

ATCZ251 FORRISK Cross-border forest risk management

KICK-OFF MEETING



Municipal Forests Volary
Associated partner

Date: April 8-9, 2021



HISTORY

Since 1925, city Volary owned forest enterprise. Before, it was owned by old citizens of Volary, until 1810 by family of Schwarzenberg, Eggenberg and before them by Rudolf II, who bought it from the last Rosumberg Petr Vok.

Municipal enterprise was nationalized in 1951.

The three fourth of historical enterprise located out of National park Šumava were returned back in June 1991.

Forests located at National park were returned back to Volary in August 2000.

The city Volary establish its own company to manage owned forest in 1991 – Municipal Forest Volary (as a private limited company from 1999).

LONG-TERM GOALS

Municipal Forests Volary have its own target goals:

- sustainable yield from owned enterprise
- maintenance and even improvement of health status of forest tands.

The way how to reach such goals MF Volary see in realization of **transformation of age-class forest to selection one.**

Resources to make easy that way are in:

- stabilized team of high-quality staff,
- opperation with a high-tech and its early recovery,
- maintaining and improving of immovable as well as movable property.

Forest Enterprise

- Area of managed forest is **3333 ha**.
- Forests are located from 620 to 1150 m a.s.l.
- Annual amount of precipitation reach ca 800 mm.
- Growing season duration ranging due to forest vegetation zones from 110 to 130 days.
- More than half of forest stands is influenced by water (periodically or permanently, peatlands..).

Forest Planning

- Actual Forest Plan is valid from 2015 to 2024.
- Maximum of allowable cut is **346 926 m³**.
- The dominant representative tree species are: Norway spruce (72 %), Scotch pine (8 %), European beech (7 %), White fir (4 %), Dwarf pine (4 %), Birch (2 %). Tree species below 2 % in representation are: larch, alder, sycamore, rowan, elm, ash, banks pine, Douglas fir, white pine.
- In total 740 of inventory points are located within forests to monitor wood increment, wood stock and health status of forest.
- Four experimental plots, with size of 1 ha of each for detail inventory of forest development after harvest intervention etc., are established at different sites.
- Whole forest land area is affected by nature protection interests, which are limiting forest management by different ways.

CALAMITIES

From 1992, several calamity events occurred in MF Volary.

Wind calamities:

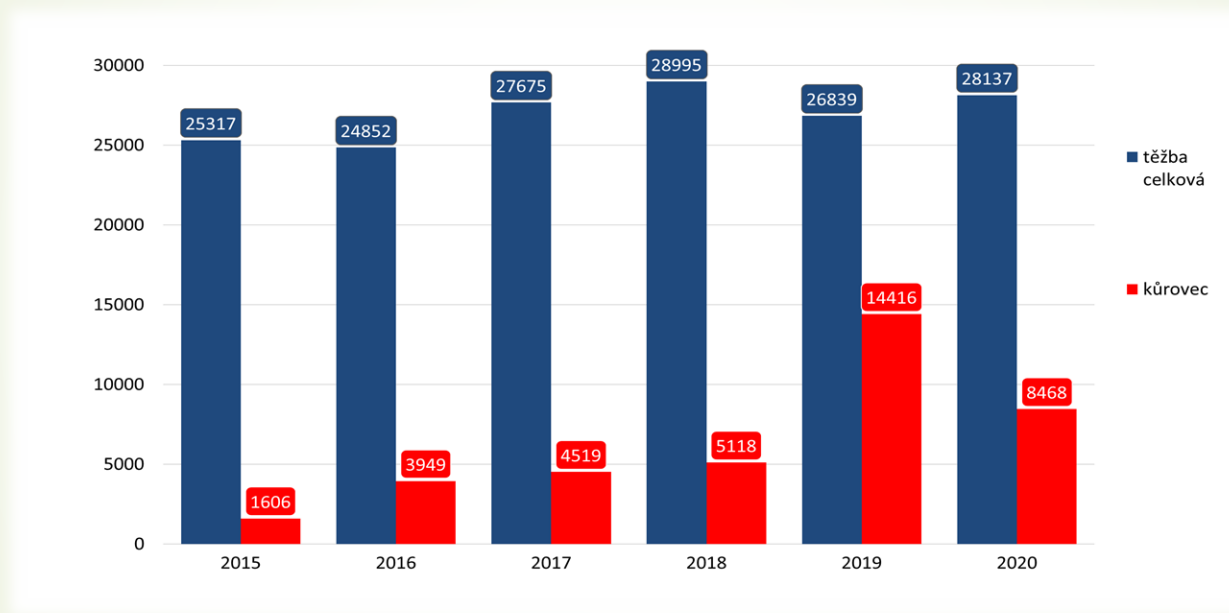
- in 1995, disturbed and processed 12 thousand m³ of wood,
- in 2003, 14 thousand m³,
- in 2007 (Kyril), 45 thousand m³,
- in 2013, 24 thousand m³, from these 6 thousand m³ stay unprocessed at 1. zone of National park Šumava.

Bark beetle calamity lasting from 2015 as a result of direct neighbourhood with intervention free zones of National park Šumava reached the volume of 40 thousand m³ together from 2015 to 2020.

Frost calamity in 2014 - 3 thousand m³ at elevation around 900 m a.s.l.

Bark beetle cuttings

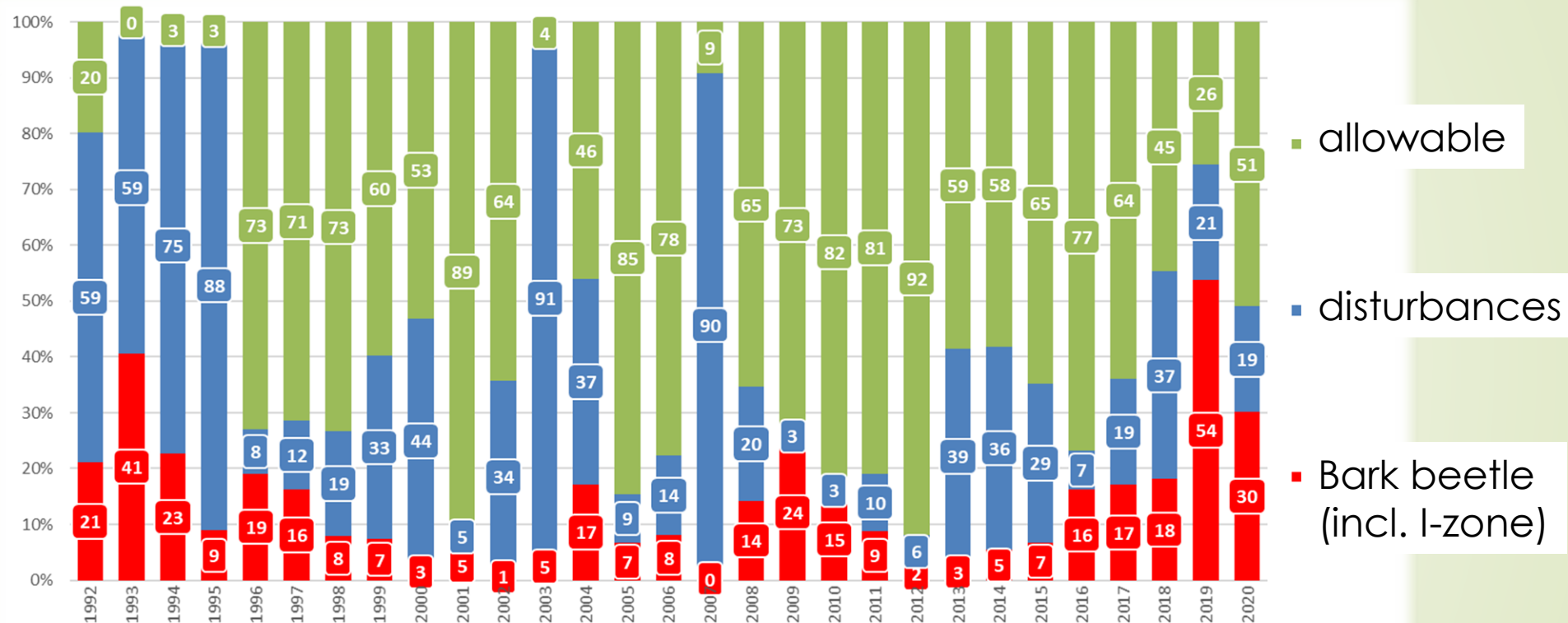
Increasing of bark beetle cuttings since 2015 (m³)



Behind increasing amount of bark beetle cuttings, as a result of neighbourhood with the intervention free zones, extension of time for bark beetle calamity inhibition about two - three years is commonly needed (empirical result from comparison with forest owners located out off National park).

Annual cut

Percentage proportion between allowable cut and unregulated felling
In forests of MF Volary since 1992.



High proportions of bark beetle calamities are visible in 1996-1997 and 2008 – 2011 as a result of wind disturbances in 1995 and 2007. The biggest bark beetle calamity (in volume units) lasting from 2016.

However, in 1992 – 1994 bark beetle cutting proportions were high, they were low in wood volume due to low amount of total harvest.

Bark beetle monitoring

- It is important to monitor bark beetle population in natura for soon sanitary cut (processing) of infested trees.
- Field monitoring is realized by permanent staff – forest keepers.
- Emphasis are placed on regularity of field control, marking of the infested trees and early processing of them
- Presumed development in the next year is evaluated by forest keeper on the base of previous year data and knowledge of situation in field.
- Trap trees and bark beetle collectors are used for control of population. Defence is based on early processing of infested trees, i.e. their cutting with the following removal or cutting with the following debarking.

Processing of calamities

- In our practice, all the natural calamities were processed in time.
- In fact, the use of our own workers for processing of 90 % of calamity wood we see as a big advantage. We are not so dependent on companies and sole traders, which are migrating according to work profitability, but not as we need.
- Our long-term strategy of investment into modern technology, especially harvesters, help us also with early processing of calamity wood. The use of harvesters not only speed up the infested wood processing , but by that processing approach developmental stages of bark beetle are disrupted as well.

WOOD

- Selling of wood is based on long-term contracts and relations with wood industry. Commonly, harvested wood stock do not exceeds 1500 m³ in Volary forest, i.e. 5% of annual cut.
- Problem is only the price of wood. Radical decrease of saw-log price has been compensated by financial contribution of state.
- During the current bark beetle calamity, we saw the highest quality wood and store it for long time. The professional saw-log is processed by an external company with a mobile band-saw.

STRUCTURE of WOODY SUPPLY

Structure of coniferous wood supply (%)		
	2015	2020
Lumber logs	64	52
IV. Class of quality	20	27
Pulp wood	13	20
Raw timber	1	0
Fire wood	2	1

Ongoing bark beetle calamity results in changes if structure of saled assortments and decrease of wood price.

The lumber wood proportion decreased about 12 % whereas the pulp and lower quality wood proportion increased about 14 %when comparing 2015 to 2020, respectively.

Mean wood price drop down from 1830 to 974 CZK/m³(i.e. about 856 CZK/ m³) at skidway place between the years 2015 and 2020, respectively.

REGENERATION

- The management approach of age-class forest stands transformation to selected ones leads to minimizing of clear cuts occurrence. They occur only after salvage fallings.
- Natural regeneration is evident on the one thirds of all clear cuts. On the next third of these open clear areas, natural regeneration arise within two years usually; rest parts of these plots are prepared mechanically and artificial regeneration is realized there. Tree species and size of seedlings for afforestation reflect site conditions, composition of surrounding stands and size of clear area.
- During the last two years of bark beetle calamity, the area of clear cuts increased twice from 9 to 21 ha.

Conclusion

Ongoing bark beetle calamity leads to collapse of woody market as well as traditional forestry concept.

It seems that the way of started forest management approach - transformation of traditional clear cut system to close-to-nature forestry, so called „dauerwald“, will face increase of yield as well as forest resistance to calamity events.

