

From Forest To Classroom:

A Web-Based Educational Tool for Forest Floor Description and Humus Form Classification

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VIRTUAL SOIL SCIENCE
LEARNING RESOURCES
FROM THE GARDEN TO THE WEB



TerreWEB

BACKGROUND

The United Nations and the Intergovernmental Panel on Climate Change, among other international organizations, have highlighted the increasing necessity of enhancing soil science education and providing adequate soil information.



Web-based Learning allows repetitive visual observations necessary to identify and describe soil mineral and organic horizons. Multimedia enrichment targets different ways of learning. Flexibility of time and place addresses the changing needs of students in the internet age.

Our objectives are to:

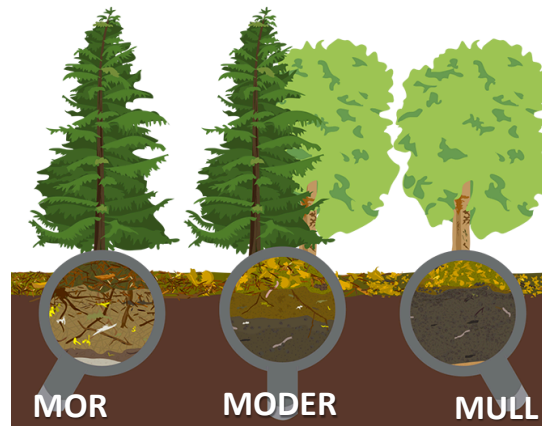
- Combine a classroom-based teaching approach with web-based learning, in the **Forest Floor Tool** illustrating forest floor description and humus form classification.
- Evaluate the usefulness of the tool in a basic description and classification of the forest floor, understanding associated ecological properties and processes.

THE FOREST FLOOR

Sometimes overlooked in soil science, the forest floor is a massive carbon sink and provides habitat for the majority of soil microorganisms and fauna. While changes to the mineral soil may occur very slowly, more rapid fluctuation in the forest floor can be an early signifier of ecosystem changes due to pollution, changes in climate, or management practices.

HUMUS FORMS

Variation in forest floor reflects differences in vegetation, climate and topography structure, nutrient contents and pH. Microbial communities and soil fauna vary concurrently with humus forms.



Mors are usually found under coniferous forests, over soils with low pH and low nutrient availability. They have a matted structure due to the predominance of fungal hyphae.

Mulls are associated with deciduous forests where conditions are conducive to biological activity. Faunal and bacterial decomposition results in loose, granular material

The **Forest Floor Tool**, a multimedia website, will supply students with information necessary to complete a simple humus form description and classification, while gaining an understanding of the ecological importance of the forest floor.

FOREST FLOOR TOOL

Keys to Development:

- Integration of natural sciences with educational approaches
- Collaboration among science, IT, videography and digital media experts



Features of the Forest Floor Tool: videos, motion graphics (animations), photos, text, tables, and a tutorial

In conjunction with a new forest floor lab activity, the **Forest Floor Tool** will be incorporated in the Introduction to Soil Science courses at the University of British Columbia and Simon Fraser University in spring 2015.

Students will be surveyed and interviewed following completion of the laboratory assignment to determine their level of satisfaction with the tool and perceived benefits of its use.

ACKNOWLEDGEMENTS

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