How Forest Managers Are Adapting Europe's Forests – Experience from Hrvatske šume d.o.o.

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Background

EU strategic documents

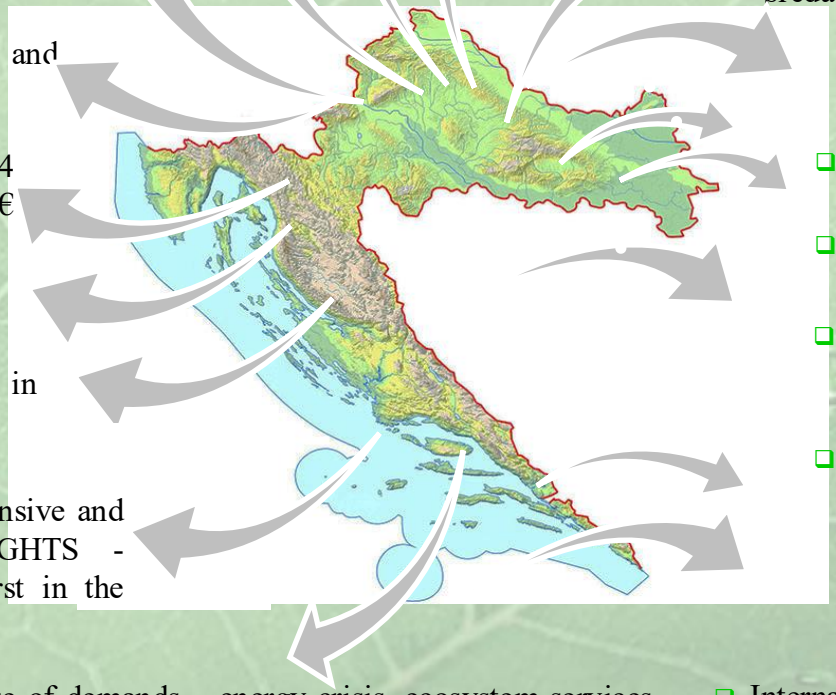
- Strategic Framework for a Competitive and Sustainable EU Bioeconomy
- EU Integrated Wildfire Risk Management strategy
- European Climate Resilience and Risk Management – Integrated Framework (to be adopted)

Key common objectives:

- Identification of the risks
- Measures for their mitigation
- To increase EU competitiveness and future resilience
- Ensure stability and direct future development

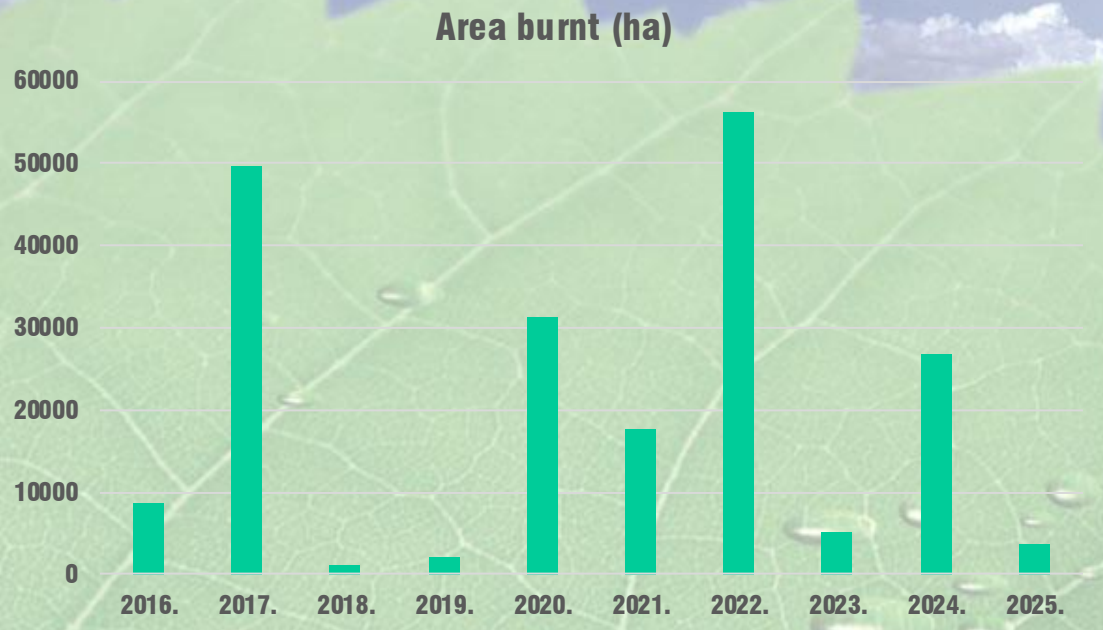
Challenges facing forestry organisations

- Change in precipitation dynamics
- Prolonged and more frequent flooding
- Absence of snow – more complex regeneration and the use of mechanization.
- Enhanced leaching of nutrients - habitat impoverishment
- Increase of wind damages – wind breakages, wind throw
- Spreading of diseases and pests – changed interaction between site conditions, developmental phases of pests/diseases and their natural predators.



- Higher intensity and frequency of storm events
- Ice breakage 2014 (synergy 231.180.921 € loss)
- Increase of bark beetle attacks
- Forest firest – increase in intensity and frequency
- More frequent, intensive and prolonged DROUGHTS - EC, 2022. the worst in the last 500 years.
- Appearance of new pests and diseases (e.g. oak lace bug)
- Rare and weak mast years (seed years)
- Natural regeneration of forests in question
- More complex issues of FRM production and forests regeneration
- Spontaneous appearance and spread of non-native/invasive plant species (e.g. *Ailanthus altissima*, *Prunus serotina*, …)
- Increase of demands – energy crisis, ecosystem services, European green deal, circular bioeconomy, etc.
- International obligations and restrictions

Forest fires (last 10 years)



Mostly in the Mediterranean forests

Relatively low area burnt, correlation with the dry seasons

Threat to the eco-systems, infrastructure and livelihood

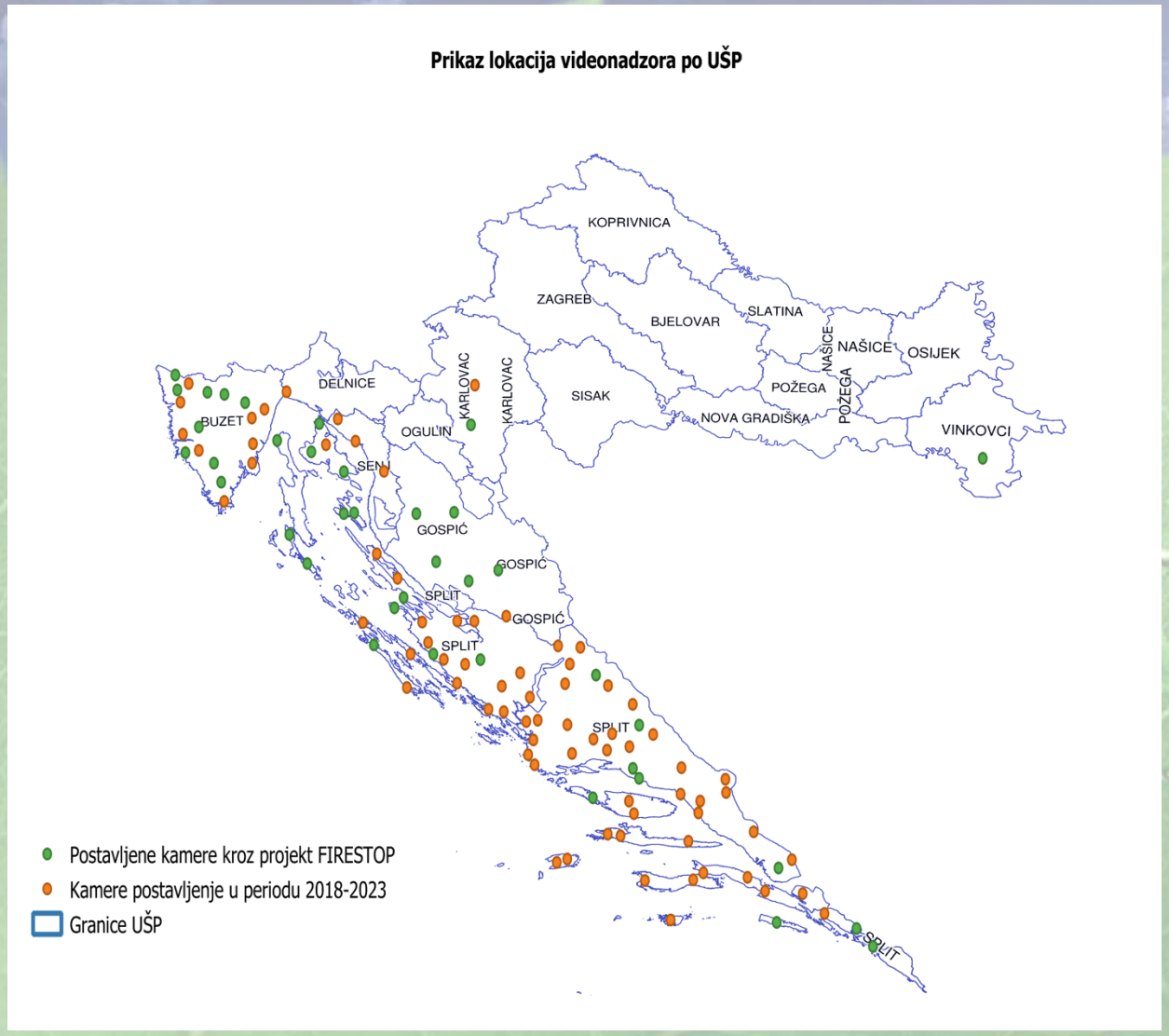
Impact on the tourist sector

Forest fires (mitigation measures)

The emphasis is on monitoring and early detection

- Real time detection on more than 150 observation points
- Currently, there are 220 video cameras on 110 locations
- EU Project FIRESTOP will support:
- 82 new video cameras on 41 new locations
- Communication system for automatic notification to the local fire brigades
- Human observation to be carried in parallel (200-300 employees during the fir season)

Forest fires (mitigation measures)



FIRESTOP

Sufinancira Europska unija

Restoration of the field ash stands

The ash decline caused by *Hymenoscyphus fraxineus* (Chalara)

- Total area under ash – 31 732 ha
- Total stock of ash trees – 5,36 mil m^3
- Infestation – over 90%
- There is need to restore the stands to preserve habitat

Issues:

- Lack of seedlings (especially of resistant types)
- Choice of species to replace the ash depends on the habitat
- Issues on Natura 2000 sites where nature conservations insist on restoring the same plant community

Storms and windthrows

Higher incidence of storms is attributed to the climate change

- The weather patterns are becoming unpredictable
- The worst storm was in summer 2023.
- – total damage 4,4 mill. m^3
- - damage in oak – 2,7 mill. m^3
- Apart from damage in higher costs and lower timber quality, the calamity caused disruption in:
  - Market conditions
  - Loss in unsold and degraded quality timber
  - Disruption of regular management activities
- Unforunately, no clear answer on how to mitigate the risk from the storms

General FM plan

Key strategic document for forest management in the country

- All individual FM plans should be harmonised with it
- The current General FM plan was valid 2016 to 2025
- The new plan was prepared, but it is still in the process of approval
- It will be valid in the period 2026-2035
- It will give guidelines for medium term management
- Strategic risk assessment will be outsourced (under preparation)

General FM plan (draft)

All European sustainable forest management indicators

- maintenance and appropriate improvement of forest ecosystems and their contribution to the global carbon cycle,
- maintaining the health and vitality of the forest ecosystem,
- maintaining and encouraging the productive functions of the forest,
- maintenance, preservation and appropriate improvement of biological diversity in the forest ecosystem,
- maintenance and appropriate improvement of protective functions in forest management (especially soil and water),
- maintenance of other socio-economic functions and conditions)

General FM plan (draft)

Some of the indicators

- Carbon sink – current level 4 368 kt CO_2eq, goal is to increase carbon sink levels to 5 527 kt CO_2eq in 2030
- Increased levels of biodiversity help the resilience of the forest ecosystem,
- There are some indications that the level of allowable cut could be decreased
- This is the „easiest" policy measure and may bring some other challenges to the business operations of Hrvatske šume

Conclusions (1)

Some of the conclusions:

- Croatia is well-known for its' near-to-nature forest management
- Sustainable forest management using native species is a cornerstone of our forestry principles
- The forests managed on these principles are the most resilient eco-systems to withstand any disturbance and to mitigate the risk
- The question is: how to define resilience under new conditions of the changing climate?
- EU forest strategy will affect some our management practices
- Move from even-aged management to Continous cover forestry

Conclusions (2)

Some of the conclusions:

- Difficulty of long-term predictions under climate change conditions
- We have a long-term outlook, but it should be more adaptable
- We are important factor of Bioconomy of the country
- The goal should be to increase the added value of the forest based products
- Better utilisation of the forest products
- More cyclical use of the wood
- It could ease pressure on the natural resource that came very much under the risk by the climate change!