

# How to introduce marteloscope exercises to participants for greater impact

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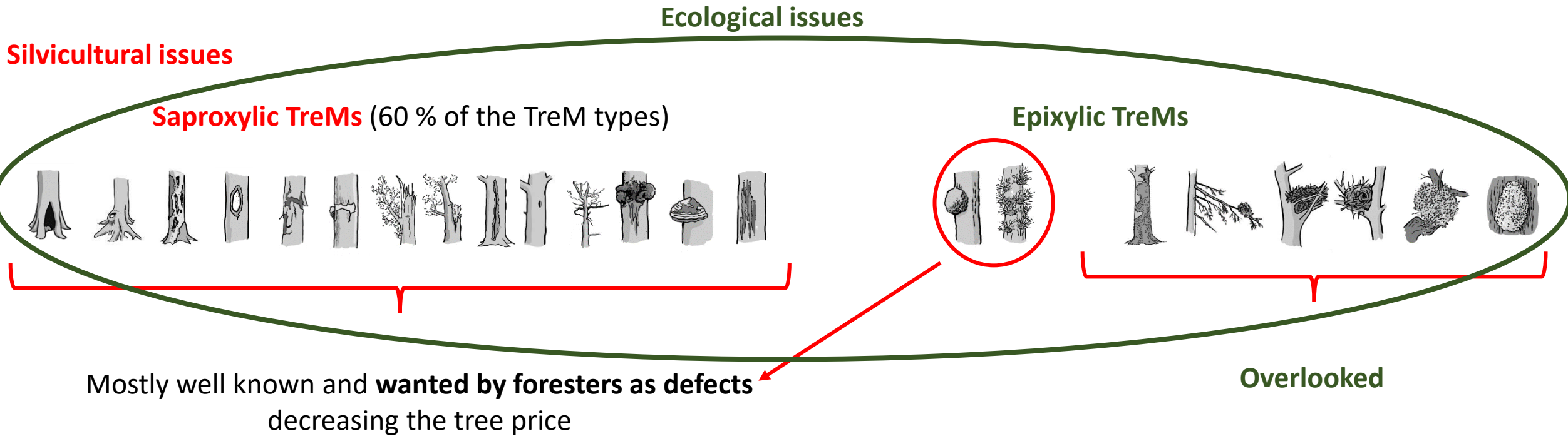
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# Tree-related Microhabitats (TreMs) are both silvicultural and ecological objects


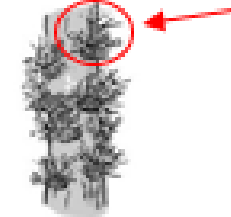
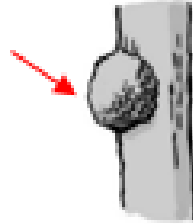
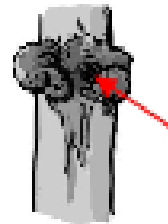


Need help practitioners to consider **TreMs as key features for biodiversity and ecosystem functioning**

➔ **Before martelocope exercise: Brief talk with 5 key messages**

# 1<sup>st</sup> message: The TreM typology is built from a morphological and taxonomic approach

7 forms → 15 groups → 47 types

Excrecences	Twig tangles	<p>Witches' broom (<math>\phi &gt; 50</math> cm)</p> 	<p>Epicormic shoots (<math>&gt; 5</math> shoots)</p> 	
	108	Li (Crown) ; E	1081	Li ; E
Excrecences	Burs and cankers	<p>Burr (<math>\phi &gt; 20</math> cm)</p> 	<p>Canker (<math>\phi &gt; 20</math> cm or covering a large part of the trunk)</p> 	
	109	Li ; E	1091	Li ; Sa

Main consequence for forest managers

➤ the more diversity of TreMs there is, the more species there is likely to be!

## 2<sup>nd</sup> message: TreMs are « Ephemeral Resource Patches » (sensu Finn 2001)

*Fomes fomentarius*



> 600 sp of arthropods in Europe  
(Friess et al. DD 2019)

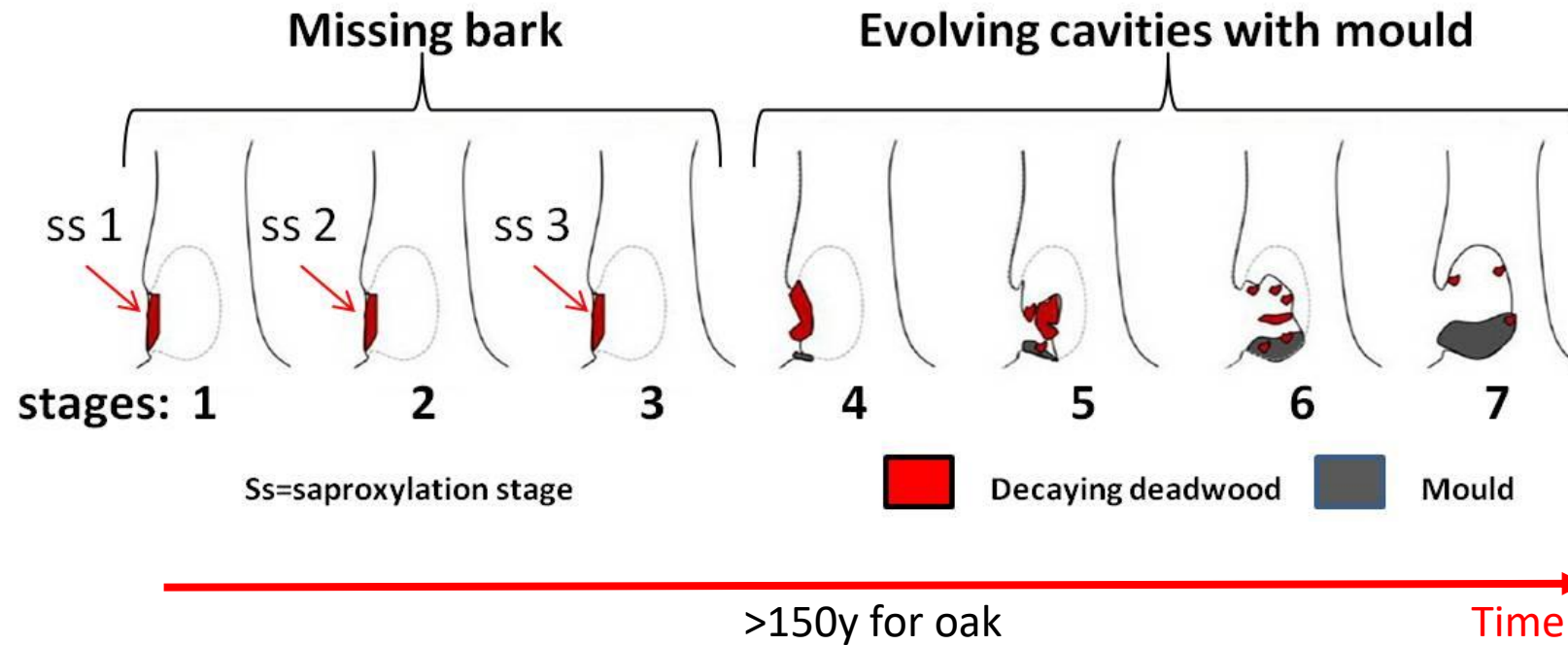
- **High quality resource**, at least for strict TreM-dwelling taxa
- **Spatially limited** by the tree size
- **Temporary**, from few weeks to century

### Main consequences for forest managers

- **need for a 'flow' of TreMs to maintain a certain stability of resource**
- **probable effect of the spatial distribution of habitat trees on TreM-dwelling communities**

# 3<sup>rd</sup> message: TreMs follow dynamic processes

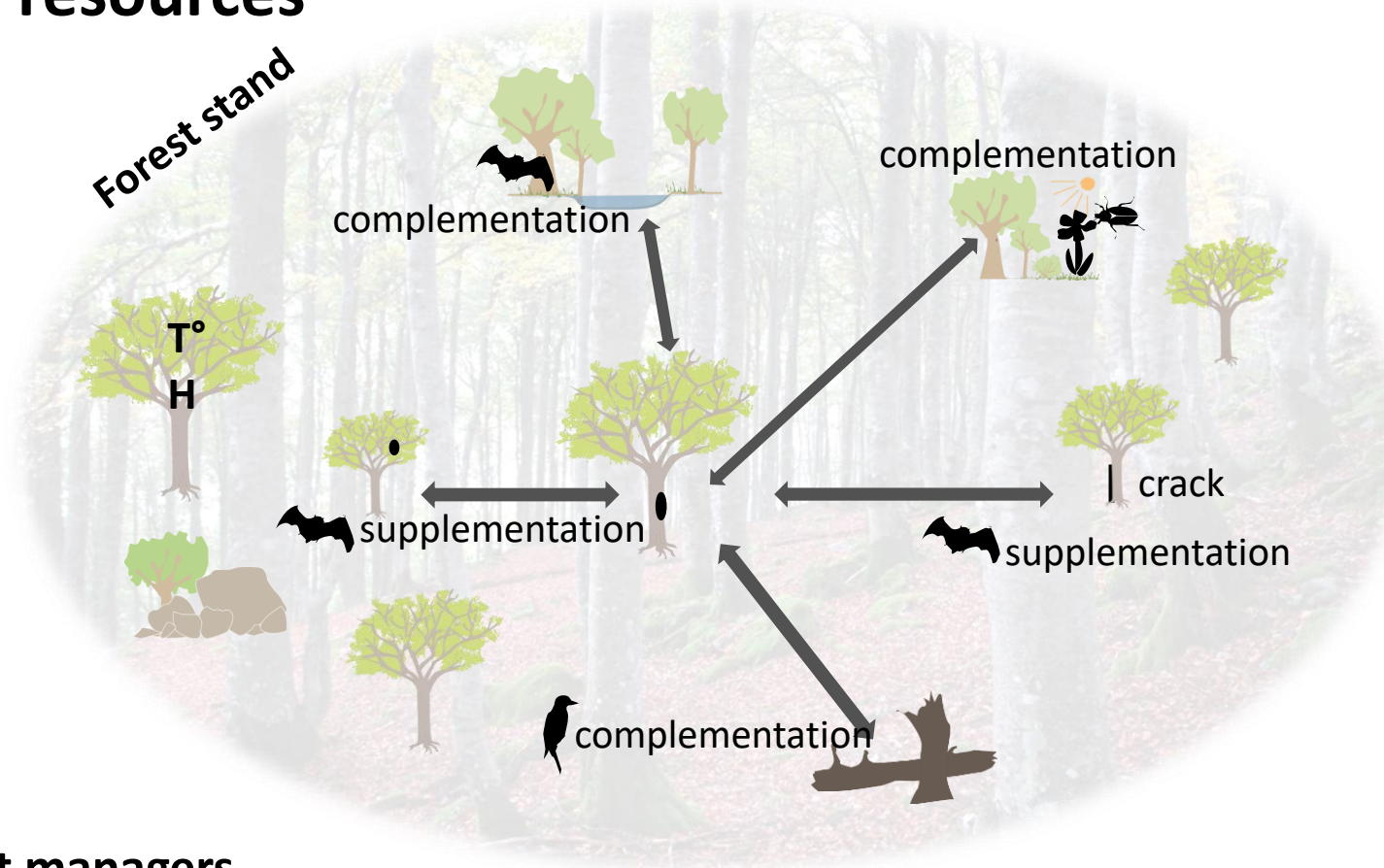
e.g. From bark loss to full evolved rot-hole



## Main consequences for forest managers

- some TreMs are dynamically linked: need to conserve some bark losses to get rot holes later
- some TreMs take a huge while to be created!

# 4<sup>th</sup> message: TreM-dwelling taxa need complementation and supplementation resources

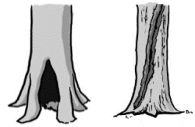


## Consequences for forest managers

- conserve aquatic habitats, flowers in clearings, deadwood items, etc.
- replicate each TreM type within the same stand

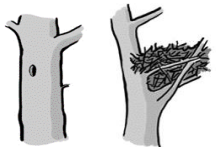
# 5<sup>th</sup> message: The scoring system used to give ecological value to habitat-trees is not taxa-centered

Replacement speed  
(1→4 points)

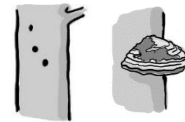


Very slow → 4

fast → 1



Rarity in managed forests  
(0.5 → 3 pts)

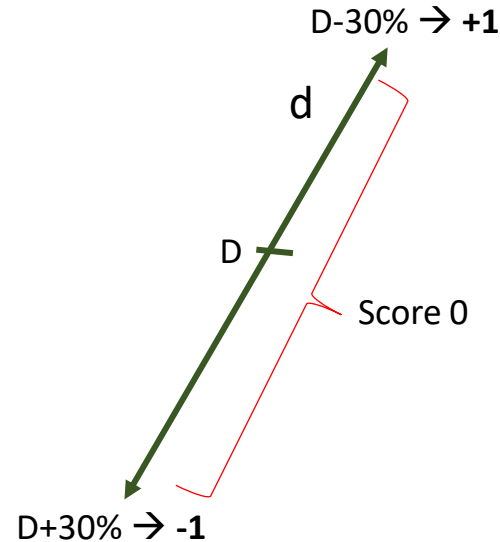


Very rare → 3

Very frequent → 0,5



Local density (d) compared to its density in long-time unharvested forests (D)  
(-1 → +1 pt)



Size/abundance on the same habitat-tree  
(0 or +2pts)

>3 x the minimum size required to be recorded or more than 3 TreMs of the same type

Score for habitat-tree = addition of the 4 scores for each TreM borne

➤ quantifies the impact of tree marking on the global stand's hosting capacity at short, medium and long terms

**Now, ready to the marteloscope exercise!**



Freepik



Le Journal de Saône et Loire

**Thanks for your attention**