BioMonWeek 2026
The European Conference for Biodiversity Monitoring

DT05 Tools for data use, curation, and management
Wed 06/05/2026 | 9:00 AM - 11:00 AM

TreMs Collect and IBP Collect: two new apps designed for collecting data on tree-related microhabitats (TreMs) and the Index of Biodiversity Potential (IBP)

Gouix N.[1,2], Bossaert M.[1], Bütler R.[3], Courbeau B.[4,6], Emberger C.[1], Marty P.[7], Norel H.[1], Larrieu L.[5,6,7]

1 Conservatoire d'espaces naturels Occitanie
2 PURPAN ÉCOLE D'INGÉNIEURS Agriculture | Agroalimentaire Sciences & Humanités
3 WSL
4 LESSEM
5 DYNAFOR UMR 1201 | INRA - INP TOULOUSE
6 INRAE
7 CNPF

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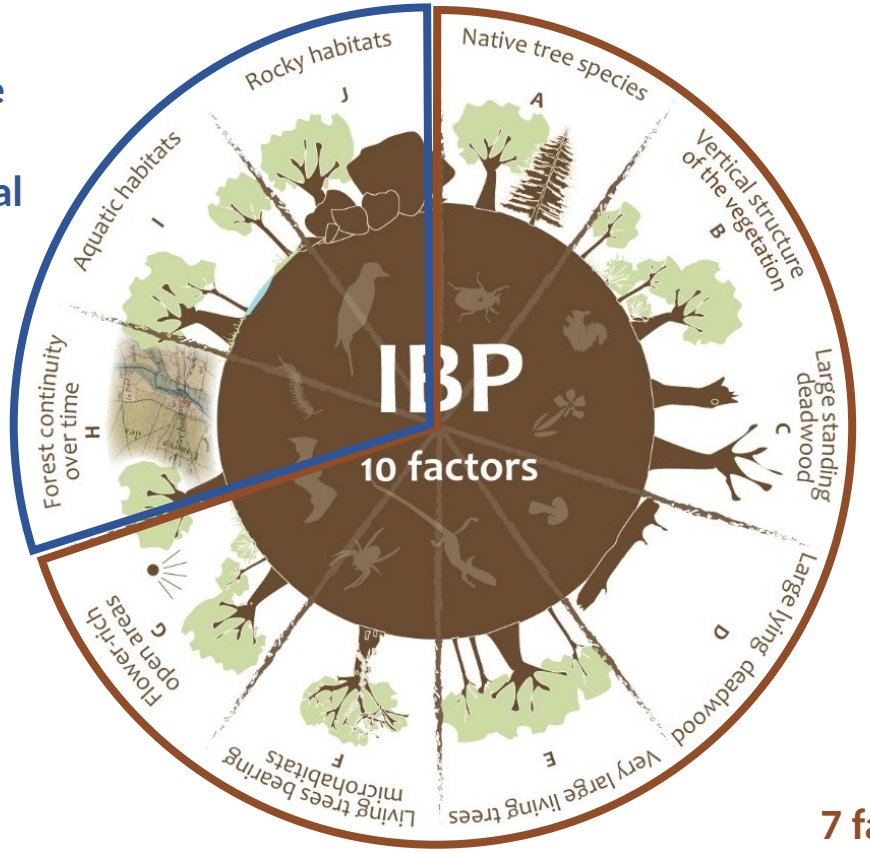
TreMs Collect and IBP Collect: two new apps designed for collecting data on tree-related microhabitats and the Index of Biodiversity Potential

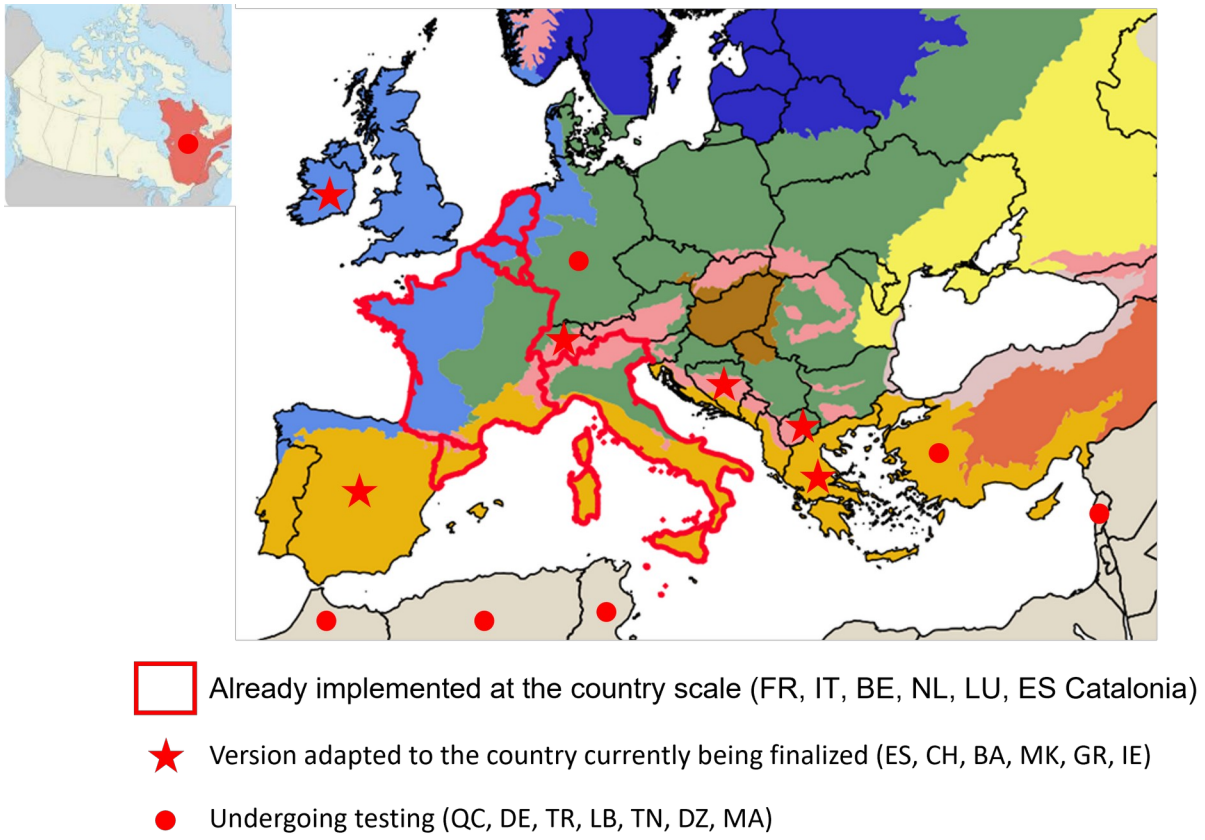
Gouix N., Bossaert M., Bütler R., Courbeau B., Emberger C., Marty P., Norel H., Larrieu L.

The Index of Biodiversity Potential is a straightforward diagnostic tool designed to assist forest managers in implementing biodiversity-friendly forest management practices

3 factors related to the historical and environmental context



7 factors directly related to forest management



Commonly used in Europe for biodiversity assessm

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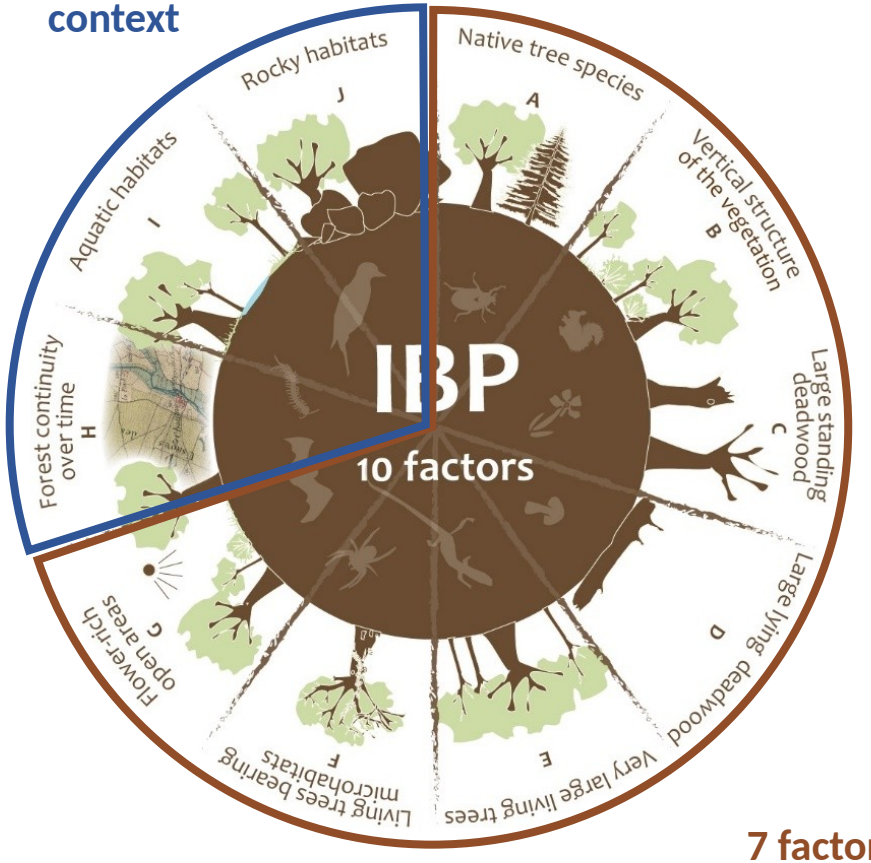

7 factors directly related to forest management

Based on a scientific background developed over a 18-y R&D programme

Ecological Indicators
Volume 136, March 2022, 108692

Index of biodiversity potential (IBP) versus direct species monitoring in temperate forests

Laura Zeller [a], Charlotte Baumann [a], Pierre Gonin [b], Lea Heidrich [c], Constanze Keye [d], Felix Konrad [a], Laurent Larrieu [e f], Peter Meyer [d], Holger Sennhenn-Reulen [g], Jörg Müller [h i], Peter Schall [a], Christian Ammer [a]

Forest Ecology and Management
Volume 587, 1 July 2025, 122727

Evaluating habitat structural variables as reliable indicators of biodiversity in Mediterranean forests

Marc Rota [a b c], Míriam Piqué [a b], Victor Sazatornil [a], Mariano J. Feldman [a], Teresa Baiges [d], David Guixé [a], Laurent Larrieu [e f], Roser Mundet [g], Mar Pallarés [a], Jordi Vayreda [h], Jordi Camprodon [a i]

Ecological Indicators
Volume 104, September 2019, Pages 116-126

Assessing the potential of routine stand variables from multi-taxon data as habitat surrogates in European temperate forests

Laurent Larrieu [a b], Frédéric Gosselin [c], Frédéric Archaux [c], Richard Chevalier [c], Gilles Corriol [d], Emmanuelle Dauffy-Richard [c 1], Marc Deconchat [a], Marion Gosselin [c], Sylvie Ladet [a], Jean-Marie Savoie [a], Laurent Tillon [e], Christophe Bouget [c]

Ecological Indicators
Volume 110, March 2020, 105884

Developing and using statistical tools to estimate observer effect for ordered class data: The case of the IBP (Index of Biodiversity Potential)

Frédéric Gosselin [a], Laurent Larrieu [b c]

And even more ……

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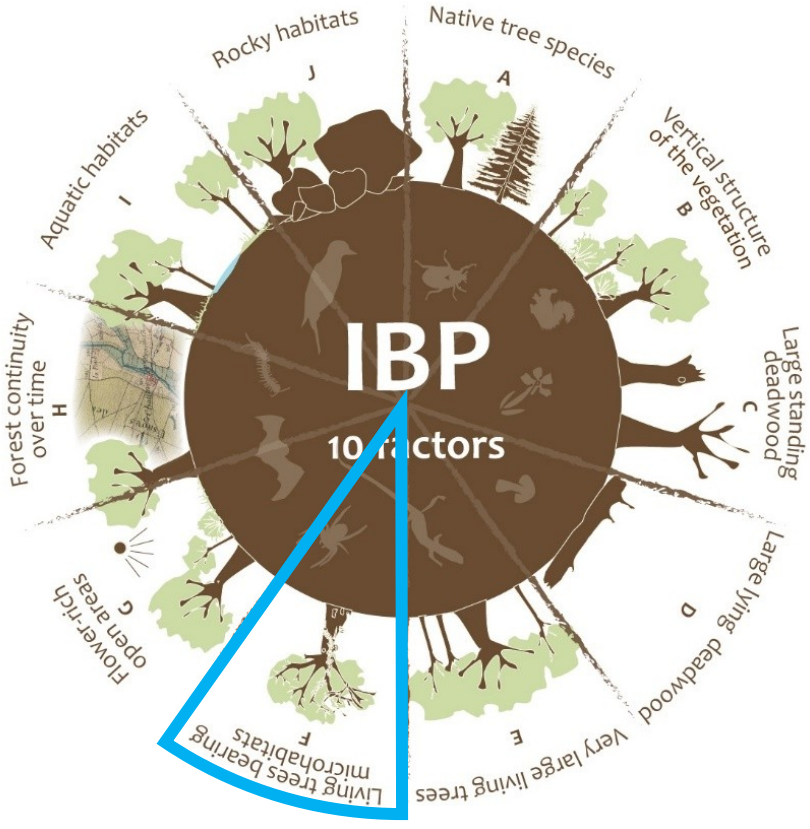
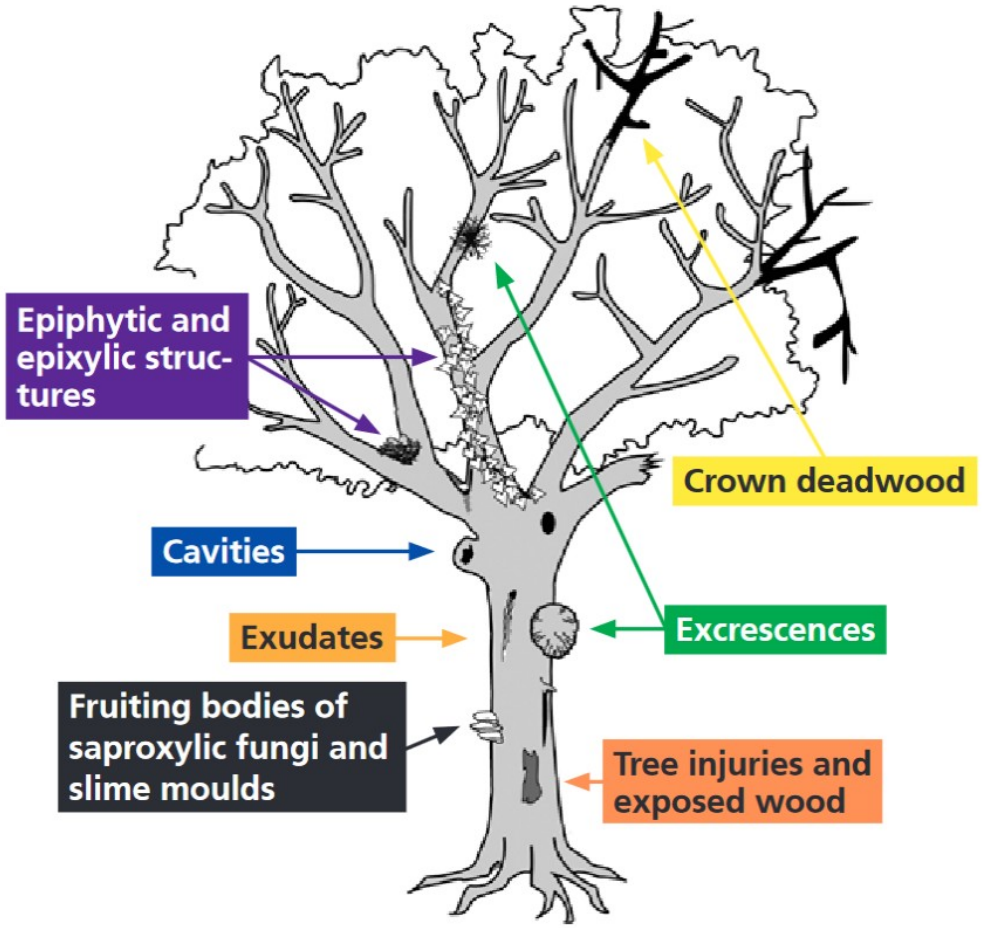


Monitoring of tree-related microhabitats is of particular interest



7 forms

17 groups

52 types

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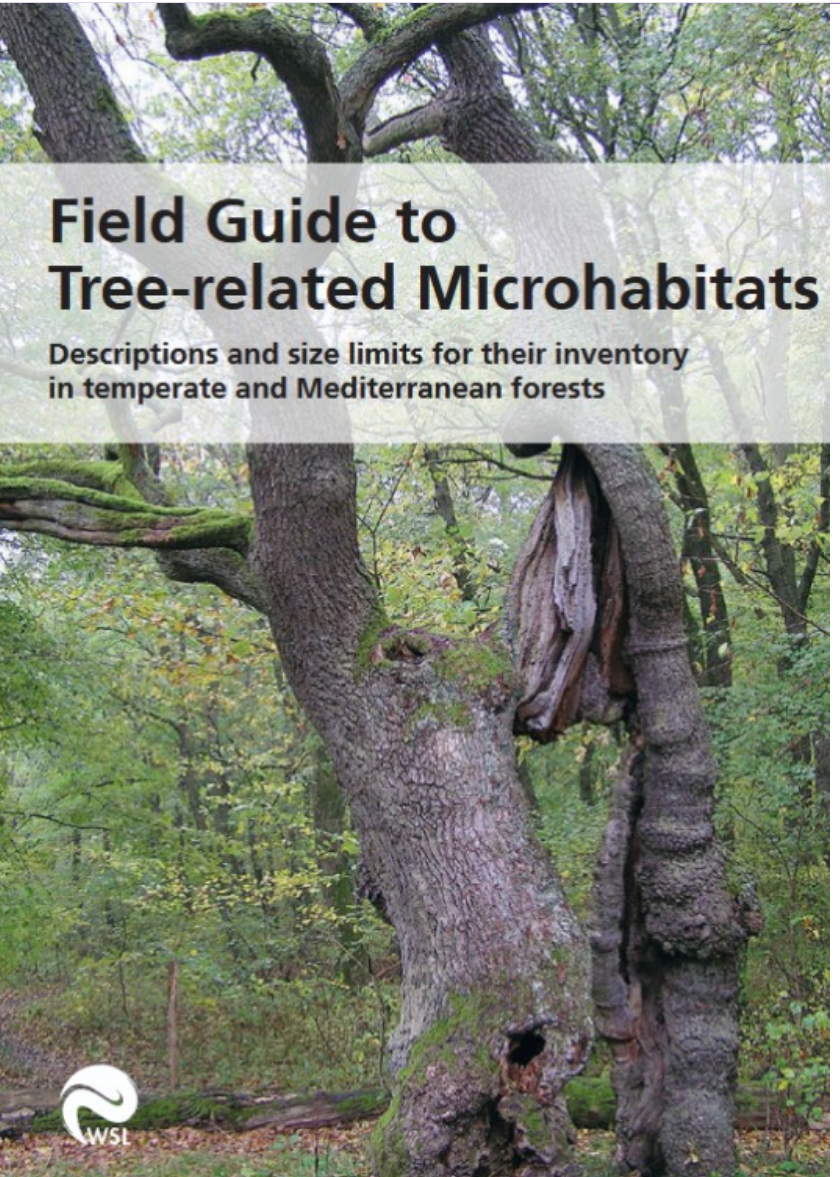

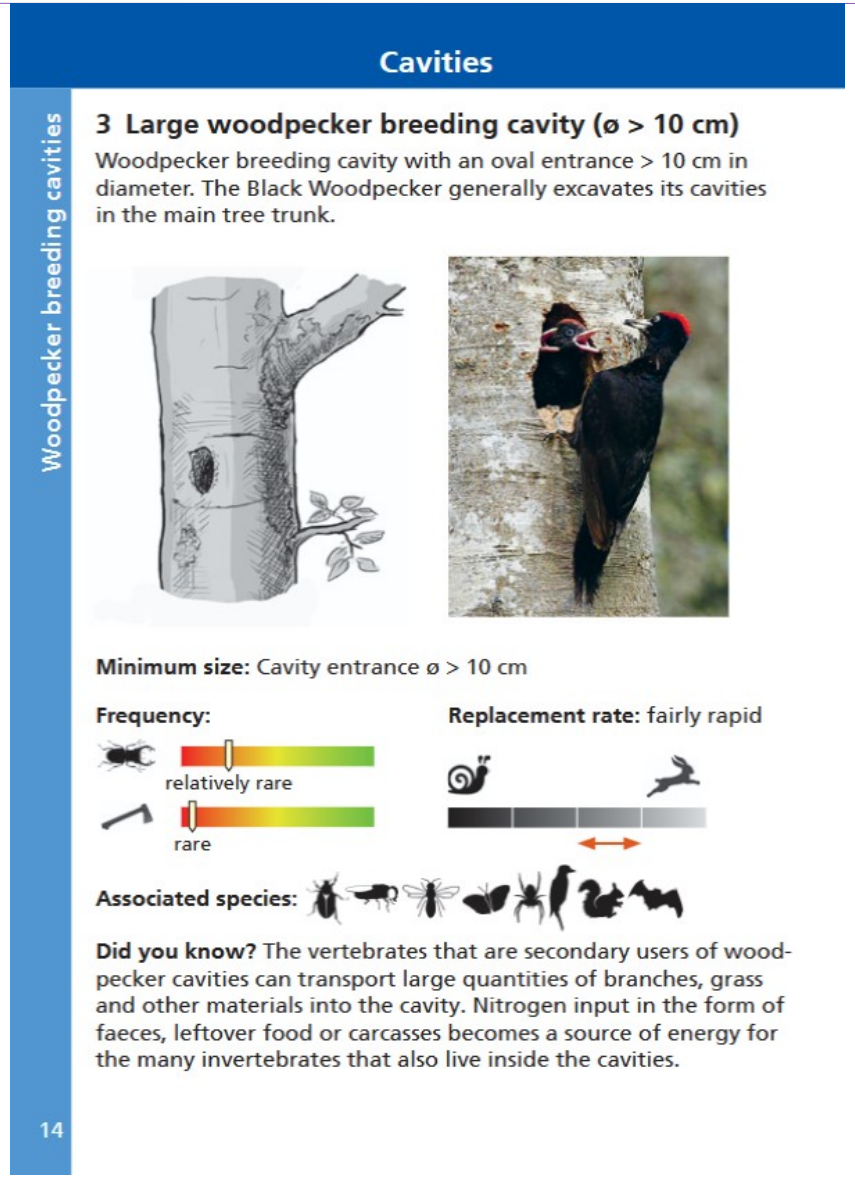

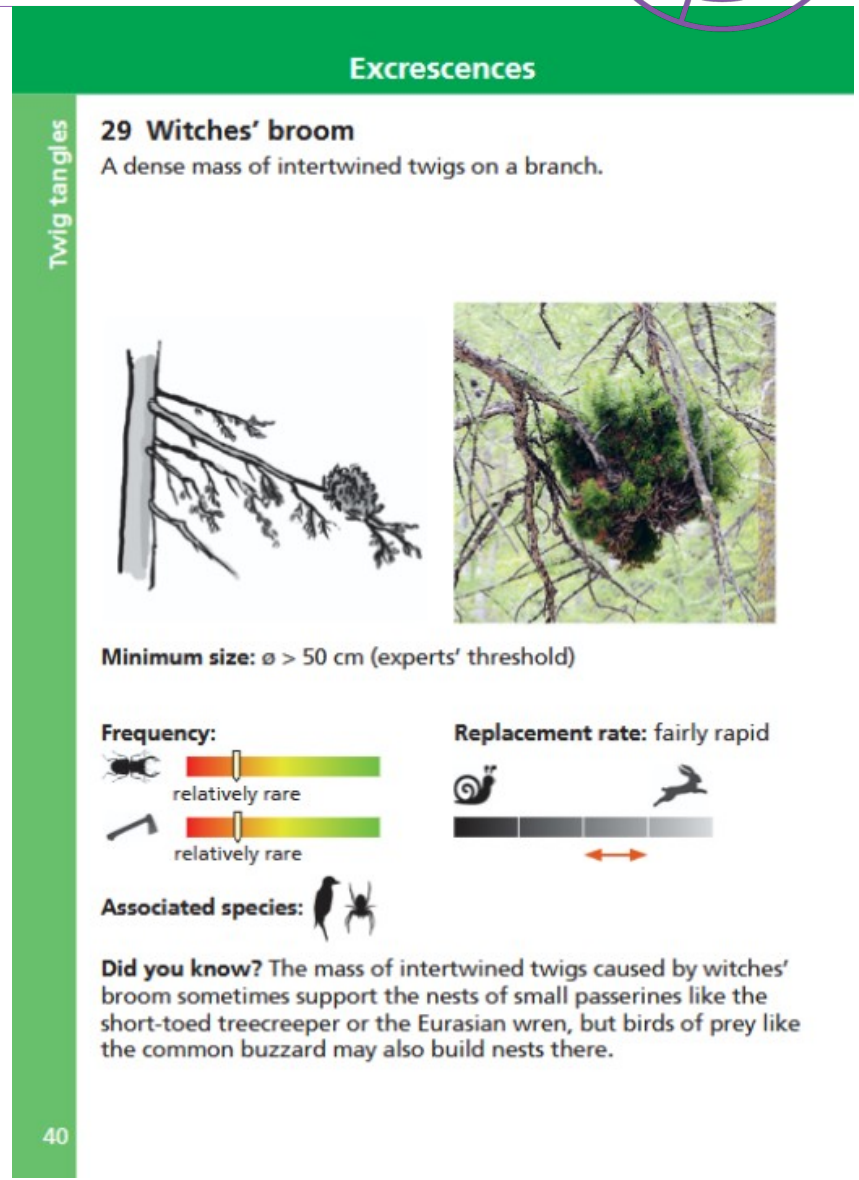

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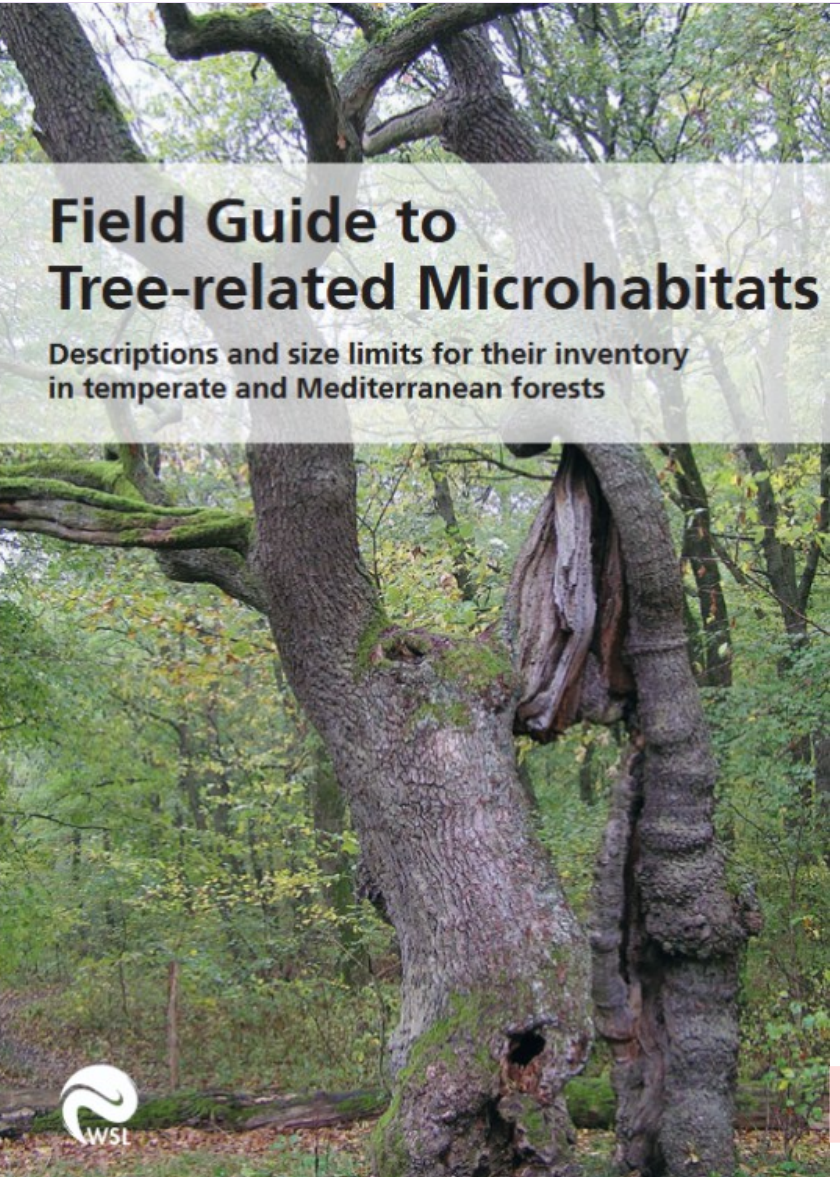


Monitoring of tree-related microhabitats is of particular interest


frontiers | Frontiers in Forests and Global Change

SYSTEMATIC REVIEW

Tree-Related Microhabitats Are Promising Yet Underused Tools for Biodiversity and Nature Conservation: A Systematic Review for International Perspectives

Maxence Martin, Yoan Paillet, Laurent Larrieu, Christel C. Kern, Patricia Raymond, Pierre Drapeau and Nicole J. Fenton

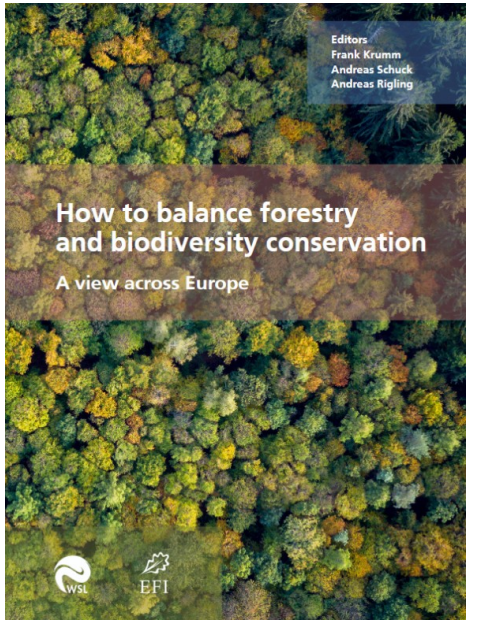
ELSEVIER

Biological Conservation

Volume 301, January 2025, 110867

Spatial distribution of tree-related microhabitats in European beech-dominated forests

Laurent Larrieu, Christophe Bouget, Benoit Courbaud, Inken Doerfler, Nicolas Gouix, Michel Goulard, Sylvie Ladet, Fabien Laroche, Amandine Acloque, Rita Bütler, Daniel Kozák, Daniel Kraus, Frank Krumm, Thibault Lachat, Maxence Martin, Jörg Müller, Yoan Paillet, Andreas Schuck, Jonas Stillhard, Miroslav Svoboda ... Sergey Zudin



Recommendations for maintaining a minimum density of habitat-trees are now integrated into most forest policies and certification schemes in Europe

Towards enhanced conservation strategies based on retention trees

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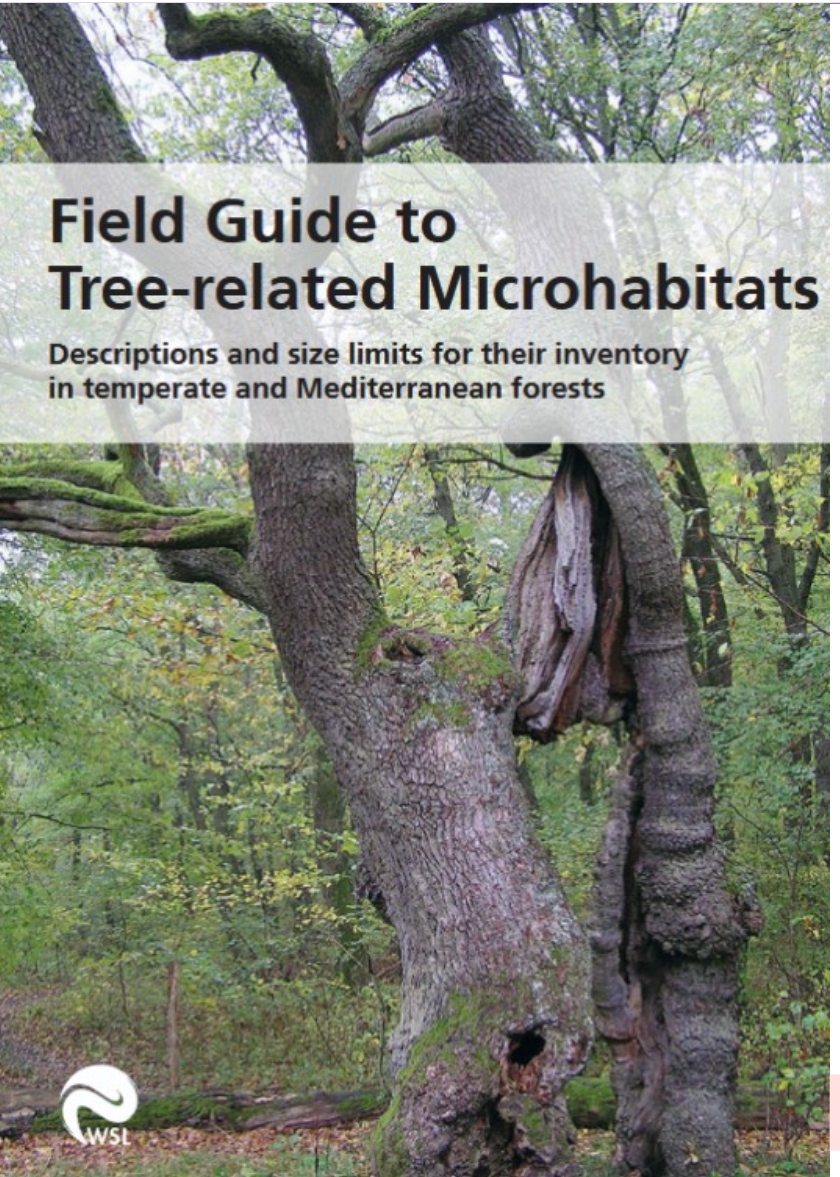
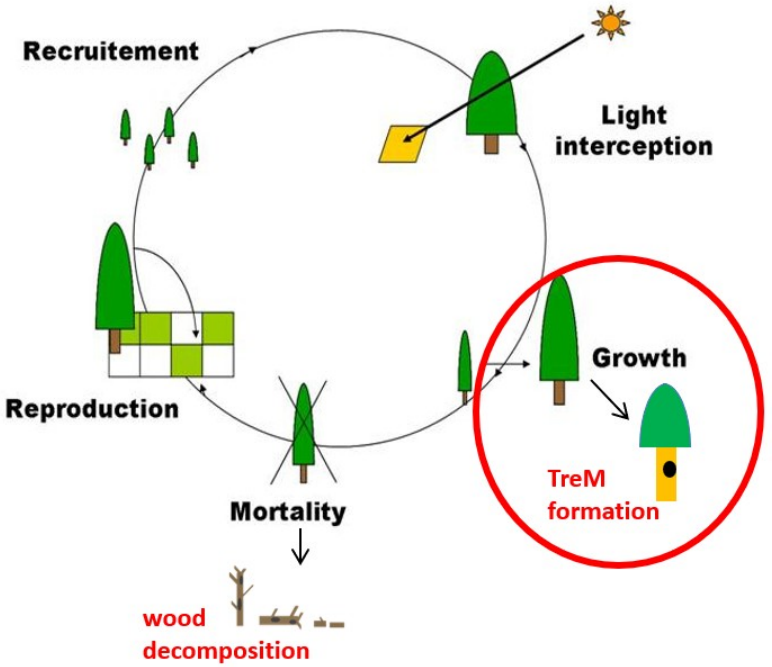


Monitoring of tree-related microhabitats is of particular interest

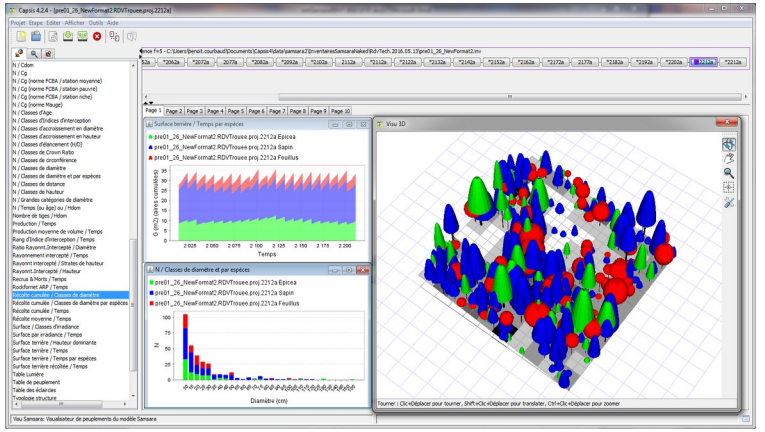


Received: 1 March 2021 | Accepted: 19 October 2021
DOI: 10.1111/1365-2664.14068
Journal of Applied Ecology
RESEARCH ARTICLE

Factors influencing the rate of formation of tree-related microhabitats and implications for biodiversity conservation and forest management

Benoit Courbaud[1] | Laurent Larrieu[2,3] | Daniel Kozak[4] | Daniel Kraus[5,6] | Thibault Lachat[7,8] | Sylvie Ladet[2] | Jörg Müller[9] | Yoan Paillet[10,11] | Khosro Sagheb-Talebi[12] | Andreas Schuck[13] | Jonas Stillhard[8] | Miroslav Svoboda[4] | Sergey Zudin[14]

Capsis platform



To better understand the impact of silvicultural practices

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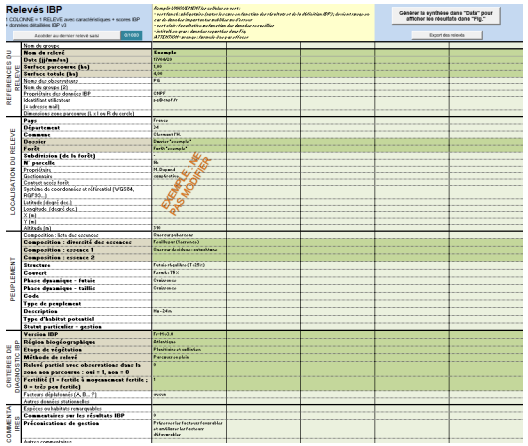
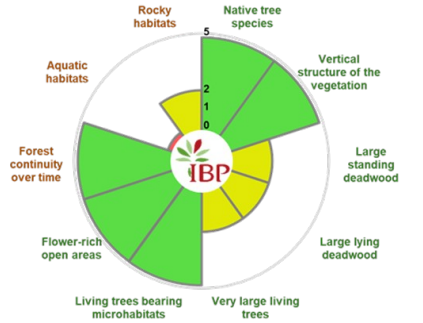
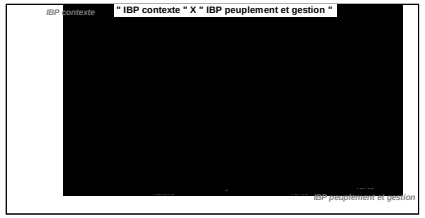
Gouix N., Bossaert M., Bütler R., Courbeau B., Emberger C., Marty P., Norel H., Larrieu L.

Despite the growing interest in the IBP and TreMs among scientists and practitioners, consolidating data at an international scale remains challenging due to a lack of dedicated tools

IBP database in project but not yet effective

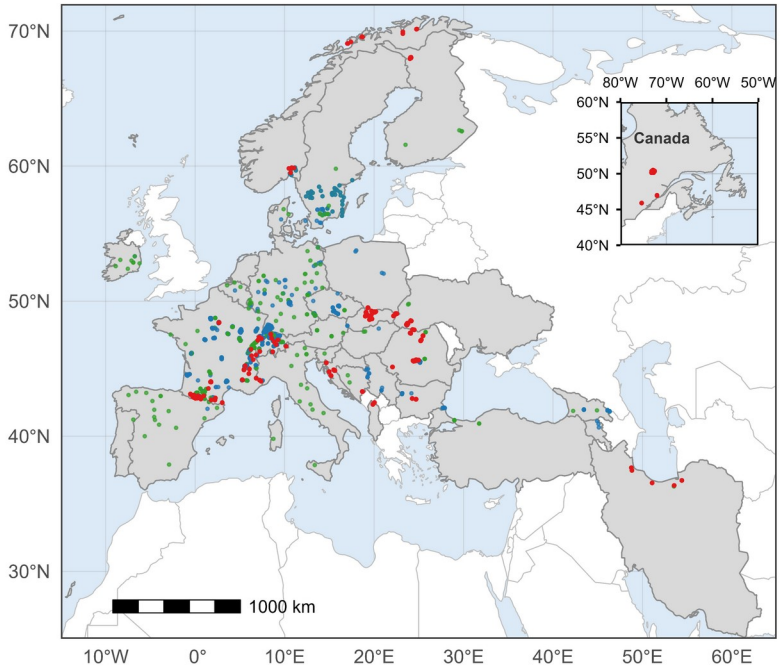






- A dedicated IBP website (https://www.cnpf.fr/ibp) A dedicated monitoring field paper
- An Excel spreadsheet per user not connected to a central database

International Tree-Related Microhabitats database



251 534 trees
33 country
705 sites :

- 0 – 30 ans
- 30 – 100 ans
- >100 ans

4515 plots

- A field guide
- A international CSV database compiled from various data sources

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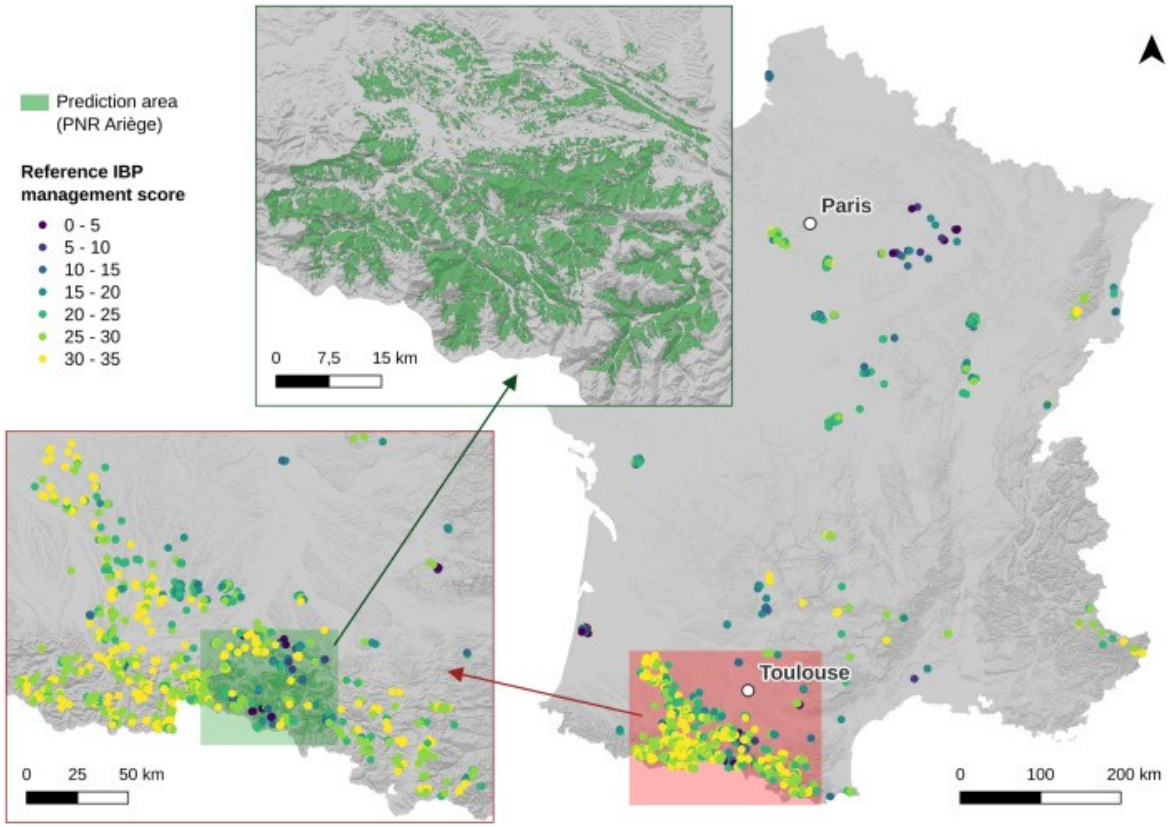

For example, compiling large-scale data in order to calibrate a lidar-based model capable of predicting IBP remains a challenge :

Forest Ecology and Management
Volume 601, 1 February 2026, 123305

Habitat quality assessment of temperate forest ecosystems: An airborne LiDAR-based approach to predict the Index of Biodiversity Potential (IBP) at large scale ☆

Manon Collard [a], Olivier Martin-Ducup [b], Nicolas Mellado [c], Laurent Larrieu [a d], Fabien Laroche [a], Nicolas Gouix [e], Antoine Brin [f], Pierre Gonin [g], David Sheeren [a]

Need more data for a better representativity of various forest contexts at large scale !

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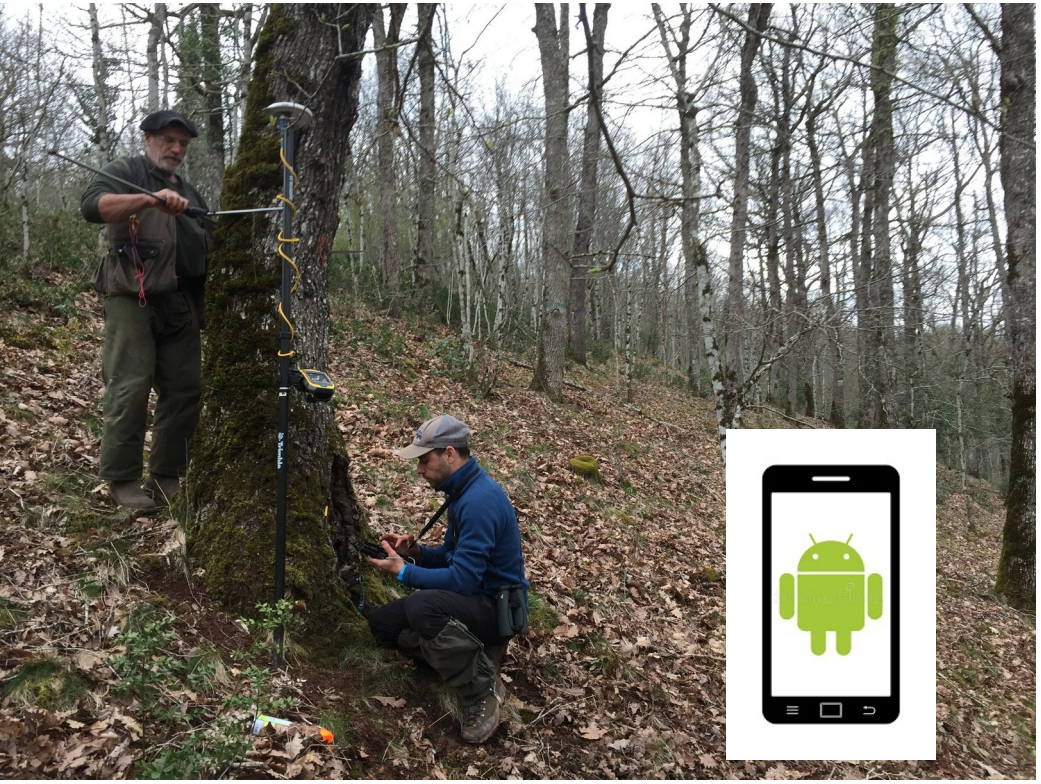
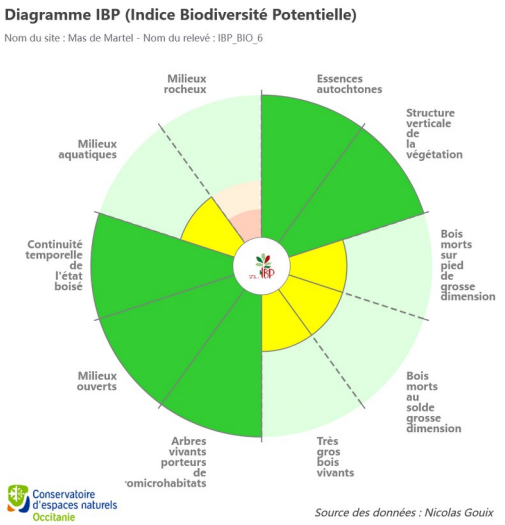
In order to promote the use of IBP and TreMs approach

Our initial idea :



Database

Raw data



Automatic generated outpout

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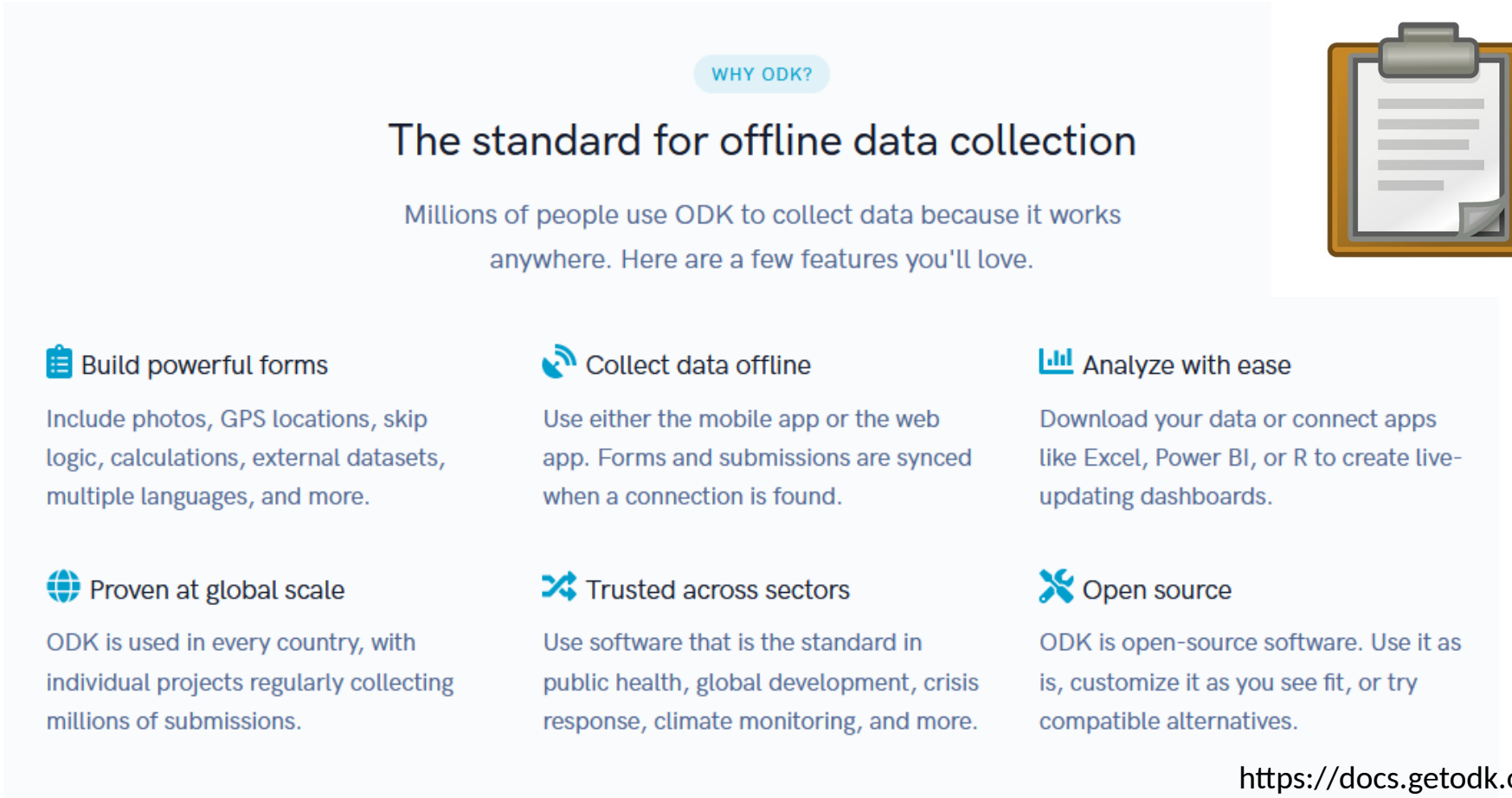
Based on ODK ecosystem

OPEN DATA KIT

ODK Collect is an open source Android app that replaces paper forms used in survey-based data gathering. It supports a wide range of question and answer types, and is designed to work well without network connectivity.



https://docs.getodk.org/

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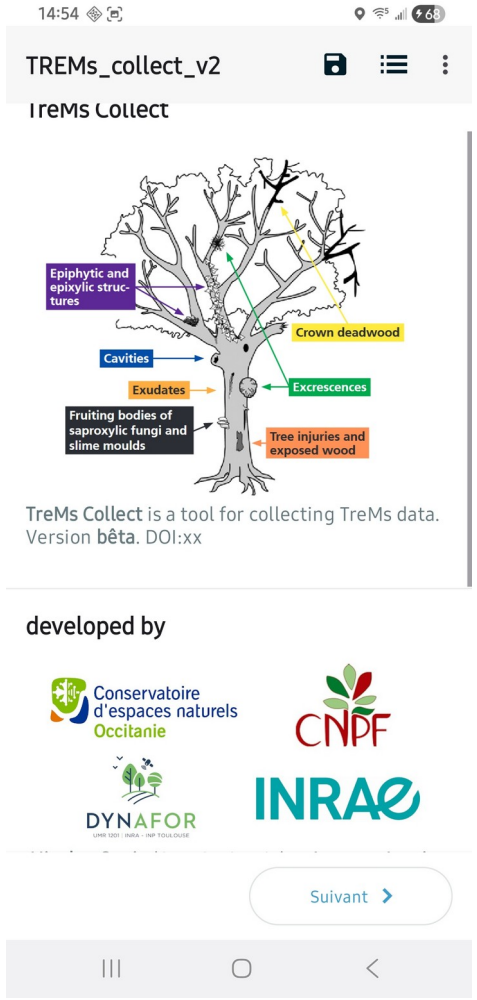
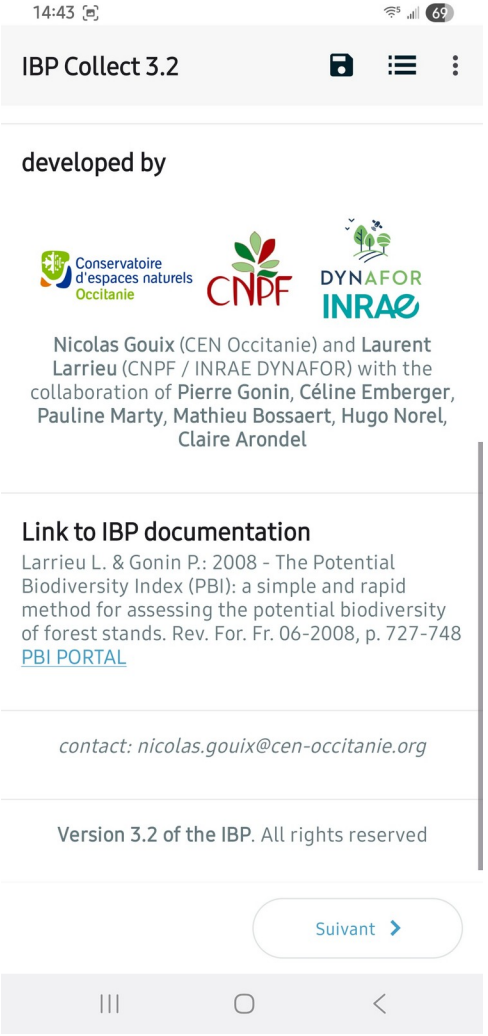
Two forms have been developed for TreMs and IBP field data entry





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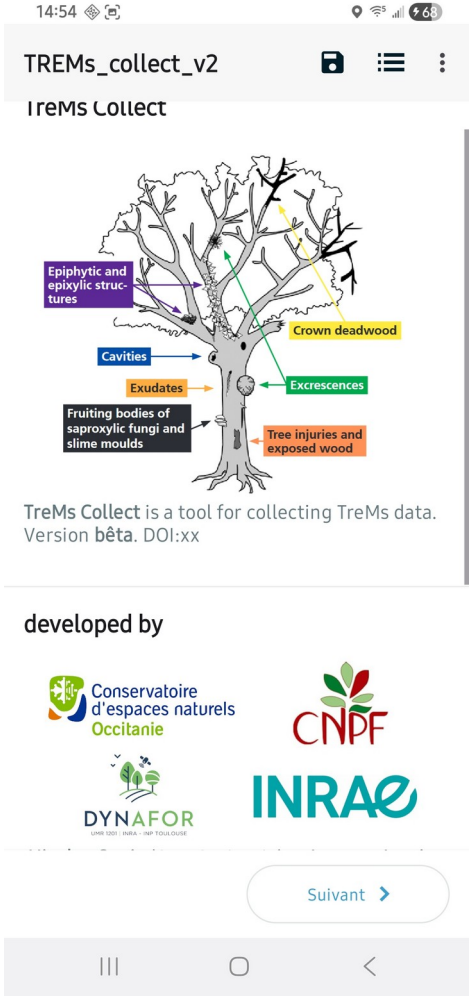
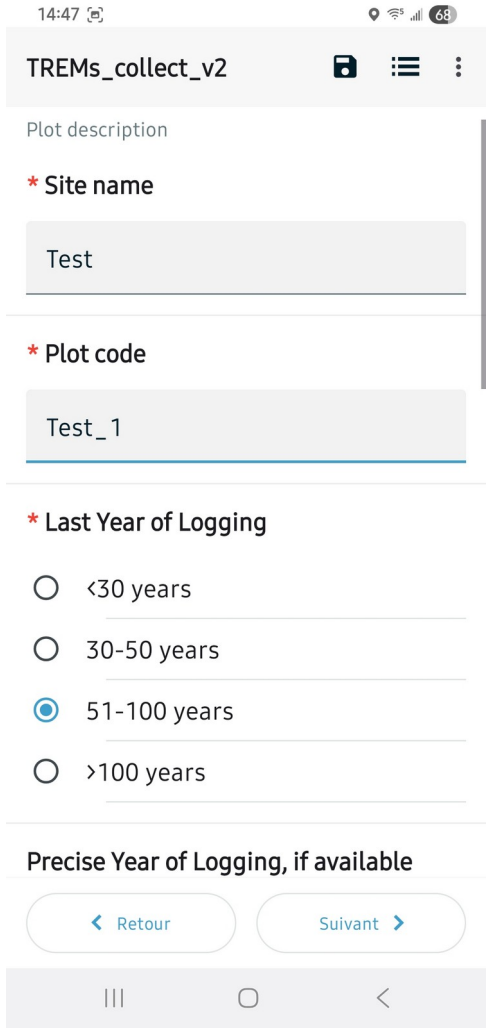
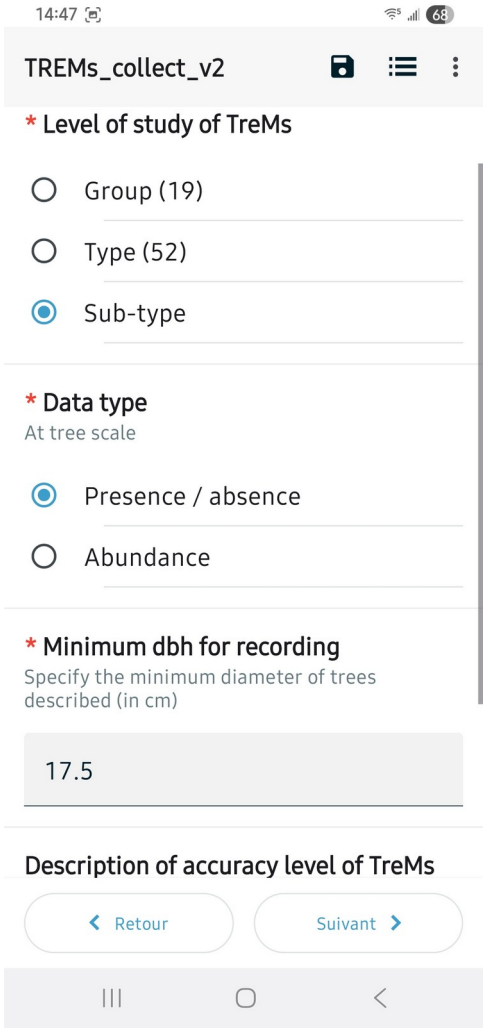
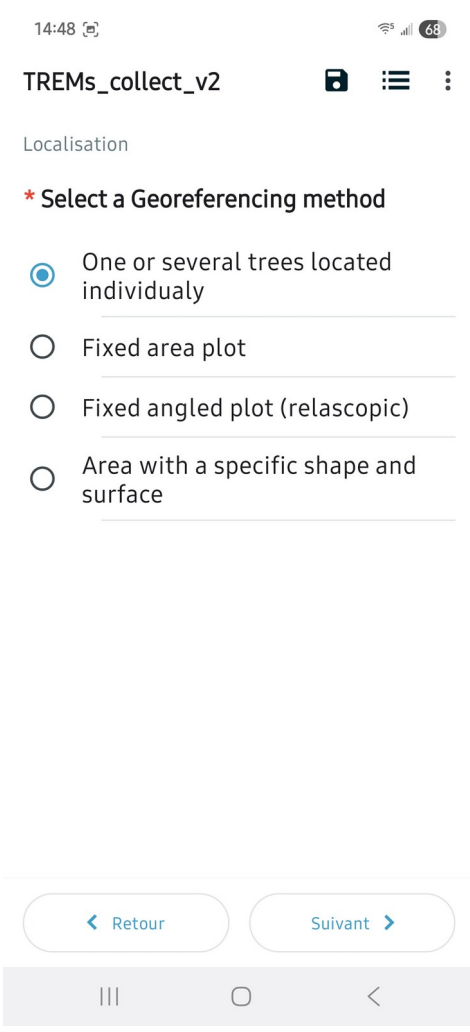
1) Description and location of the survey

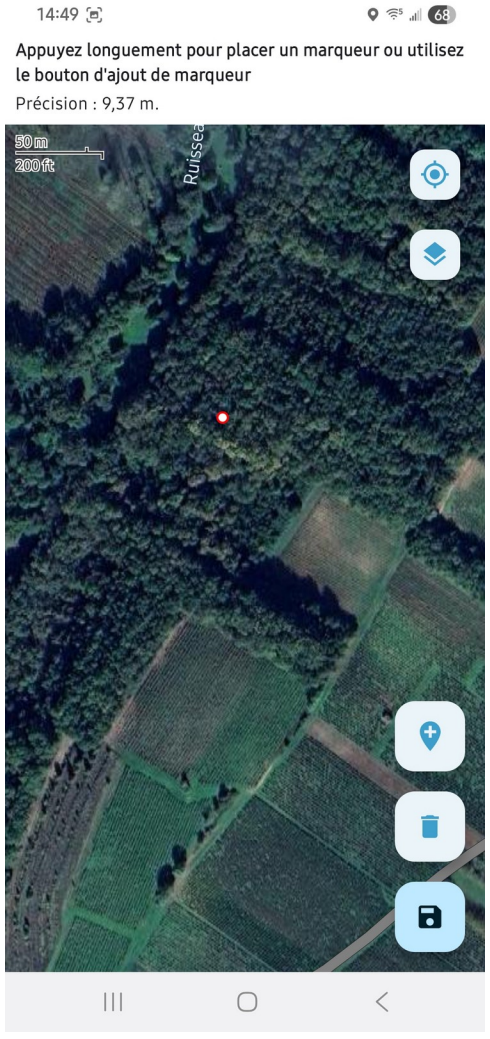
* The red asterisks indicate the mandatory fields











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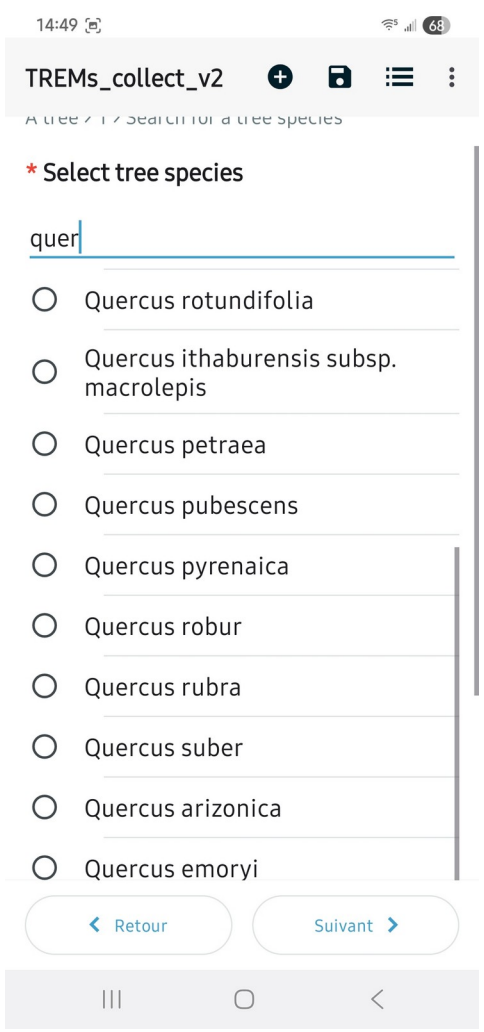
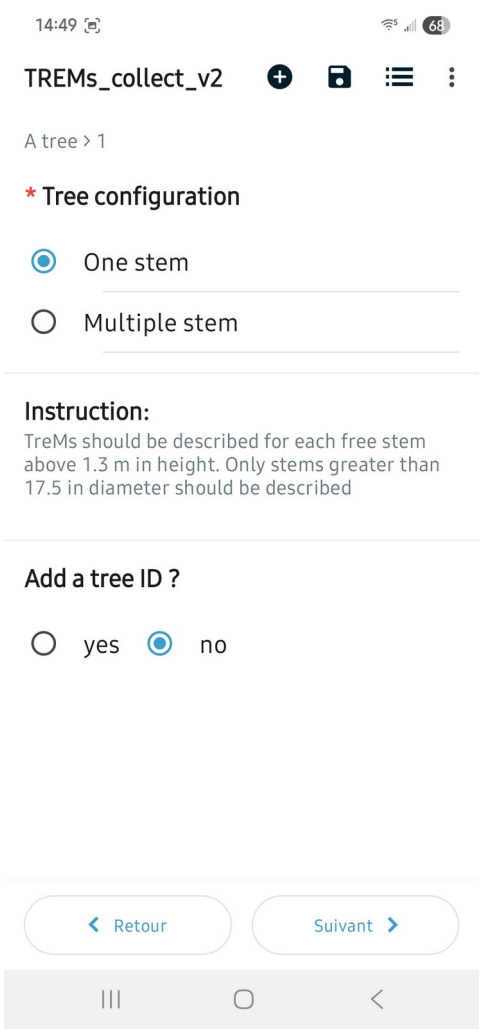
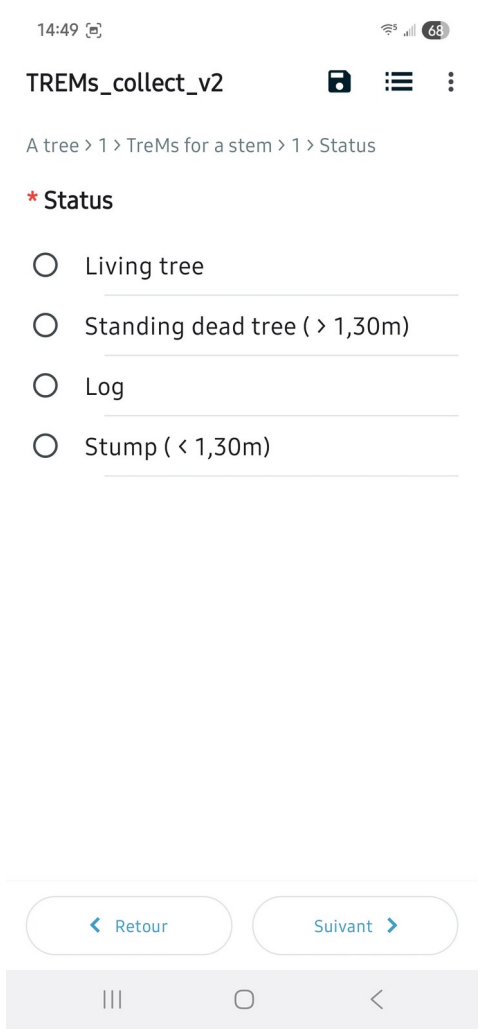
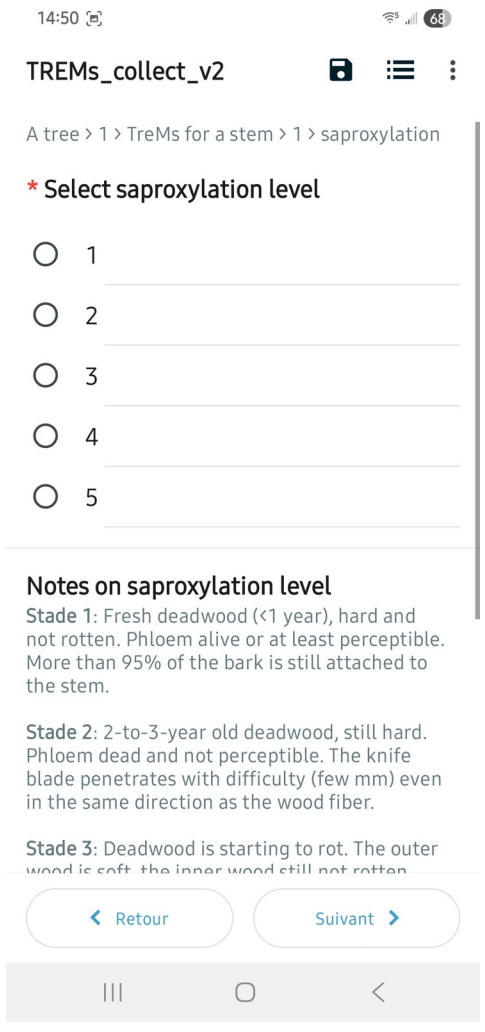
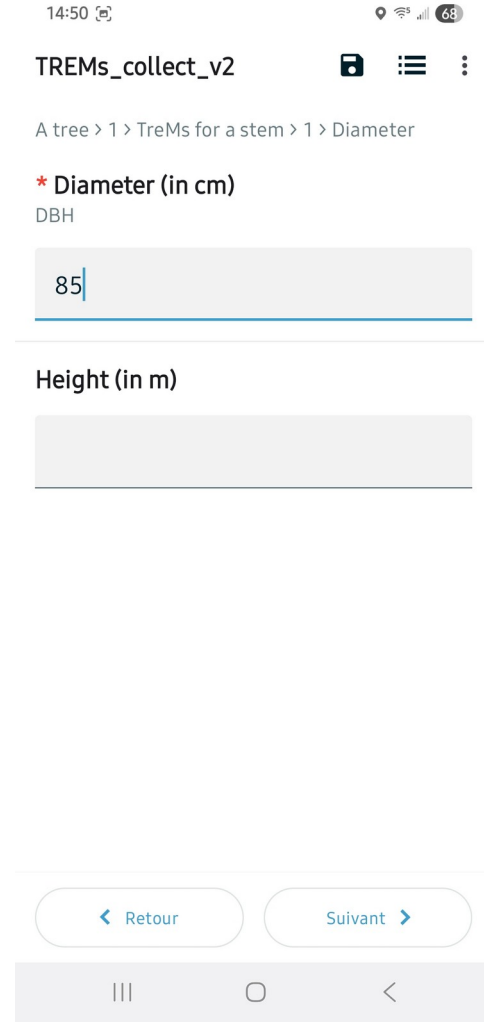
2) Description of TreM-bearing trees











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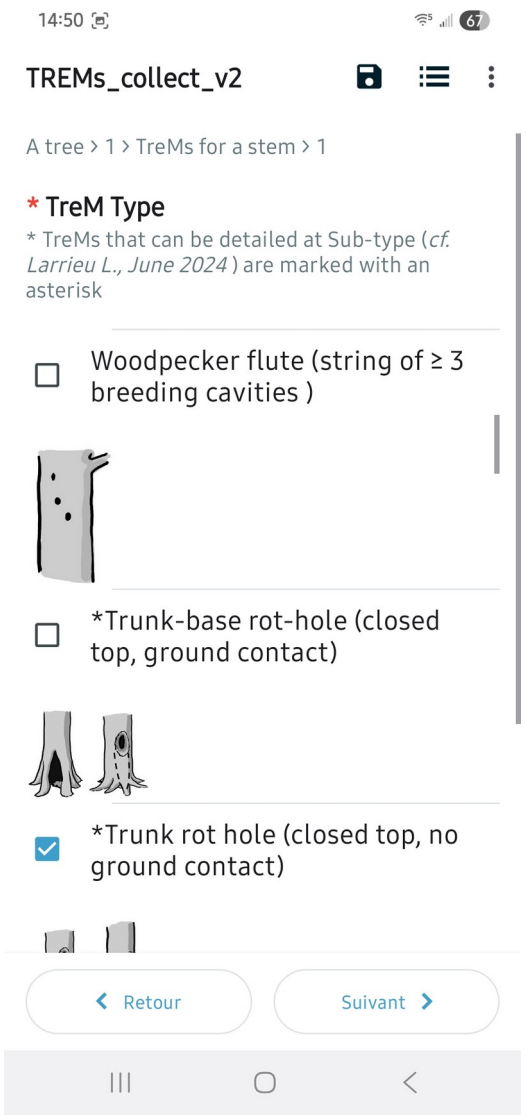
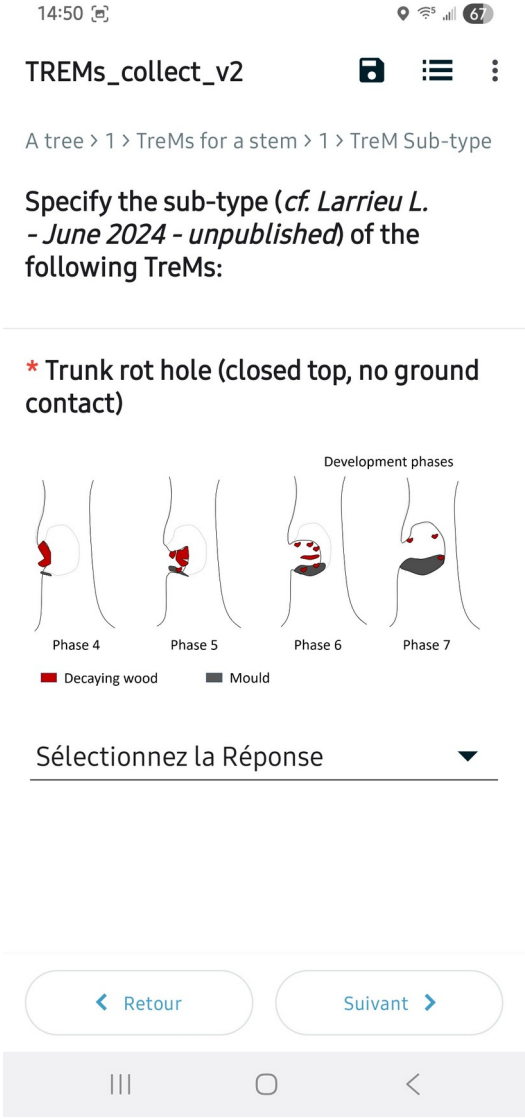
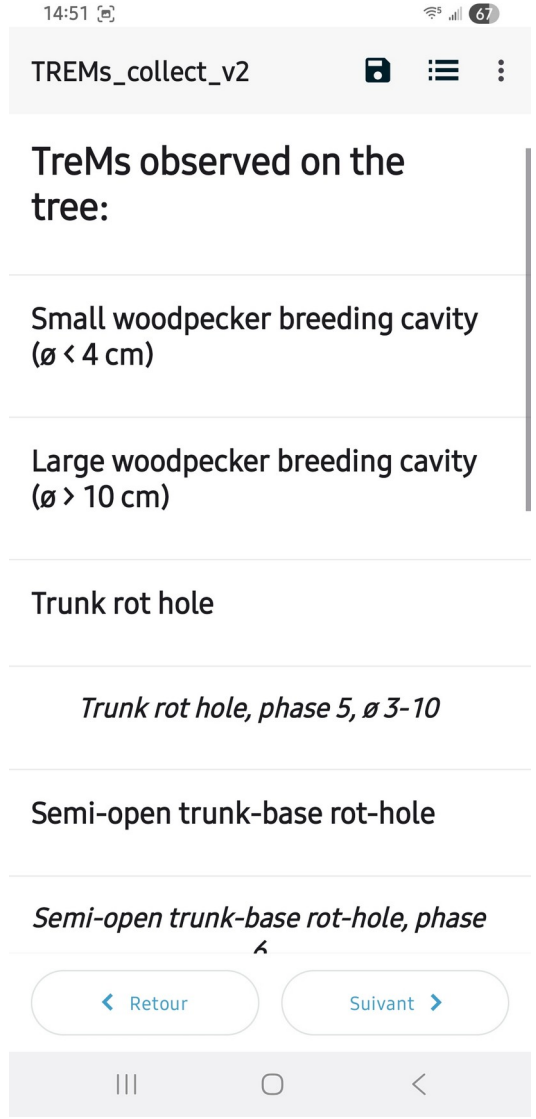
2) Description of TreMs







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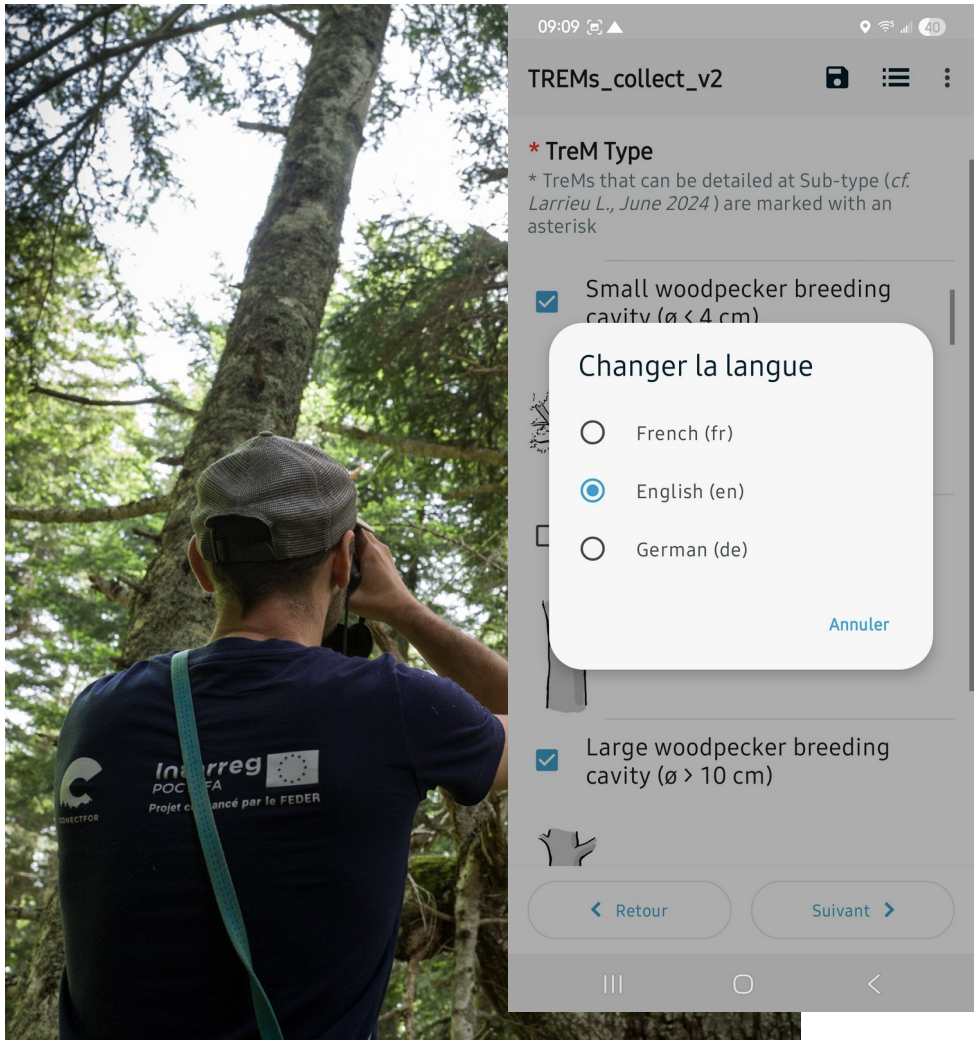
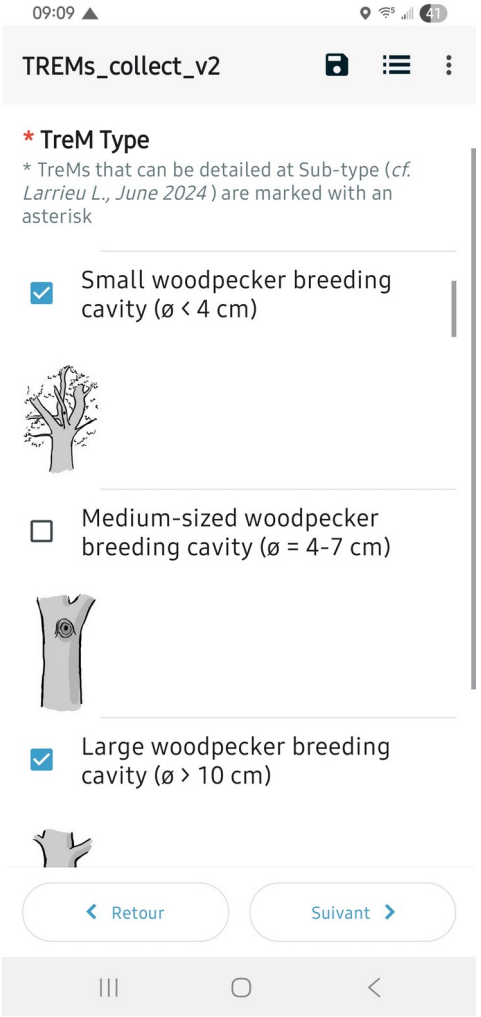
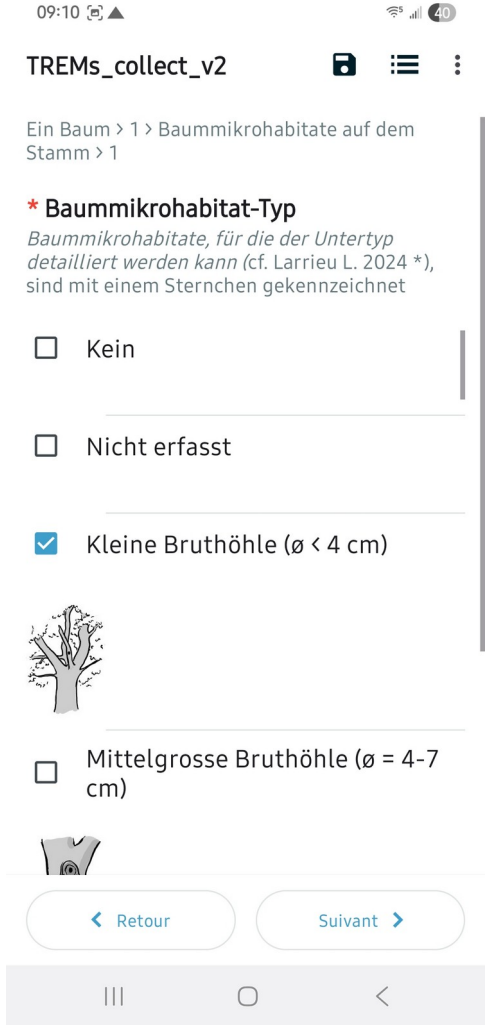
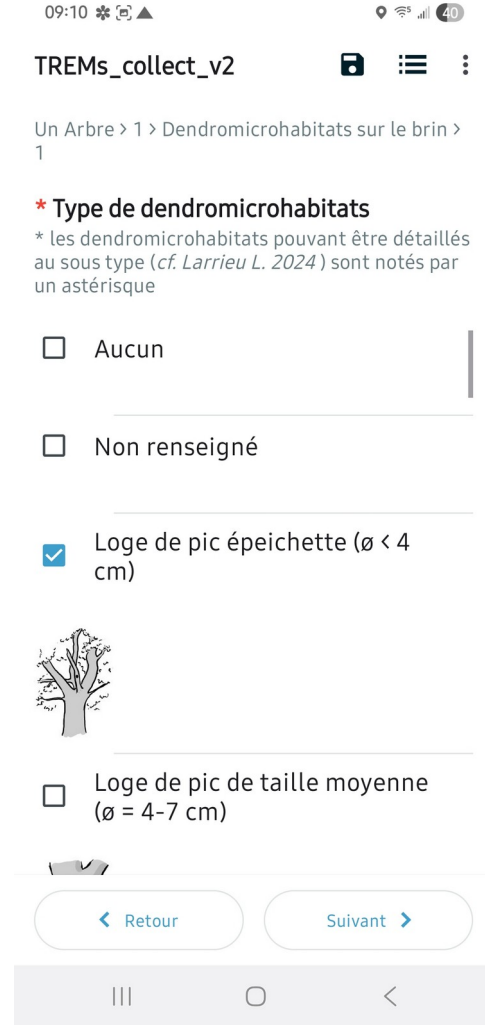
Multilanguage support









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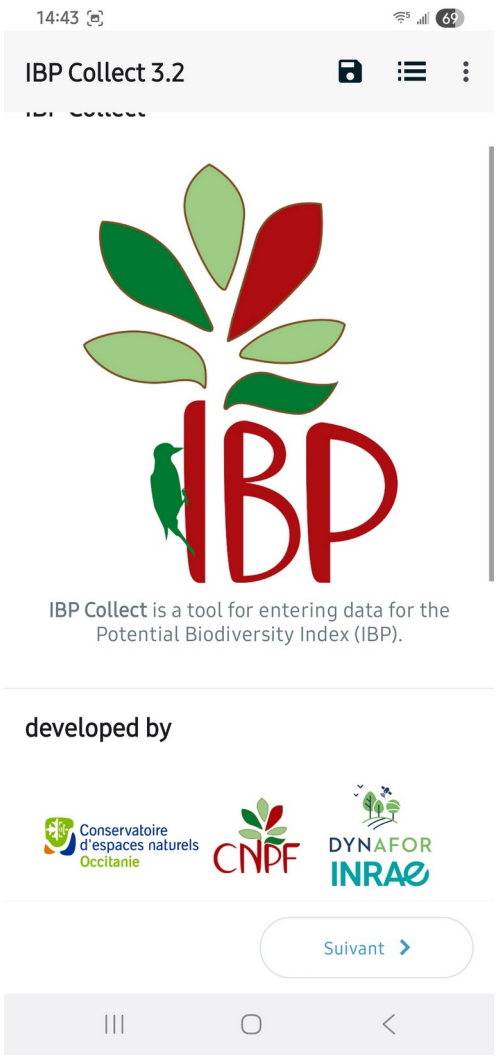
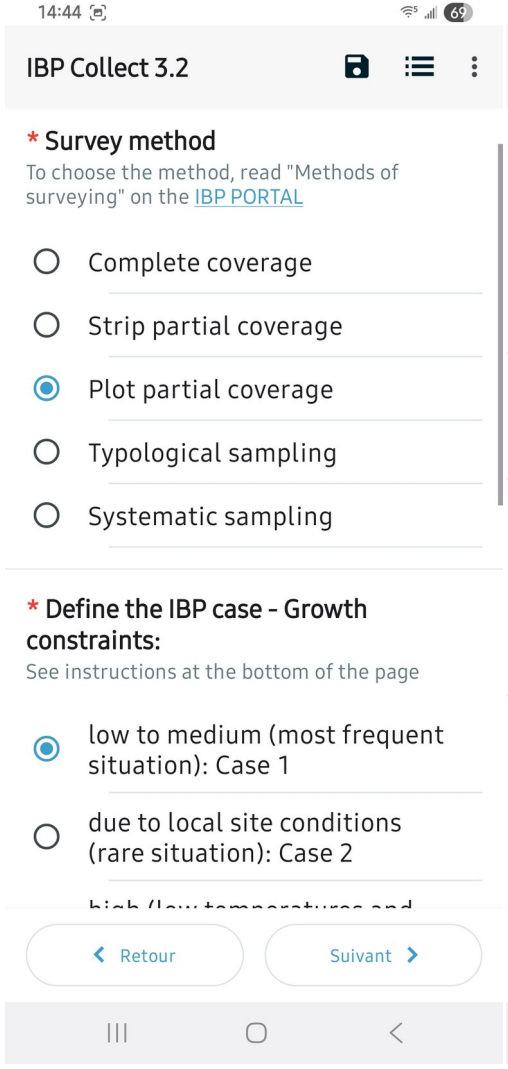
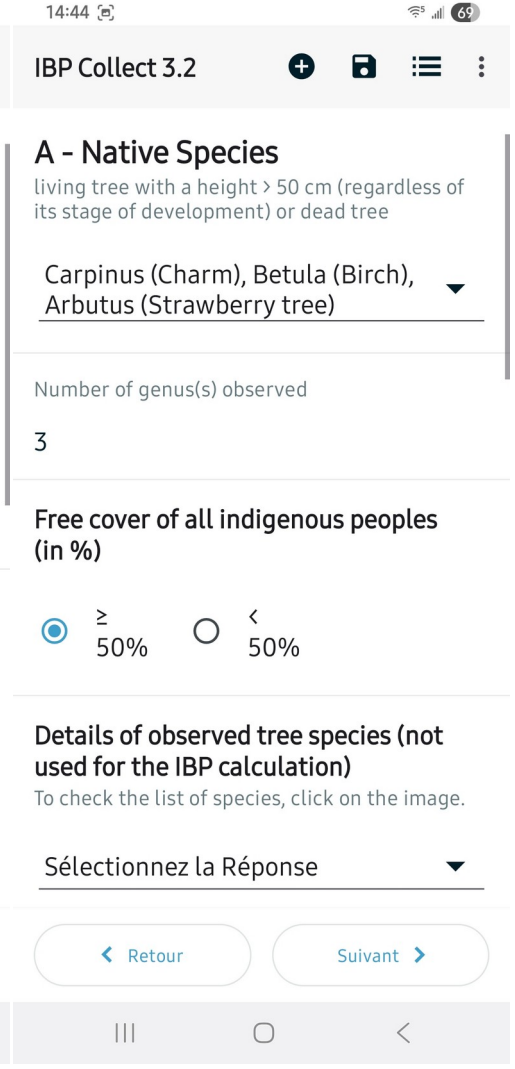
TreMs Collect and IBP Collect: two new apps designed for collecting data on tree-related microhabitats and the Index of Biodiversity Potential

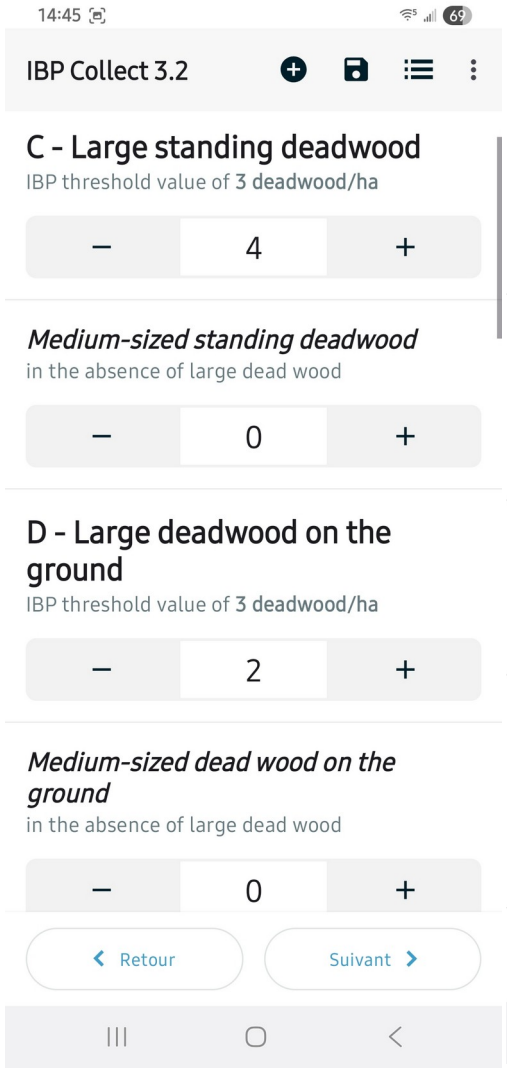
Gouix N., Bossaert M., Bütler R., Courbeau B., Emberger C., Marty P., Norel H., Larrieu L.

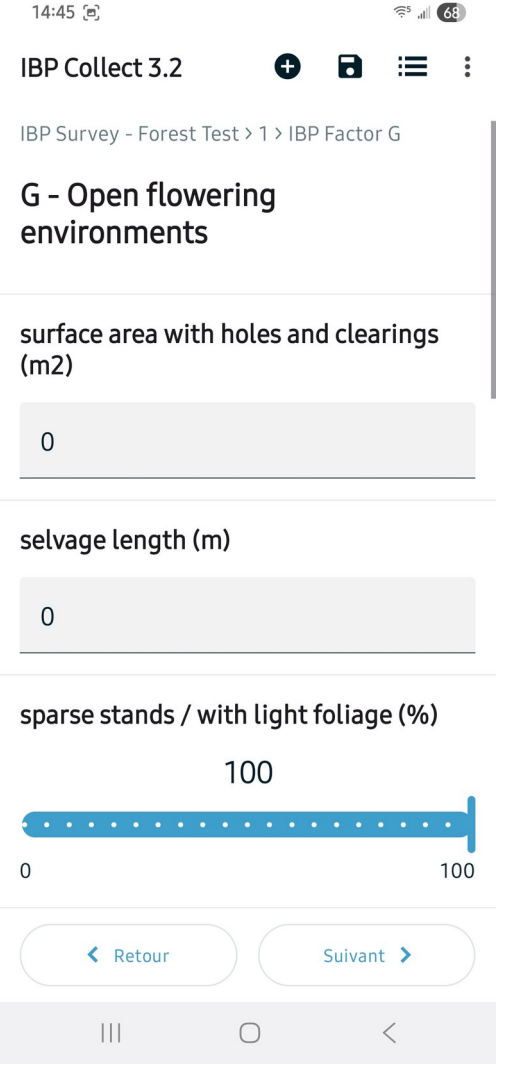
Using different types of widgets from the ODK ecosystem











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How does it work ?

XLS Form

Configuring

Export Raw data

Data consolidation

Configuring

Submit to central

Or

Configuring

Submit to central

Web input

TreMs collect_data for integration in International TREM Database

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How does it work ?

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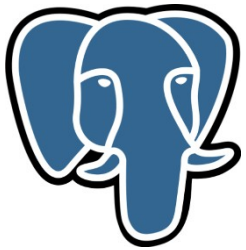
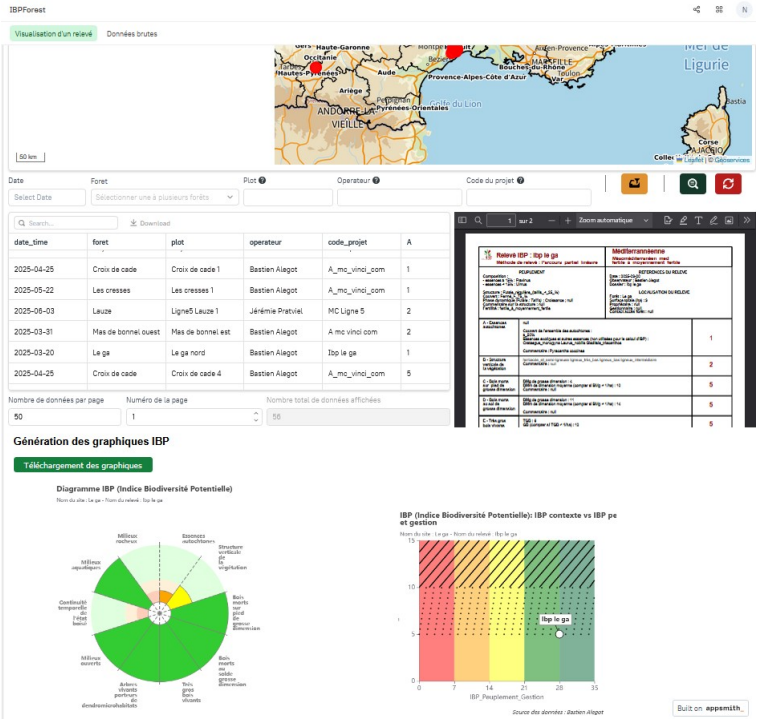
Sql database



AppSmith interface for IBP data



Configuring

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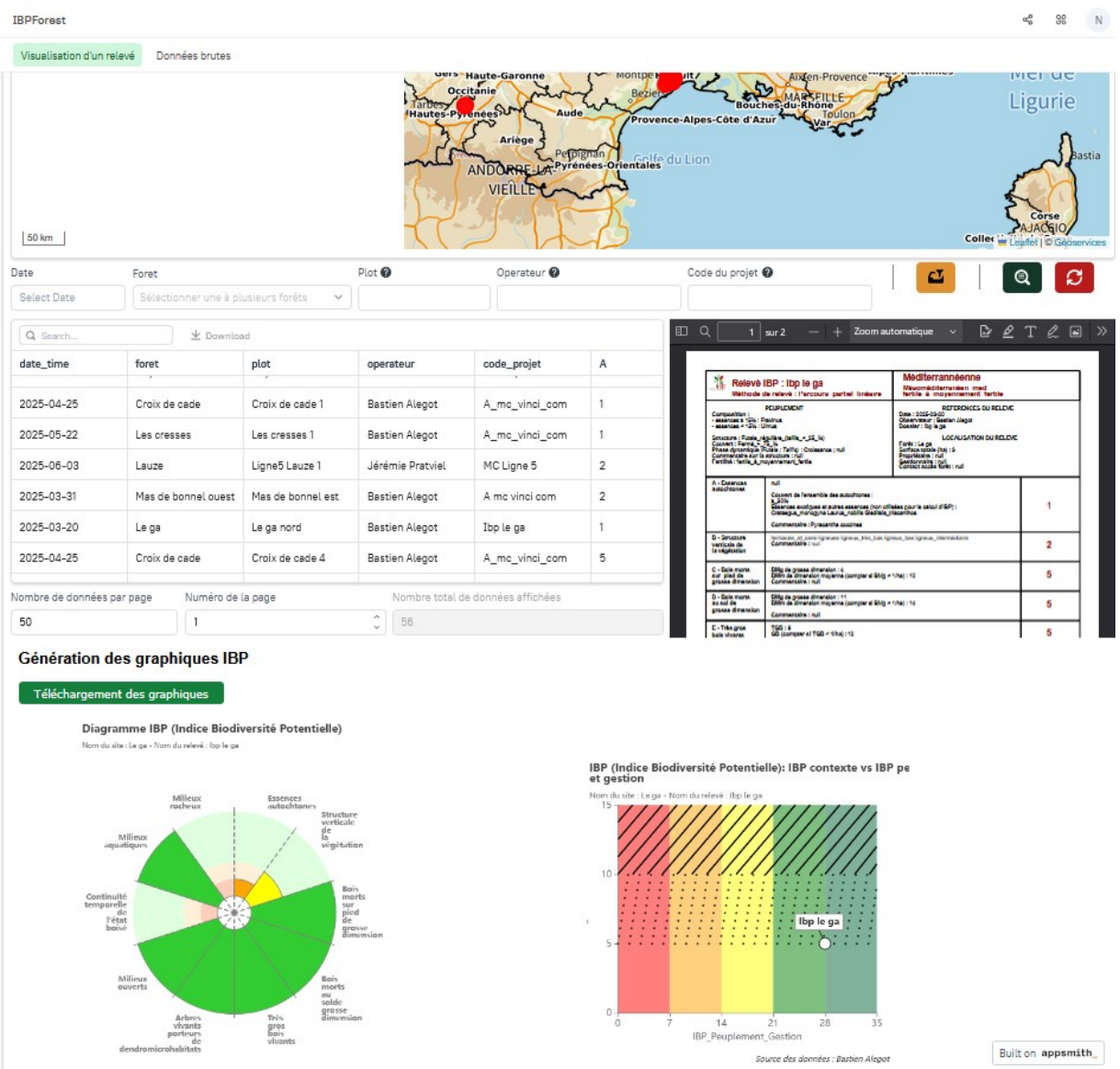

Benefits of IBP

Automatic generation of reports and charts

Each user can only view their own data

Option to download your own entire dataset

In progress:

Multilanguage support in project

Support documentation (manual …)

And we hope the same will be available soon for the TreMs ☺

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How does it work ?

For smartphone data entry:

1) Install the ODK Collect app on an Android device:
https://play.google.com/store/apps/details?id=org.odk.collect.android&hl=fr&gl=US

2) Configure ODK Collect using the attached QR code (Once the app is open, tap the three dots in the top right corner of the screen and select "Configure via QR code")

3) Enter your email address in your user preferences

For online data entry -> Link to a web data entry interface

For TreMs:
https://central.sicen.fr/f/rchTr76PtmuhRTZAGY4nxFyQv6Ct8AB?st=meVhgQvQy7vz6M$Yg8QVzPa3AY$P95BYvQcu2VOIwfdDKHVoKkkO66JxGZK$2PPo

For IBP:
https://central.sicen.fr/f/Jx8M2Hm03OPuAxb8619TnlE0MTV9cRl?st=48T3ESl3Dtbqsx17lrf8Itt!6oXEanqTdUuTy$HfbfNfl9$KuzJVLCIi8URBqKng

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Thanks for your attention !

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<- Gouix N. and Larrieu L. monitoring TreMs © Parmain G;