MULTIPLIERS

ACTIVITY

Providing a multitude of forest ecosystem services for society – a balancing act

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WHAT IS THE AIM OF THIS ACTIVITY?

This activity aims to sensitise students to the multitude of ecosystem services that forests provide to society as well as the challenges of meeting the needs of many different interest groups. The activity uses outdoor learning sites known as “marteloscopes”. Marteloscopes are delineated forest areas where data has been recorded for all standing trees. The data is made available to students via an innovative, easy-to-use, educational software (“I+ Trainer” software) running on mobile devices (tablets/mobile phones).

Given guidance, pupils can experience not only forests hands-on and observe trees closely. They can also gain an understanding of how and why forests are managed, why biodiversity in forest ecosystems is important, and how to come to solutions if forests should meet multiple demands such as providing wood for valuable wood products, be a place for recreation, and serve as a home for plants and animals.

CONDUCTING THE ACTIVITY

This activity is intended to be conducted with a group of students/school class. Before visiting the outdoor forest learning site (marteloscope), forests ecosystems are addressed in school. Shortly before the forest visit, it is recommended to invite a forest scientist and/or a forest manager to come to the school and introduce forests, their role in providing multiple ecosystem services for society, what forest managers’/scientists’ work looks like and what role science and field experience play in managing forests sustainably. For the field visit to the marteloscope, it is recommended to invite a forest scientist and/or a forest manager who can support/guide/lead the field event. To conclude the activity, it is recommended that students reflect back at school on what they have learned in the course of the activity.

Introduction

Outdoor forest learning sites or outdoor forest classrooms known as marteloscopes (which means “to look closely at tree selections”) can be used in many ways and for different age groups. A set of data is available for each tree in the delineated site (all trees are numbered) and can support the learning process.

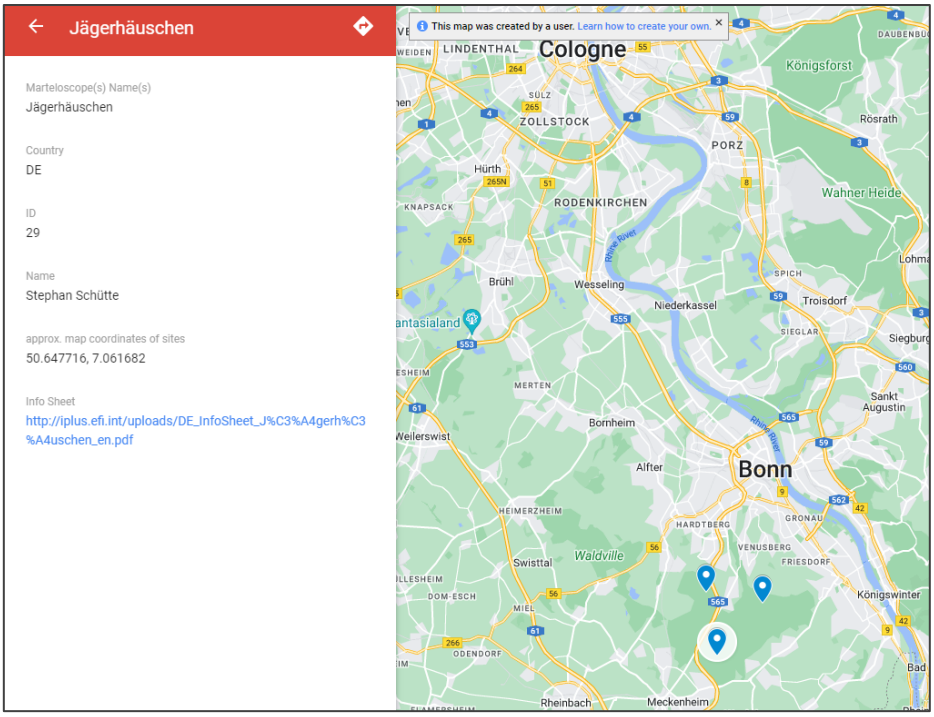
For younger students, activities can include recognising tree species, identifying tree microhabitats and which forest-dwelling species depend on them, or what products are made from wood, etc.

The same accounts for older students who may investigate the role of forests in times of climate change, or how to best balance ecosystem services under changing climate conditions and/or varying societal demands.

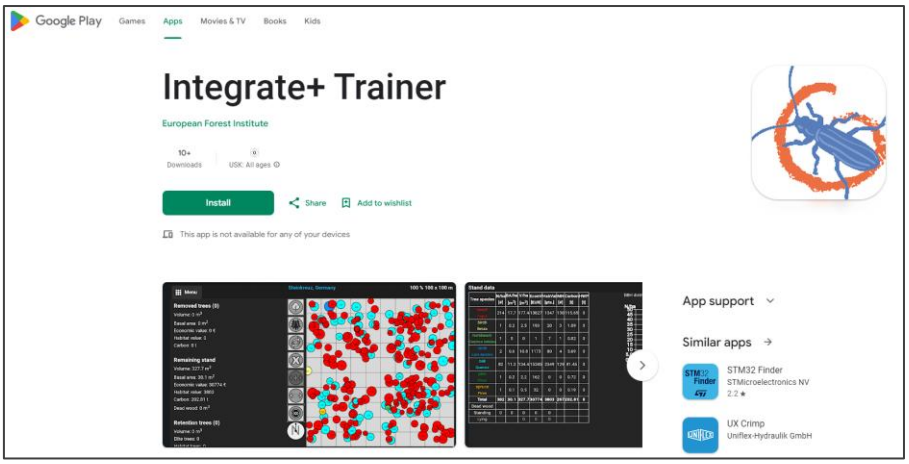
Here we present an exercise conducted with 8th-grade students (14 years) in a marteloscope site in Germany near the City of Bonn. The exercise can be reproduced in any other marteloscope of the Integrate Network, encompassing over 200 training sites in Europe. We briefly describe the sequence of the activity:

Preparation phase

1) Check if there is a marteloscope site within reach of your school. For that, you can have a look at the interactive map here: https://integratenetwork.org/demo-sites/. There you also find a description of each site (follow the link to the pdf document, which includes contact details).



2) Contact the local forest enterprise to inform them of your plans to visit a selected site (when, who, how many visitors, etc.). They will support you with directions and may also join you for your field day. Do feel free to ask them if they are available to join and support. Usually, they are happy to do so.
3) In order to run the educational software app ("I+ Trainer" software), you will need to install it on hand-held devices, ideally tablets. NOTE: the software is designed for the Android Operating System! You can download the software from the Google Play Store at: https://play.google.com/store/apps/details?id=integrate.trainer



4) Once the software is installed on your tablets or phones, load the marteloscope site you plan to visit to your devices. The forest enterprise can provide you with the password for downloading the site.

Important: Need support? For the above steps 1-4 you can contact us at the European Forest Institute at: adminbonn@efi.int We are happy to support you with all preparatory steps!

Do also have a look at the software tutorial where the above steps are described: http://iplus.efi.int/documentation.html (Bullet 2).

Implementing the activity

Below we have listed implementation steps that you can consider for this activity. We have used this approach in the MULTIPLIERS project and it has proved very successful. The field visit presented below was planned for about 3 hours.

1) Ensure that students have some introduction to forest ecosystems in school prior to the field visit.
2) Consider inviting a scientist and/or forester to give a talk on forests. Such talks can include information on their importance for our well-being, the services they provide, forest biodiversity, what the work of a forester/scientist dealing with forest ecosystems looks like, etc.
3) Plan well your visit to the forest. The number of students for the field visit should not be (much) more than 20 (if possible). Formulate the aim of your field visit; which available tools and documents will you use and how?; what are the take-home messages you envisage for the students?; etc.
4) Plan to consult with the local forest enterprise where the site is located and desired other experts (e.g. scientists); encourage them to join and take up a role in the field visit!
5) Our activity with 8th-grade students took place as described below:
    a. Aims: (i) “convey to students what wood can be used for in terms of products (wood as a renewable resource); and the value of trees as habitats for forest-dwelling species”; (ii): “encourage students to act as

multipliers of the acquired knowledge which they then communicate to others".

b. Available to join were schoolteacher(s), a forest manager and a forest scientist who conducted the field exercise in the marteloscope.
c. Students were divided into two groups and visited pre-selected trees to investigate what gives a tree (i) a high economic value and (ii) a high habitat value (we used the tablets running the "I+ Trainer" software and the tree microhabitat catalogue).

d. Having this knowledge, the students were divided into small groups of 3 to 4 giving them different roles: we assigned roles as "forest managers/forest owners" (Groups 1, 3, 5, etc.) and "nature conservation managers (Groups 2, 4, 6, etc.)".
e. Two groups, each with a different role, were assigned to a pre-selected tree which they were asked to analyse and discuss from their perspective: What would they plan for that tree based on the knowledge they gained before (removal/retention/no action)?

Each group received a tablet running the “I+ Trainer” software where they were able to check the data related to their assigned tree and of any neighbouring trees. The scientific data provided with the software was thought to support them in their evidence-based decision-making.

f. Following the individual group analysis (in their respective roles), the two groups working on the same tree (in different roles) came together to discuss whether they can come to a consensus on what to do with their tree.

g. In a final round, all groups came together and presented their outcomes and arguments and described what kind of consensus they arrived at, and if yes, how and what their result was.

h. We then organised a second field visit during a weekend (“Forest Day”): Students invited their families and friends to come to the marteloscope where they then passed on their acquired knowledge as multipliers. Also

the forest enterprise and the scientist(s) were present. The Forest Day was scheduled for 2-3 hours.

FIND OUT MORE

More information about using outdoor learning sites:

- Derks, J., Schuck, A., O'Brien, L. (2022). Forest education with marteloscopes. Integrate Network Report. European Forest Institute (Version for schools 26p.).
- Integrate+, 2013. What are marteloscopes? Integrate+ project handout. 2p. (PDF)
- Tree Microhabitat Catalogue: http://iplus.efi.int/documentation.html (see point 6 for multiple languages)
- Software tutorial: http://iplus.efi.int/documentation.html (see point 2; available in English, German, Spanish and Finnish)
- List of sites by country including an information sheet with contact details: http://iplus.efi.int/marteloscopes-data.html
- Helpful videos:
    - https://integratenetwork.org/videos/
    - https://youtu.be/drRlEhYK4_0