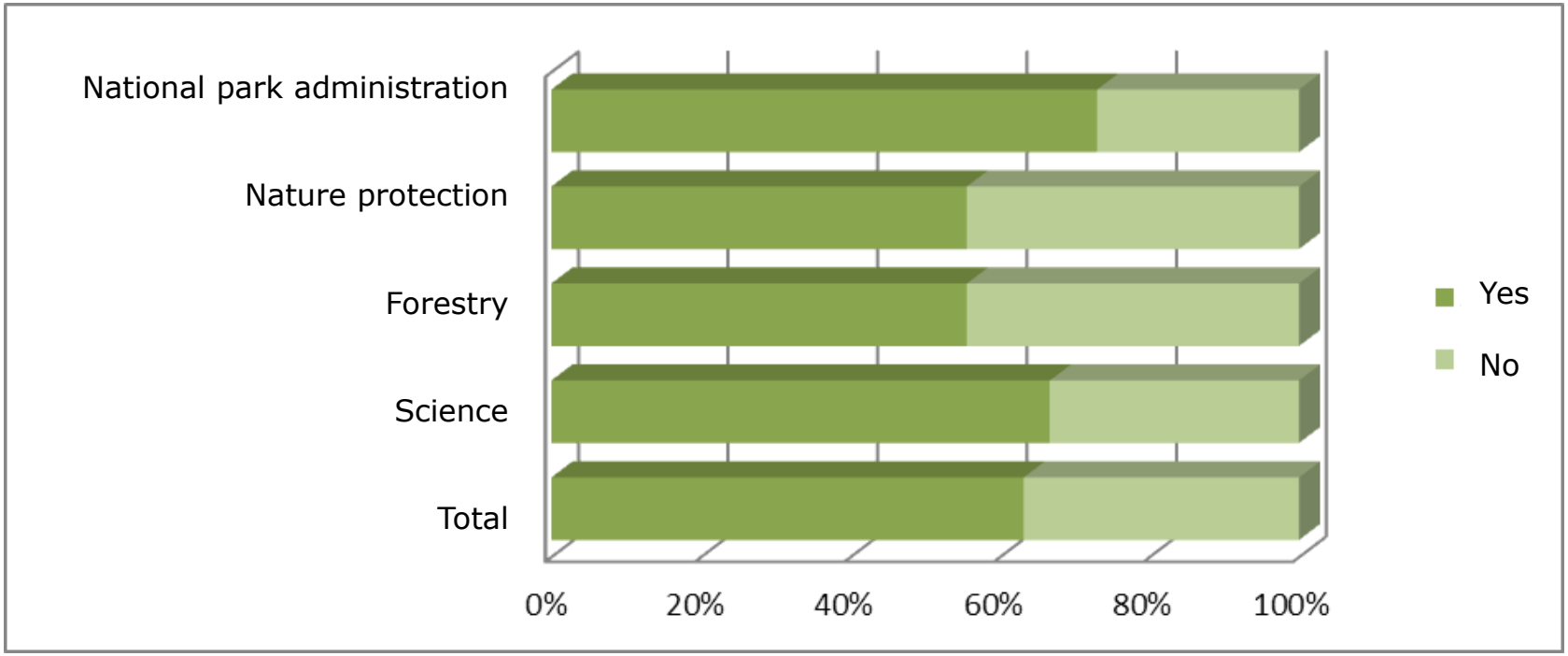
02-04.11.2016, MONTE VERITÁ, SWITZERLAND

ÖSTERREICHISCHE BUNDESFORSTE

HOW TO DEAL WITH INVASIVE AND INTRODUCED SPECIES IN PROTECTED AREAS

- Do introduced and invasive species disturb natural dynamics of protected areas or ar they part of it?
- This question is rather difficult to answer, especially in protected areas where no-intervention on a large scale plays decisive role (national parks, wilderness areas)!
- Permanent interventions for erradication of invasive neobiota are incompatibel with the principle of no-intervention!
- But national parks cannot justify the „inaction" towards the public and nature protection interest groups!

HOW TO DEAL WITH INVASIVE AND INTRODUCED SPECIES IN PROTECTED AREAS



Necessity of managing introduced species in wilderness areas (Source: study „Wildnisgebiete im Klimawandel" ÖBf/WWF)

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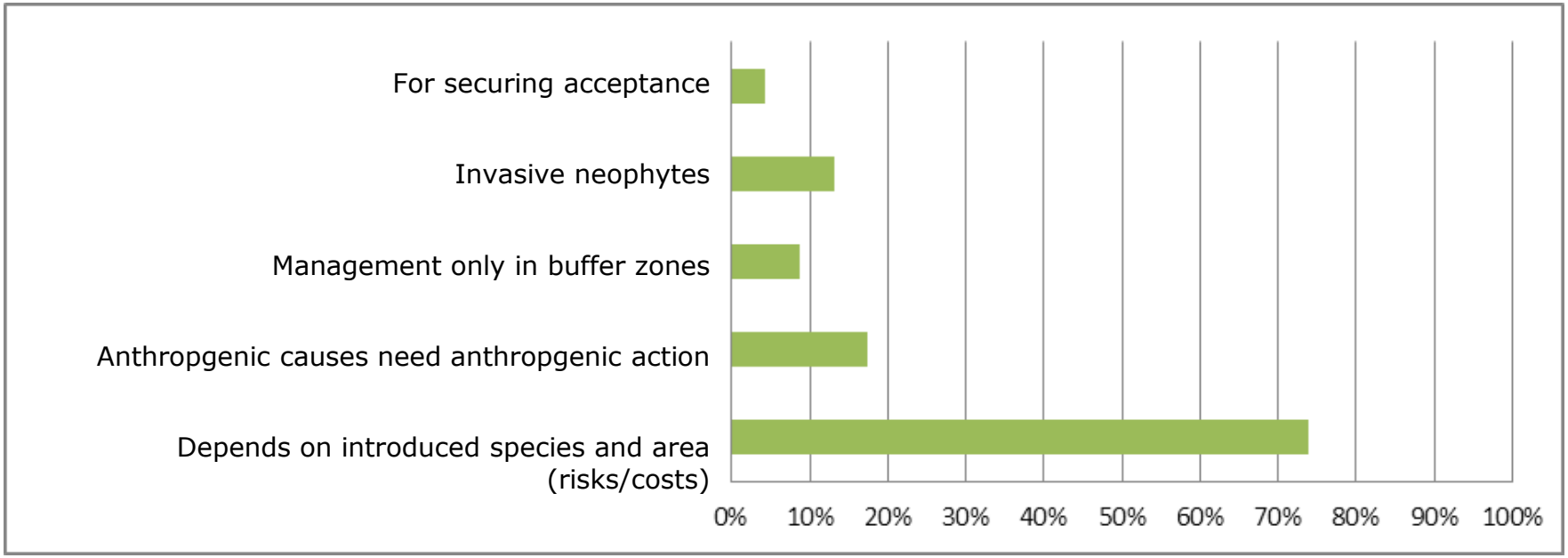


Management approaches of introduced species in wilderness areas
(Source: study „Wildnisgebiete im Klimawandel" ÖBf/WWF)

CHALLENGING PROCESS OF DECISION MAKING

1. Status quo and and dynamic assessment
2. Elaborate principles and premisses for a succesful neophyte management
3. Elaborate different management methods and evaluation critera
4. Discussion and decision making
5. Implementation

ASSESSING THE DYNAMICS OF INTRODUCED SPECIES

species	No° of stems 1998/99	No° of stems 2008/09	Changes
Robinia	52.967	105.934	+ 100%
A. negundo	1.531.962	1.026.740	- 33%
Ailanthus	403.362	973.774	+ 141%

Regeneration stage (trees < 1,30 m height)

species	No° of stems 1998/99	No° of stems 2008/09	Changes
Robinia	32.586	38.706	+ 19%
A. negundo	97.785	79.450	- 19%
Ailanthus	42.781	63.153	+ 48%

Thicket-stage (trees DBH 5 – 10 cm)

species	No° of stems 1998/99	No° of stems 2008/09	Changes
Robinia	82.744	73.126	- 12%
A. negundo	82.580	104.556	+ 27%
Ailanthus	42.318	44.148	+ 4%

Tree layer (trees > 10 cm DBH)

Source: Naturrauminventur 2008/09

ESTIMATION OF GROWTH DYNAMICS

Alter	BL	EA	EI	ES	FA	GB	GE	HB	JN	LI	NU	RO	TK	WD	WP	SUMME
5	35,5															35,5
10		4,8	2,4	10,4	2,0	16,4		0,0		0,5	3,5	2,5	0,1	1,0	3,9	47,6
15		0,6														0,6
20		3,4	0,1	8,1	1,0	1,9	0,6	0,1	0,6	0,1	3,2	0,5	1,8	0,9	3,2	25,5
Gesamt	**35,5**	**8,8**	**2,5**	**18,5**	**3,0**	**18,3**	**0,6**	**0,2**	**0,6**	**0,6**	**6,7**	**3,0**	**1,9**	**1,9**	**7,1**	**109,1**

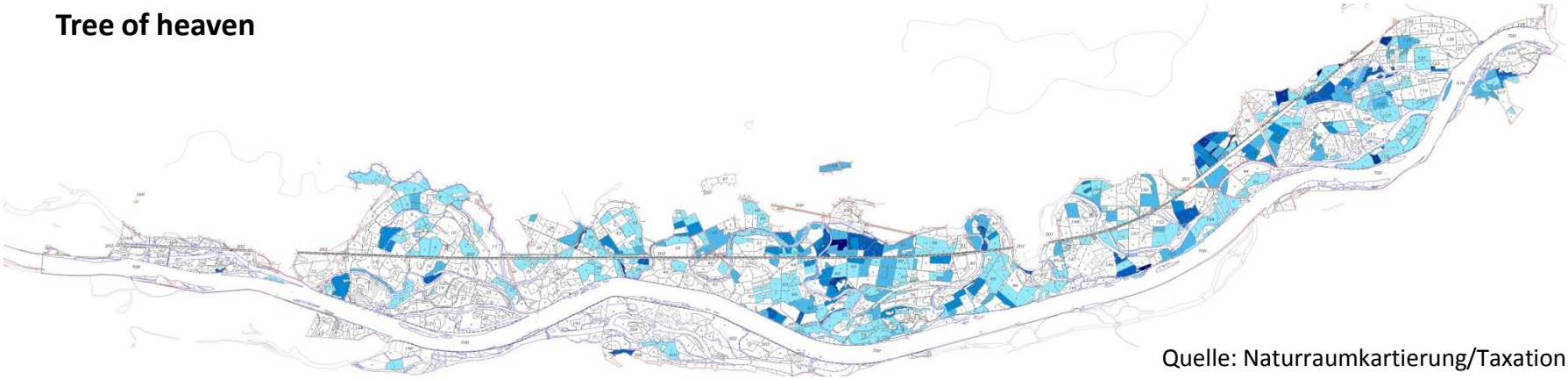
Proportion of tree species in age class 5-20 Jahre (EA = Ash-leaved maple, GB = Tree of heaven, RO=Black locust)

Source: Naturraumkartierung/Taxation 2011/12

DISTRIBUTION TREE OF HEAVEN AND ASH-LEAVED MAPLE

Ash-leaved maple

Tree of heaven



Quelle: Naturraumkartierung/Taxation 2011/12

TREE OF HEAVEN IN NATURAL REGENERATION LAYER

THE AIM

› Eradicate invasive tree of heaven, ash-leaved maple and black locust under 1 % on the National Park area for the next 35 years.

IMPLEMENTIATON

- Ensure the needed ressources
- Mapping and signing indivual trees across the park area
- Managing the girdling operations
- Constant control of proceedings and monitoring of sucess
- Conducting post-treatments (sprout removal)

RESULTS OF GPS-MAPPING

GIRDLING ASH-LEAVED MAPLE

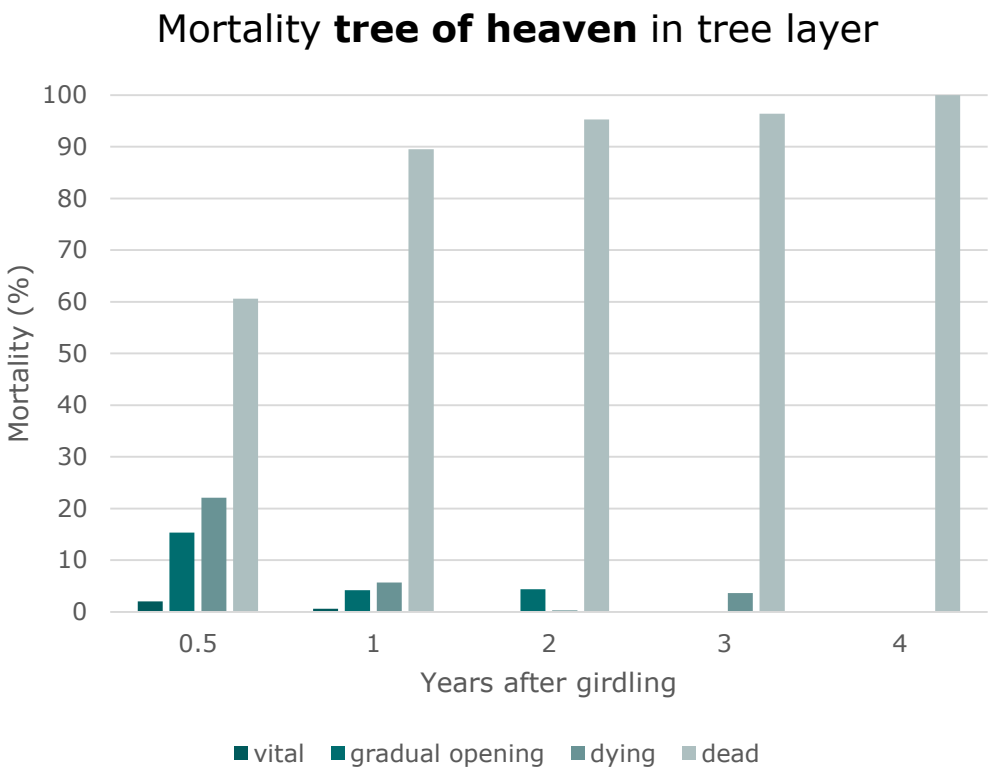
ERRADICATE YOUNG STANDS OF TREE OF HEAVEN WITH ROTARY CULTIVATOR

GIRDLED TREE OF HEAVEN STAND

STATUS OF IMPLEMENTATION

- 72.000 tree of heaven trees and 48.500 ash leaved maples have been located and marked via GPS on an area of 3.000 ha.
- Ca. 90.000 trees out of these were girdled
- Establishment of 20 monitoring plots success control
- Total costs until now: € 232.000,- (mapping, girdling, monitoring, project management
  - € 1,95/tree
  - € 98,-/ha

MONITORING RESULTS



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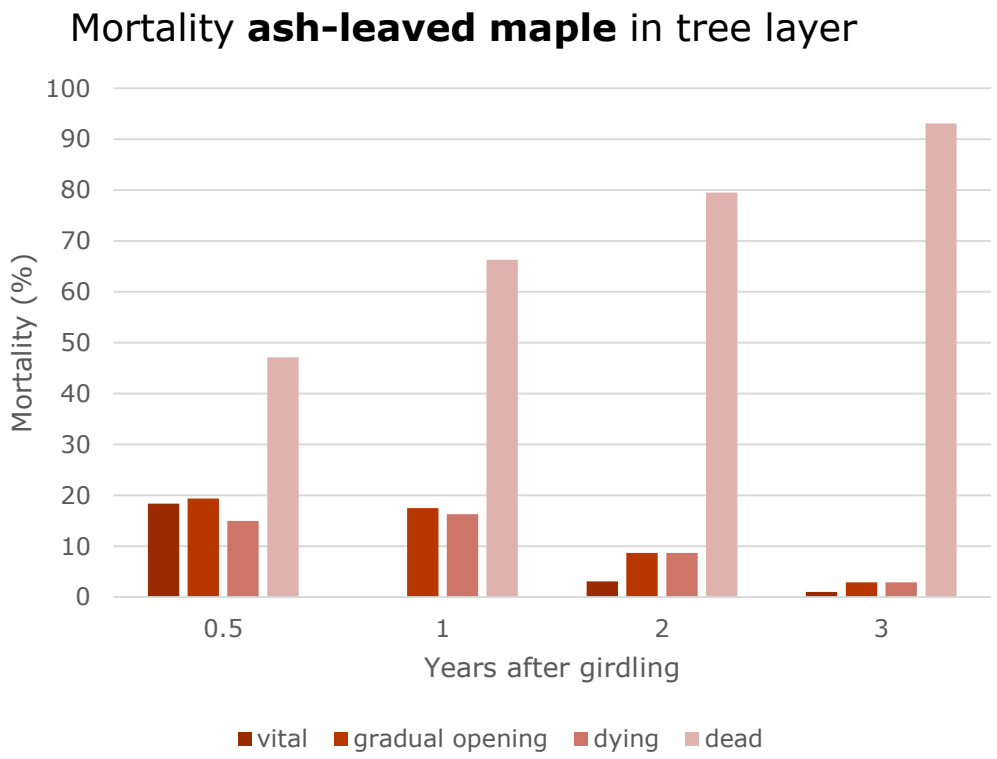
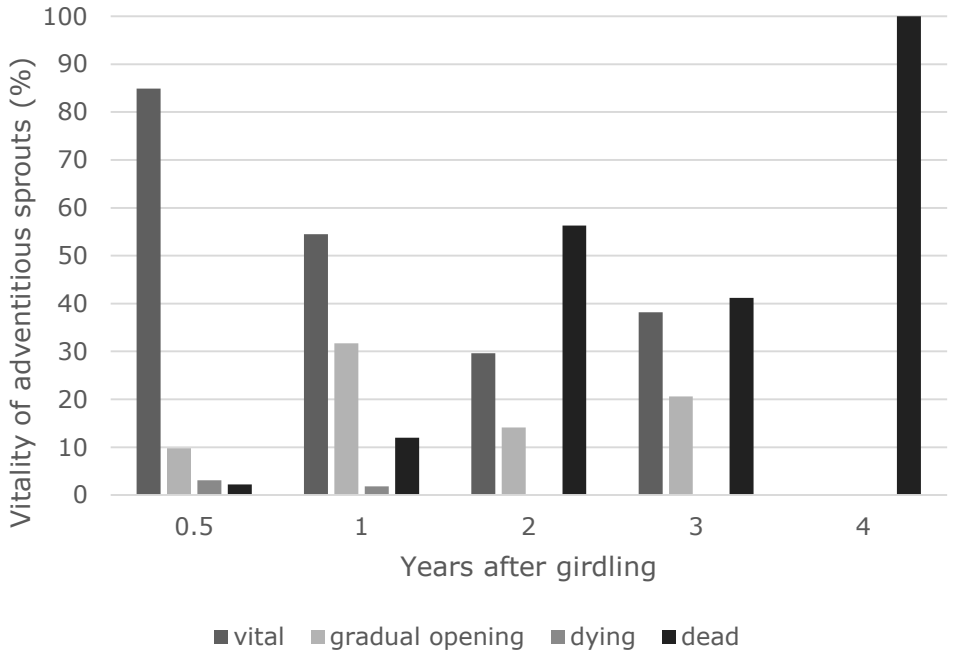


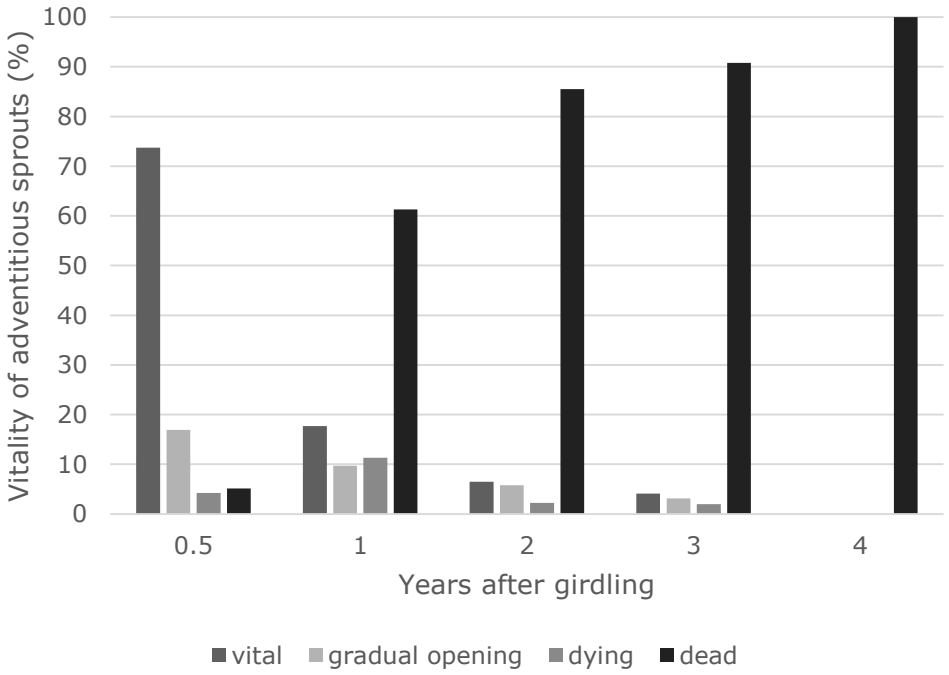
MONITORING RESULTS

Vitality of adventitious sprouts at dead or dying **tree of heaven** trees



MONITORING RESULTS

Vitality of adventitious sprouts at dead or dying **ash-leaved maples**



LESSONS LEARNED

- Topic must be analysed and discussed in all proteced areas in Austria
- Clear and transparent decision making – intervention yes/no
- Management of invasive neopyhtes is compatible with the idea of no-intervention if the meassures are limited in time and have chances of success.
- Neophyte management is affordable
- Key success factor: motivated forestry staff with local knowledge

Should tree of heaven be included in the list of invasive species of European concern?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Österreichische Bundesforste