

Supplementary material 2

- Slides of the lecture on 'Monitoring of insect species harmful to trees and forests'

Monitoring of insect species harmful to trees and forests

Fernanda Colombari – Andrea Battisti - UNIPD

Let's clarify terms and concepts

'Monitoring of insect species harmful to trees and forests'

= periodic and systematic survey...

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May 2020

The European project HOMED

HOLISTIC MANAGEMENT OF EMERGING FOREST PESTS AND DISEASES

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www.homed-project.eu

2020 – International Year of Plant Health

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Let's clarify terms and concepts

'Monitoring of insect species harmful to trees and forests'

= capable of reducing ecosystem services provided by plants

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Let's clarify terms and concepts

'Monitoring of insect species harmful to trees and forests'

Urban, rural and semi-natural contexts

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Let's clarify terms and concepts

'Monitoring of insect species harmful to trees and forests'

Native (indigenous) = species naturally occurring in an area (natural range)

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Let's clarify terms and concepts

'Monitoring of insect species harmful to trees and forests'

Alien (non-native, non-indigenous, introduced, exotic) = species not native to an area (species outside their natural range)

→ Alien species are defined **invasive** when they rapidly colonize the new area and have negative impacts

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Natural control

Factors that regulate the reproduction and mortality of individuals

temperature, rainfall, wind, availability and quality of food and living space, ...

Natural enemies

Beneficial organisms
Biological control agents
Antagonists

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Natural enemies - Predators and parasitoids

- Usually larger than their prey
- Kill and consume quickly
- many prey
- Immature and/or adult stages feed on their prey

- Smaller than their host
- Develop on or within a single host that dies slowly
- Immature stages feed on their hosts, adults feed mainly on nectar

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Natural enemies

'Enemy release hypothesis'

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Biological control

Natural enemies can be used to reduce pest populations

BIOLOGICAL CONTROL

Conservation biological control
Augmentation biological control
Classical biological control

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Importance of biological control UE and FAO

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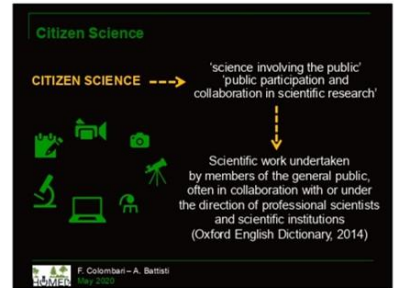
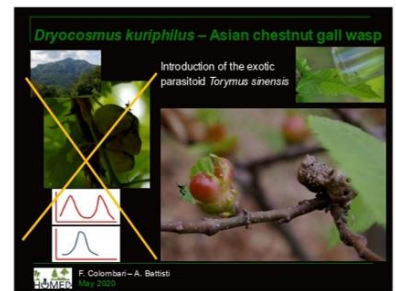
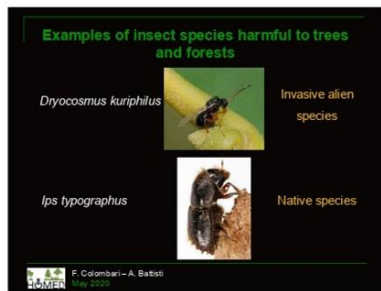
Invasive alien species – Global temporal trend

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Seebens et al., 2017

Invasive species – How do they arrive?

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- Videos available at <https://homed-project.eu/media/2027>

1. Lecture (17 minutes): Educational video entitled 'Monitoring of insect species harmful to trees and forests' (delivered as background knowledge)
2. Report on the results of the project (4.5 minutes): Practical and educational video entitled 'A citizen science experiment on ambrosia beetles in high secondary schools'