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Findings on Remote Sensing of Forest and Tree Health in Southeastern Europe II

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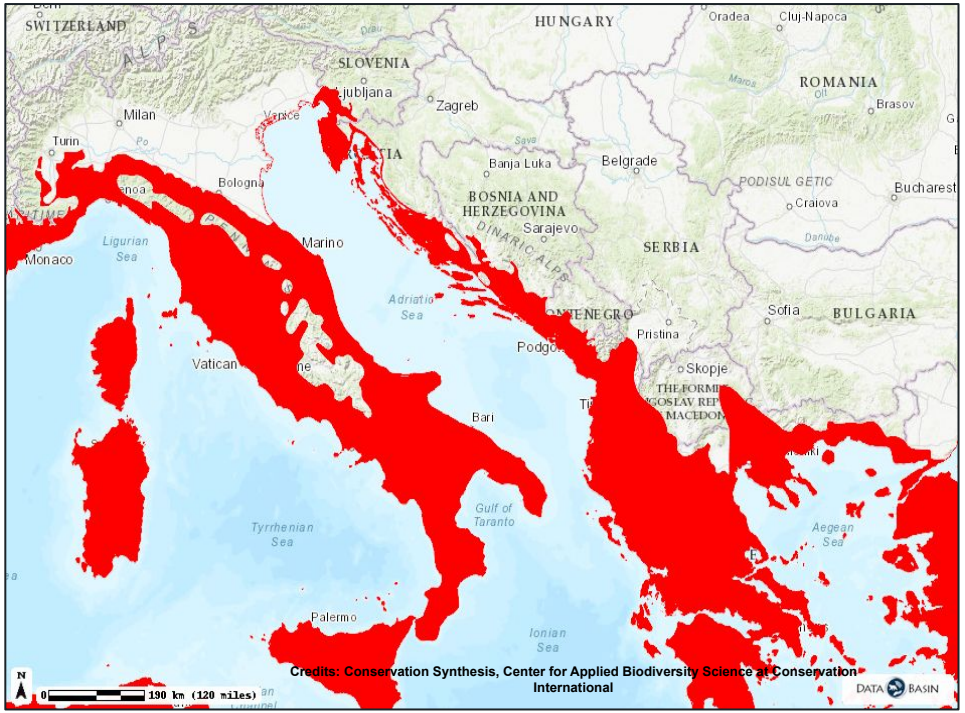
Forest health and tree health

Five countries in Southeastern Europe:

1. Albania
2. Bosnia & Herzegovina
3. Croatia
4. Montenegro
5. Slovenia



Biodiversity Hotspots in red color. Conservation International 2004

Presentation outline

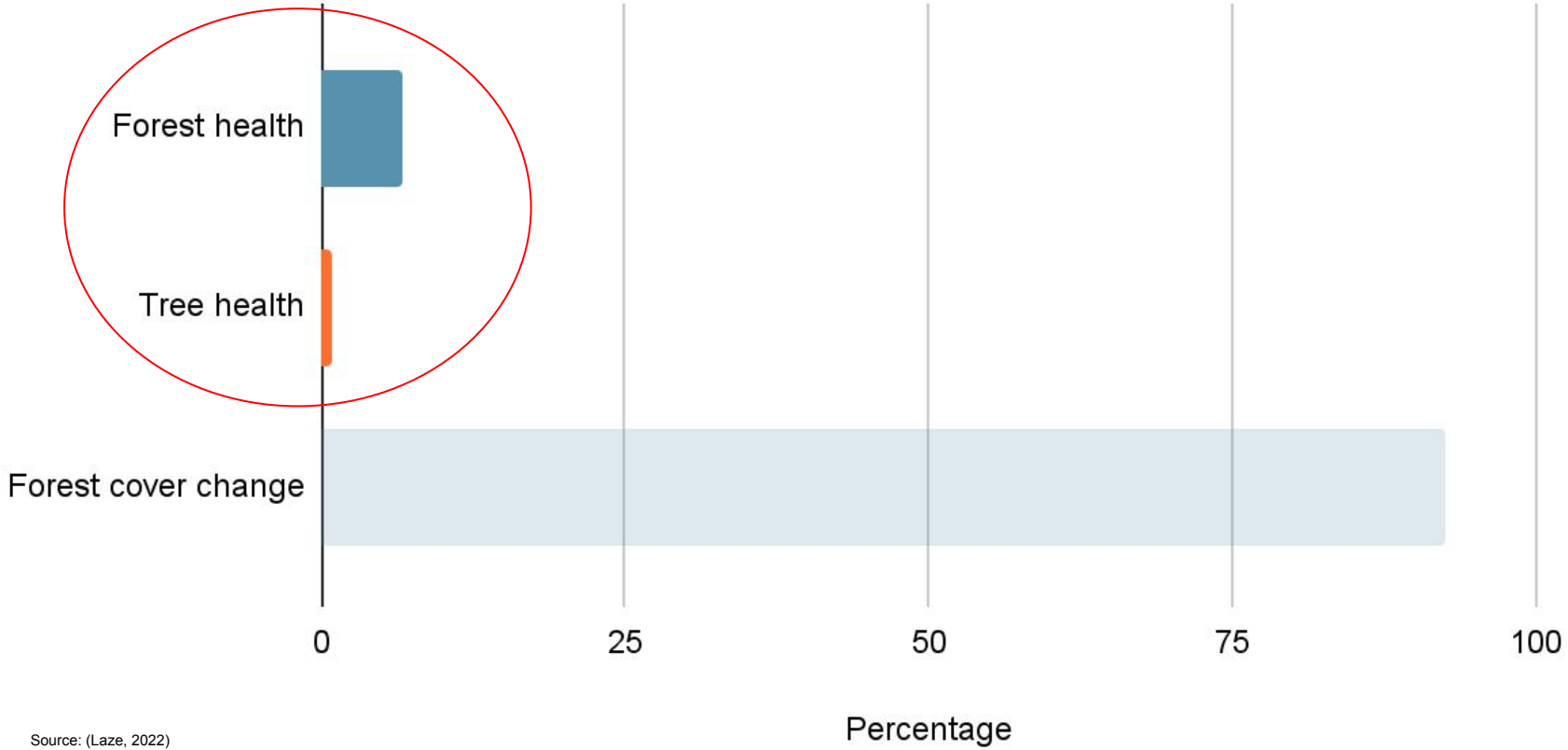
1. Forest health and tree health in Southeastern Europe
2. Why forest health and tree health?
3. Conclusions
4. References

Forest health and tree health

Studies on the remote sensing applications:

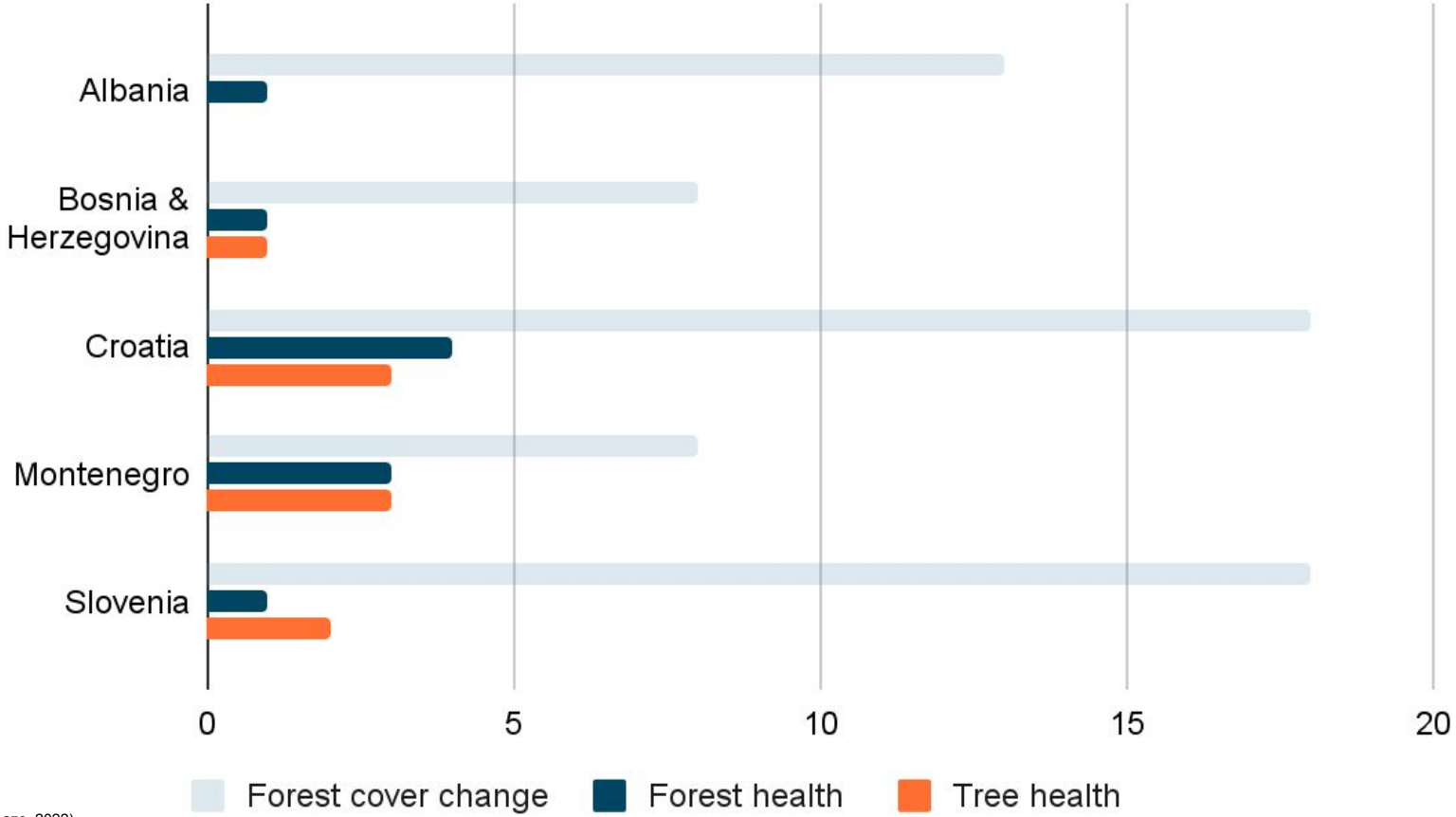
1. forest cover change
2. forest health
3. tree health

The number of studies using remote sensing data sources, the five countries in Southeastern Europe



Source: (Laze, 2022)

The number of publications, Scopus search engine



Source: (Laze, 2022)

Forest and tree health in research

The most frequent terms, (phi)	The first topics
Forest, (0.179)	Forests
European, (0.118)	Remote sensing
Mediterranean (0.094)	Modelling
Data, (0.092)	Southeastern Europe

Source: (Laze, 2023)

Forest and tree health in patent registered

Frequent terms, (phi)	The first topics
Forest, (0.143)	Methods used for image classification to detect pine wood disease
Remote sensing, (0.133)	Model for preventing and treating forest disease
Aerial, (0.106)	Method concerning LIDAR data
Tree, (0.095)	Invention on equipment used for plant health

Source: (Laze, 2023)

Why forest and tree health?

- Indicators like:

1. Forest area
2. Tree cover can also be measured remotely

- Field and remote sensing data

Why forest and tree health?

Healthy forests have high (forest) resilience (e.g., Lausch et al. 2018)

Why forest and tree health?

Old /mature forest health identification and conservation

- 4.9 million hectares of the EU forests are 'primary' or 'old-growth' (Maes et al. 2023)

Why forest and tree health?

Forest condition/health of 44 forest type is 0.585 (0-1), in average (Maes et al. 2023)

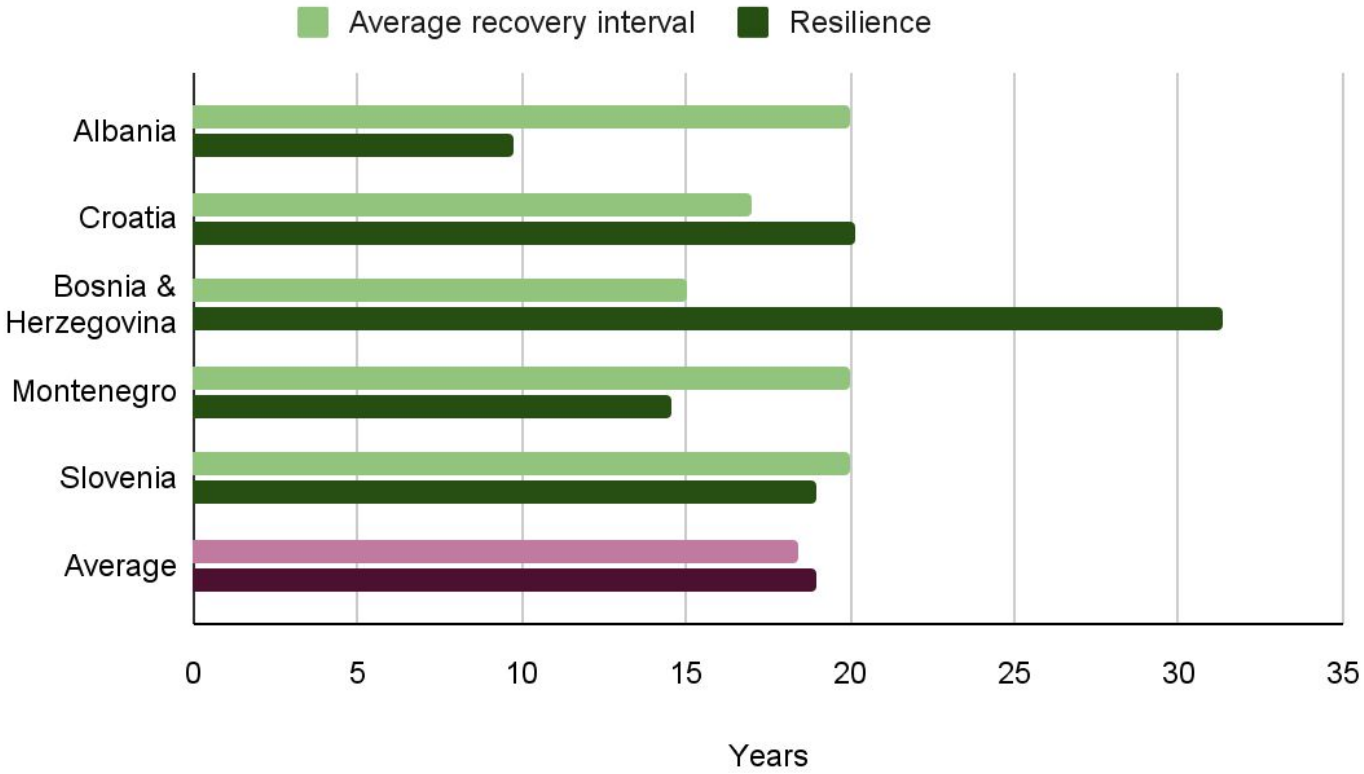
Forest condition/health from 2000 to 2018 in Mediterranean countries in Europe is +0.37%, in average (calculated from Maes et al. 2023)

Why forest and tree health?

Forest resilience is high in Europe:

- recovery more than 10 times faster than disturbance on 69% of the forest area
- 14% of forests had low or critical resilience (Senf and Seidl, 2021)

Average recovery interval and Resilience of forests



Source: (Senf and Seidl, 2021)

Conclusions

Forest health and tree health is limitely studied

No patents

Forest resilience is likely high

There are old/mature forests & trees in the five countries in Southeastern Europe

Conclusions

Forest health proxy to forest resilience

Old/mature forest & tree health likely proxy to forest (reference) conditions

Old/mature forest & tree health is to be regularly monitored (remote sensing)

Thank you for your attention!

References

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