

PREDICTING FOREST SITE CHARACTERISTICS FROM FLORISTICS ; AN AUTOMATED APPROACH FOR FOREST MANAGEMENT IN THE WALLOON REGION

Floristic samples were compiled over years and resulted in a comprehensive collection of 2074 forest site observations, which grasp all the nutrient and moisture gradients of Wallonia. Determination of the **nutrient** and **moisture** levels for each site has been undertaken carefully. An automated classifier algorithm was then trained with these data in order to predict the nutrient and moisture levels of any new sites from the presence or absence of every indicator plant species. This classifier has been integrated into a **web application** dedicated to forest managers.

HERE'S HOW:

1 PINPOINT ALL THE FOREST PLANT SPECIES OF YOUR FLORISTIC RELEVÉ

One can add forest plant species with the form "add plant" ...

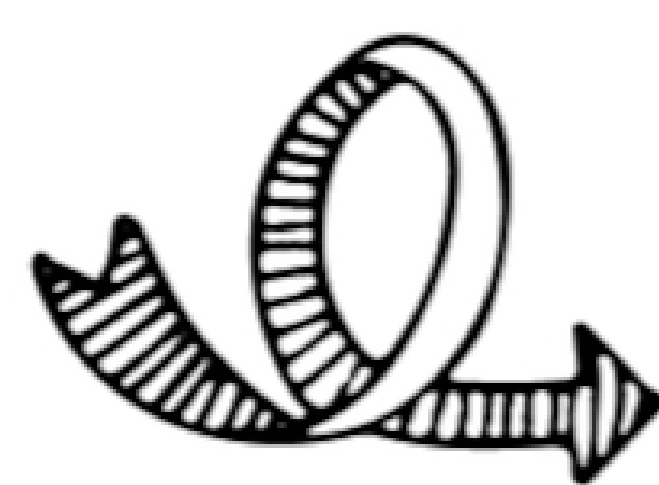
... Or by clicking on the latin name of the plant under the "socio-ecological groups" form. Species already present in the relevé appear in grey.

2 EXAMINE THE AUTOMATED PREDICTION OF FOREST SITE ON THE ECOGRAM MATRIX

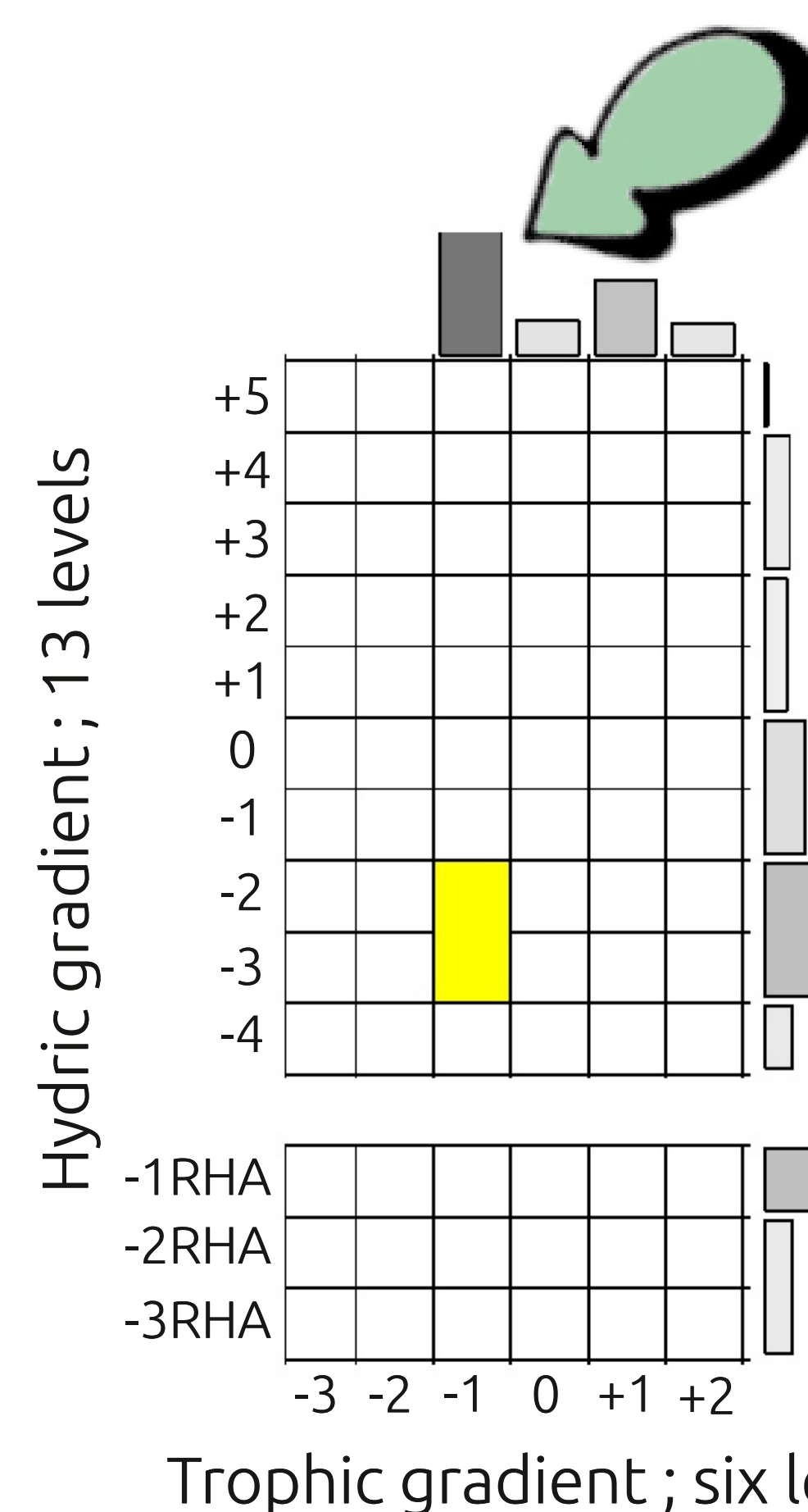
Relevé floristique

Nom Latin	Nom Français	Indicateur	Utilisé
<i>Alnus glutinosa</i>	<i>Aulne glutineux</i>	n	<input checked="" type="checkbox"/>
<i>Athyrium filix-femina</i>	<i>Fougère femelle</i>	nL	<input checked="" type="checkbox"/>
<i>Betula pubescens</i>	<i>Bouleau pubescent</i>		<input checked="" type="checkbox"/>
<i>Brachypodium sylvaticum</i>	<i>Brachypode des bois</i>	nL	<input checked="" type="checkbox"/>
<i>Carex flacca</i>	<i>Laiche glauque</i>		<input checked="" type="checkbox"/>
<i>Corylus avellana</i>	<i>Noisetier</i>	nL	<input checked="" type="checkbox"/>
<i>Corylus avellana</i>	<i>Noisetier</i>	nL	<input checked="" type="checkbox"/>
<i>Cornus sanguinea</i>	<i>Cornouiller sanguin</i>	b	<input checked="" type="checkbox"/>
<i>Deschampsia cespitosa</i>	<i>Canche cespiteuse</i>	A	<input checked="" type="checkbox"/>
<i>Fraxinus excelsior</i>	<i>Frêne commun</i>	nL	<input checked="" type="checkbox"/>
<i>Juncus effusus</i>	<i>Jonc épars</i>		<input checked="" type="checkbox"/>
<i>Lonicera periclymenum</i>	<i>Chèvrefeuille des bois</i>		<input checked="" type="checkbox"/>
<i>Quercus robur</i>	<i>Chêne pédonculé</i>		<input checked="" type="checkbox"/>

Illustration of a complete floristic relevé. Indicator species are highlighted in grey.



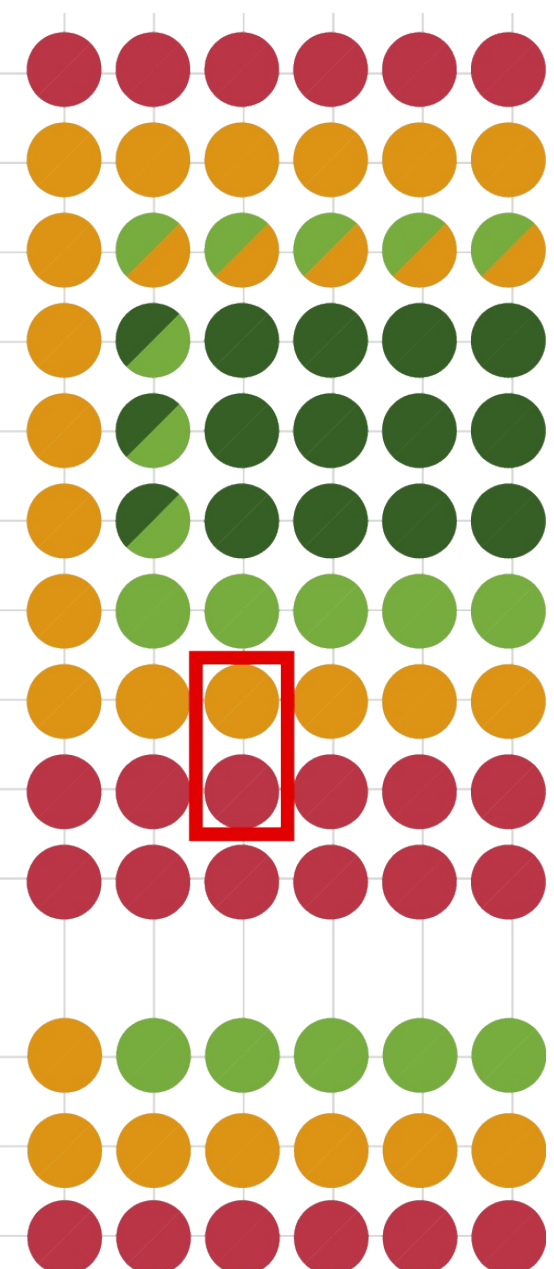
Indicator species are used to determine the most probable forest site which is display in yellow.



The predicted trophic level is -1 (meso-oligotroph) with 54% of likelihood

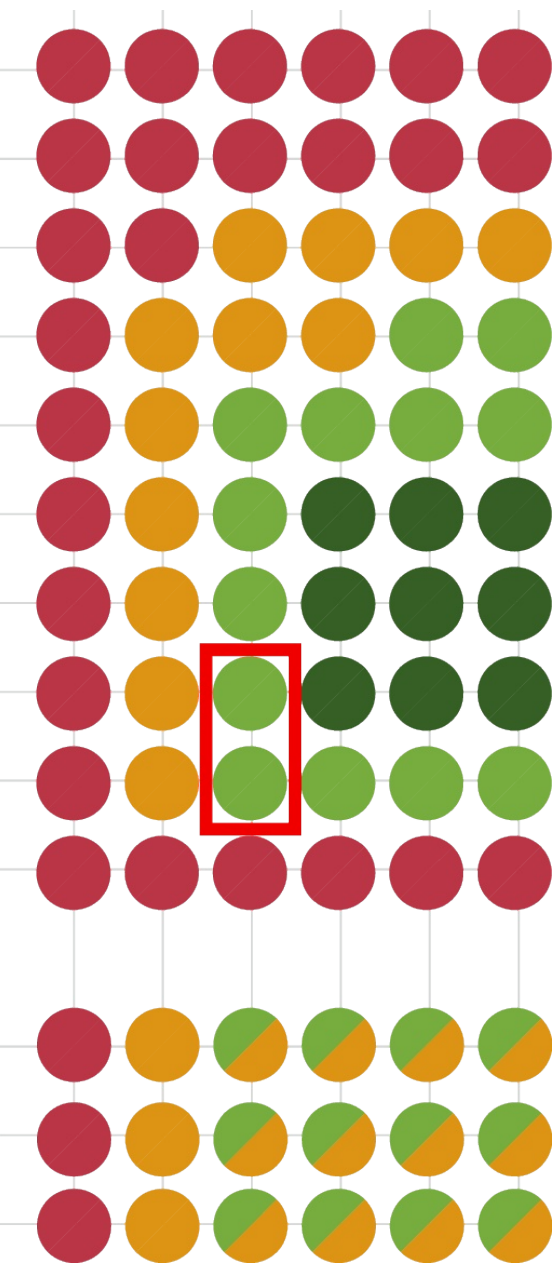
The predicted hydric levels are -2 and -3 levels (humid site) with 25% of likelihood

3 DETERMINE WHICH TREE SPECIES FIT THE BEST YOUR FOREST SITE ACCORDING TO THE DOCUMENTATION OF THE "FOREST TREE AUTECOLOGY TOOL"



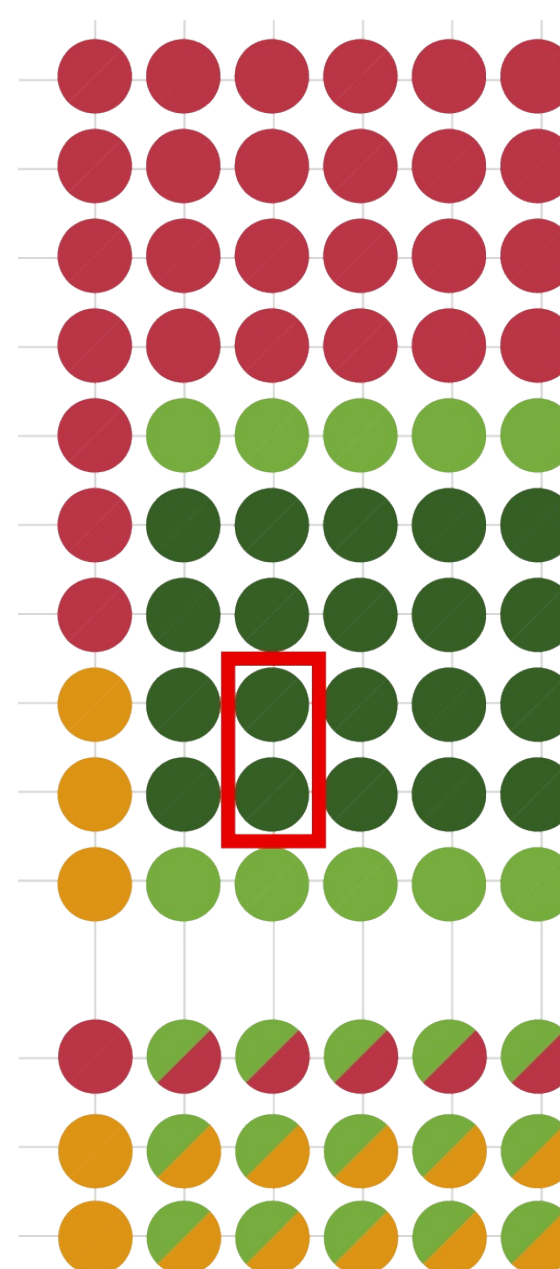
Common beech

This forest site is too humid for the beech which does not bear waterlogged situation. It is **excluded** for level -3 (red) and in **restricted tolerance** for level -2 (orange)



Pedunculate oak

The pedunculated oak would have all the water it required in this forest site. Due to the fact this oak is very demanding in term of trophic richness, it is registered as **tolerated** (light green) on this forest site.



Black alder

Now we have found a tree species that fits perfectly this forest site with waterlogging constraint. In **optimum** conditions (dark green), the black alder is capable of a quick production of quality wood.



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CLAESSENS Hugues

