

Climate change and new alien plant species in Austria

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Ailanthus altissima





Ailanthus altissima



Ailanthus altissima





What are the reasons for invasion of *Ailanthus altissima* in Middle Europe?

- Beauty (often cultivated tree in parks)
- High drought resistance
- Large ecological amplitude
- Absence of natural enemies (animals, parasitic fungi, etc.)
- Extremely productiv youth growth
- Very early sexual maturity
- Seed propation by wind
- Enormous regeneration capacity after cutting the sprouts from the rest of sprout and the roots
- Possibility to produce allelopathic substances (toxines)



Fruit of *Ailanthus altissima*



3cm



Human activities, which prefer the outspreading of Ailanthus

- Cultivation in parks
- Clearings
- Disturbances in natural ecosystems and ecosystems close to nature (larger construction works, road constructions)
- Influences on climate (warmer, dryer summer and warmer winter; longer vegetation periods)

STATE: Combat now, everywhere!

Robinia pseudacacia



www.baumkunde.de



Robinia pseudacacia

Flowers



What are the reasons for invasion of *Robinia pseudacacia* in Middle Europe?

- Beauty (often cultivated tree in parks)
- Very durable wood
- Cultivated in short rotation forests and in conventional forests
- High drought resistance
- Larger ecological amplitude than *Ailanthus altissima*
- Absence of natural enemies (animals, parasitic fungi, etc.)
- Extremely productive youth growth
- Very early sexual maturity
- Enormous regeneration capacity
- Possibility to live in symbiosis with nitrogen fixing bacteria species

Human activities, which prefer the outspreading of Robinia

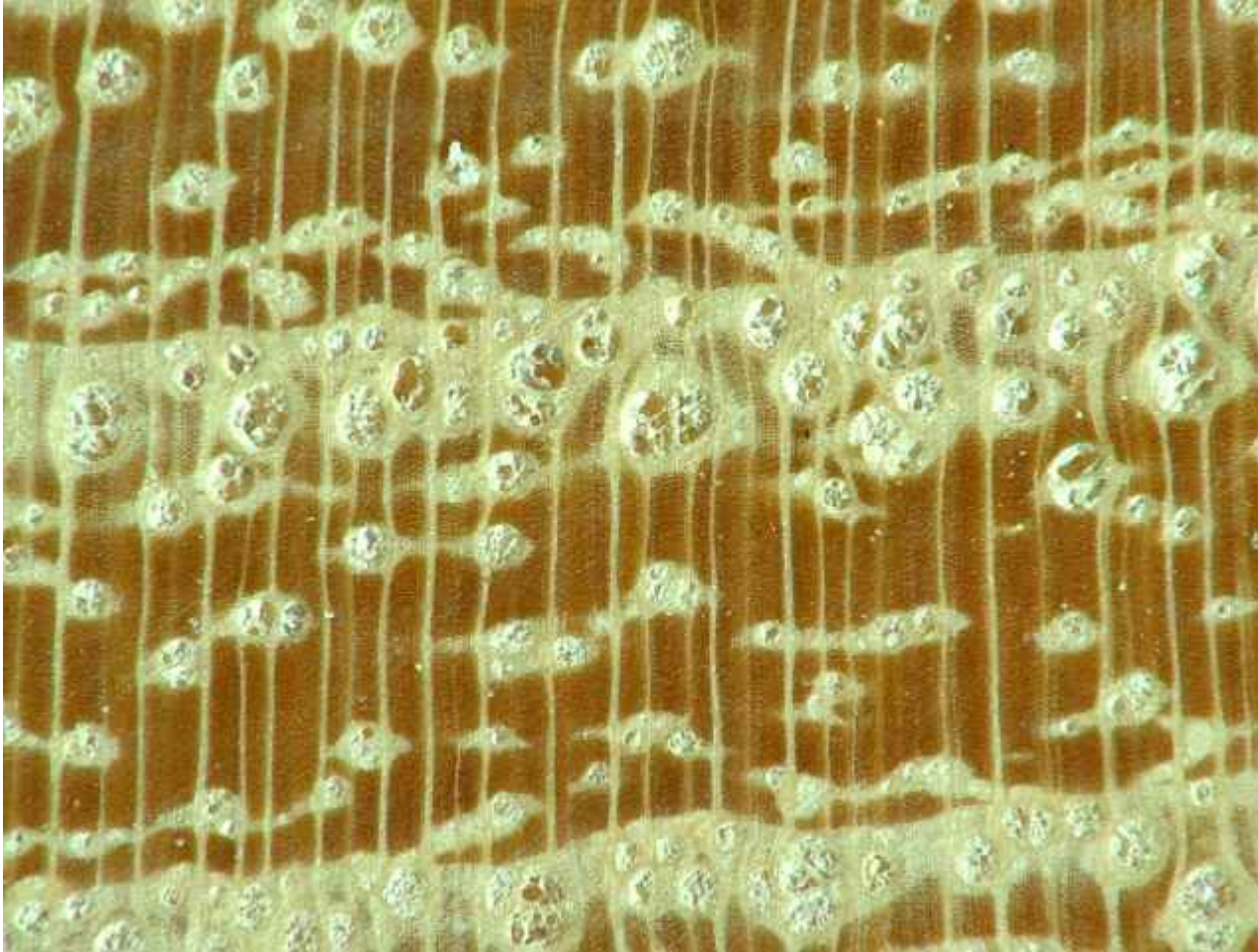
- Cultivation in forest, short rotation forests, parks, gardens
- Clearings
- Disturbances in natural ecosystems and ecosystems close to nature (larger construction works, road constructions, wars)
- Influences on climate (warmer, dryer summer; longer vegetation periods)

STATE: Combat now, everywhere!

But: Elimination from the Middle European flora is impossible



Robinia pseudacacia (Wood)





Buddleja davidii





What are the reasons for invasion of **Buddleja** in Middle Europe?

- Cultivation in parks, gardens
- Clearings
- Disturbances in natural ecosystems and ecosystems close to nature (larger construction works, road constructions)
- Influences on climate (warmer winter; longer vegetation periods)

STATE: Combat now, especially in alluvial forests and their surroundings

Buddleja davidii (Seeds)



1mm

Amorpha fruticosa



State

➤ STATE: Combat now, everywhere!

In Austria planted in street slopes.

Not very widespread in Austria until now, but a dangerous plant in submediterranean Regions.



Elaeagnus angustifolia



State

➤ Combat now, everywhere!

In Austria planted in street slopes, hedges.

Not very widespread in Styria, but a problem species in the pannonic region in Austria.



Solidago gigantea



State

- Combat now, everywhere!
- But extinction in Middle Europe impossible!



Broussonetia papyrifera



State

Seldom cultivated species in Austria.

First spread in urban ecosystems should be answered by
combat.

Facts

Spread of Aliens in all cases ist exponential.

Some alien plant species of Southern Europe are already a problem in Middle Europe.

More alien plant species of Southern Europe will be soon a problem in Middle Europe.

Aliens, which establish in urban ecosystems, will soon enter surrounding habitats.

Many aliens invade successfully in fallow land.

The elimination of established and widespread Aliens is impossible.

The reduction of areals of Aliens is very expensive.

EXAMPLE: Over 100 million US-Dollar a year is spent in the U.S.A. combating invasive plants in wetlands alone.

Conclusions from the viewpoint of environment and nature

- Only early identification and combat of Aliens is efficient.
- We need more knowledge about efficient combat of Aliens.
- Urban ecologists should play a central part in an early-warning-system.
- Actual problem-species should not be cultivated in Middle Europe and eliminated from parks, gardens and so on.
- Especially Alien species, which are not so widespread until now, we should try to exterminate, **AS SOON AS POSSIBLE!**
- South European problem-species should not be cultivated in Middle Europe.

Thank you for your attention

