Tree-related Microhabitat co-occurrences: towards easier monitoring?

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Using Tree-related Microhabitats (TreMs) to conserve biodiversity in managed stands

A TreM is a distinct, well-delineated morphological singularity occurring on living or standing dead trees, that constitutes a crucial substrate or life site for species (Larrieu et al. 2018). TreMs are widely recognized as **key features for biodiversity**.

The current TreM typology identifies **47 TreM types** according to both to their morphology and associated taxa. These 47 types have been pooled into **15 groups** then **7 forms**, in order to **provide a range of accuracy and speed of use** for different typology users.

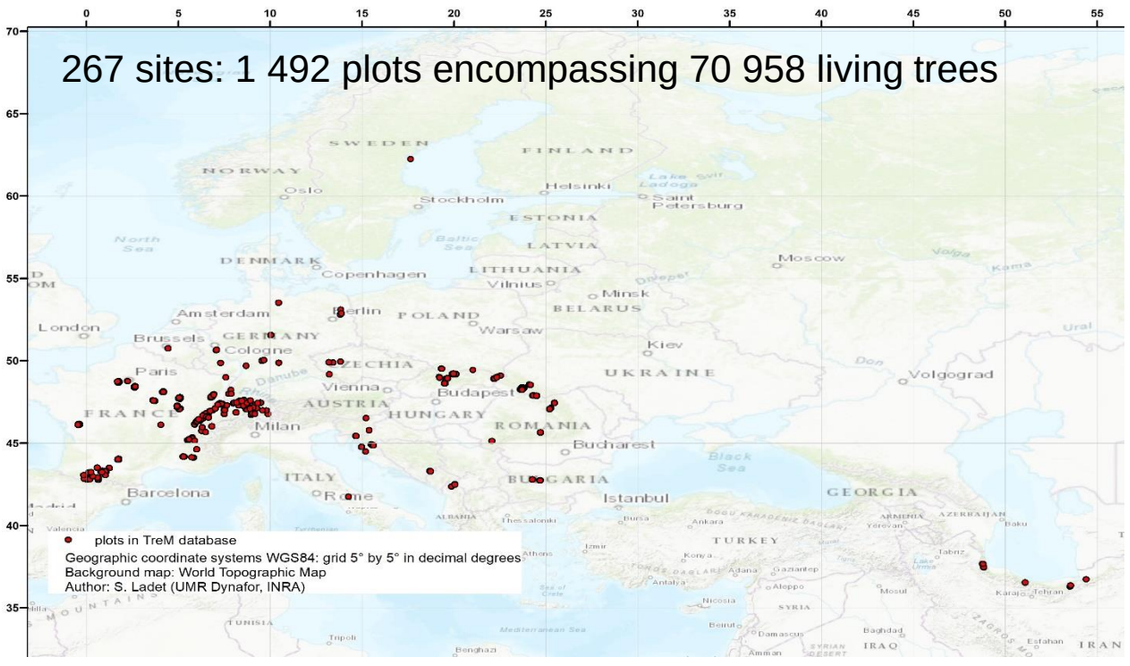
Cavities | Injuries | Crown deadwood | Excrescences | Epiphytes | Exudates | Fungi

drawings by L. Apfelbacher

Thus, **forest managers may identify forms during tree marking to promote a TreM diversity at the stand scale** while researchers should use the type level for recording TreMs in biodiversity assessment. **Another suggested approach to simplify TreM recording in day to day management may be co-occurrence patterns thus reducing the number of TreMs to be observed.**

A large international standardized TreM database

We evaluated the **significance of TreM co-occurrence** on **living trees** for **11 TreM groups**.



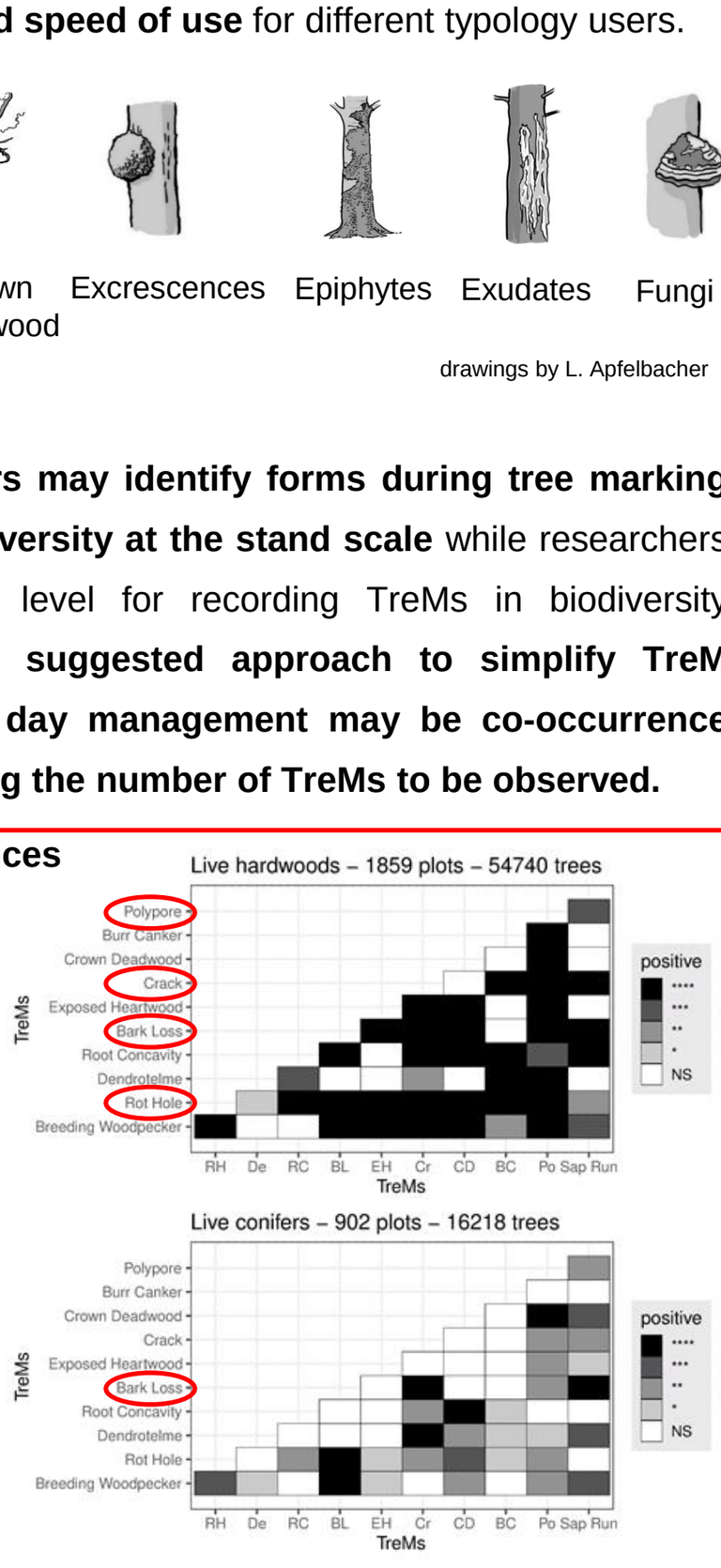
Broadleaves and conifers showed different co-occurrence patterns

Bark Loss (BL), Rot-Hole (RH), Crack (Cr) and Polypore (Po) showed the **highest number of positive co-occurrences** with the other TreMs **for broadleaves (N=8)** while **BL (N=4) did for conifers.** We found **negative co-occurrences only for conifers**: **Exposed Heartwood (EH) with Dendrotelm (De) and Sap Run (SR)**.

Positive co-occurrences
(p<0.0001)

33 for broadleaves

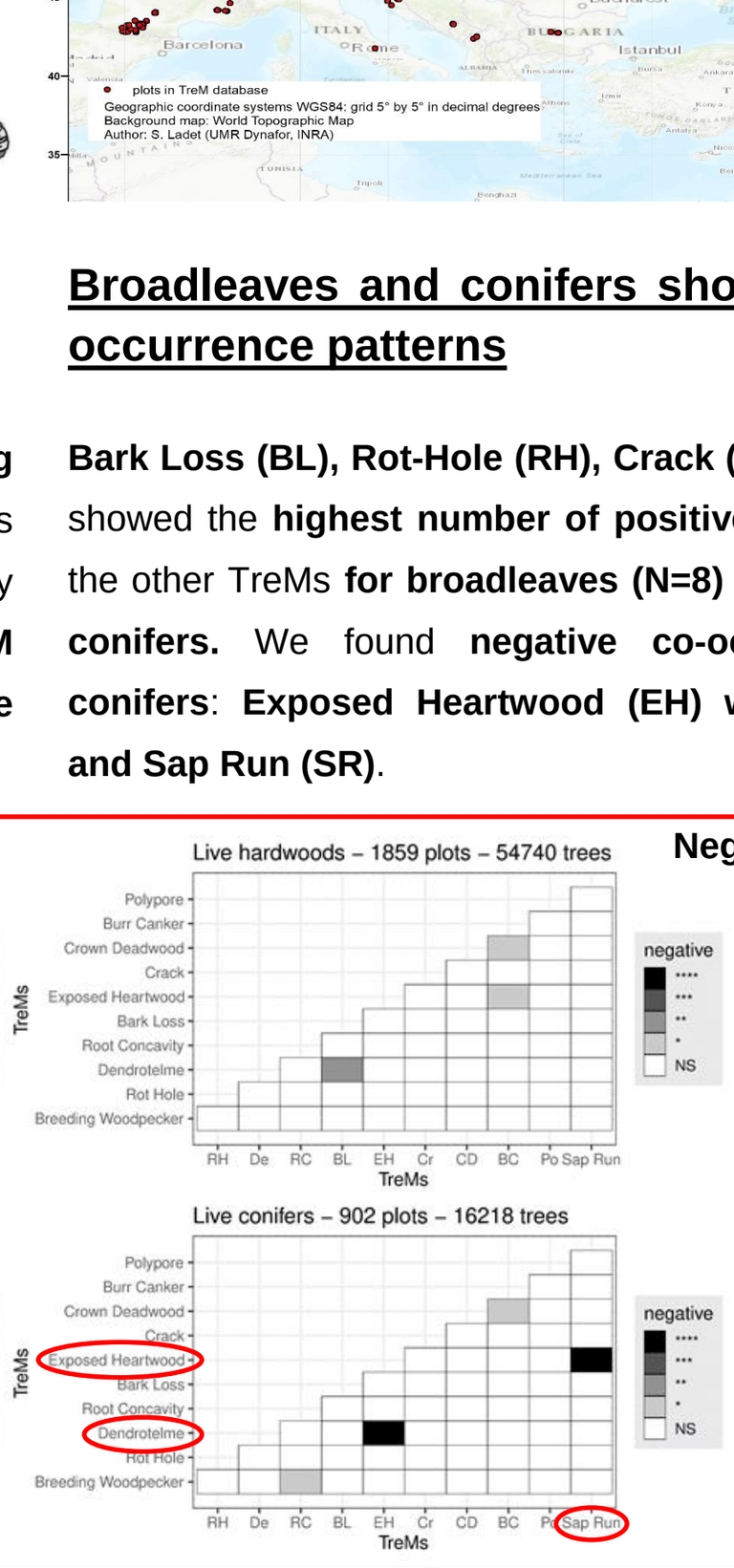
9 for conifers



Negative co-occurrences
(p<0.0001)

0 for broadleaves

2 for conifers



Larrieu L., Paillet Y., Winter S., Bütler R., Kraus D., Krumm F., Lachat T., Michel A. K., Regnery B., Vandekerkhove K. (2018). Tree related microhabitats in temperate and Mediterranean European forests: A hierarchical typology for inventory standardization. *Ecological Indicators* 84: 194-207

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