

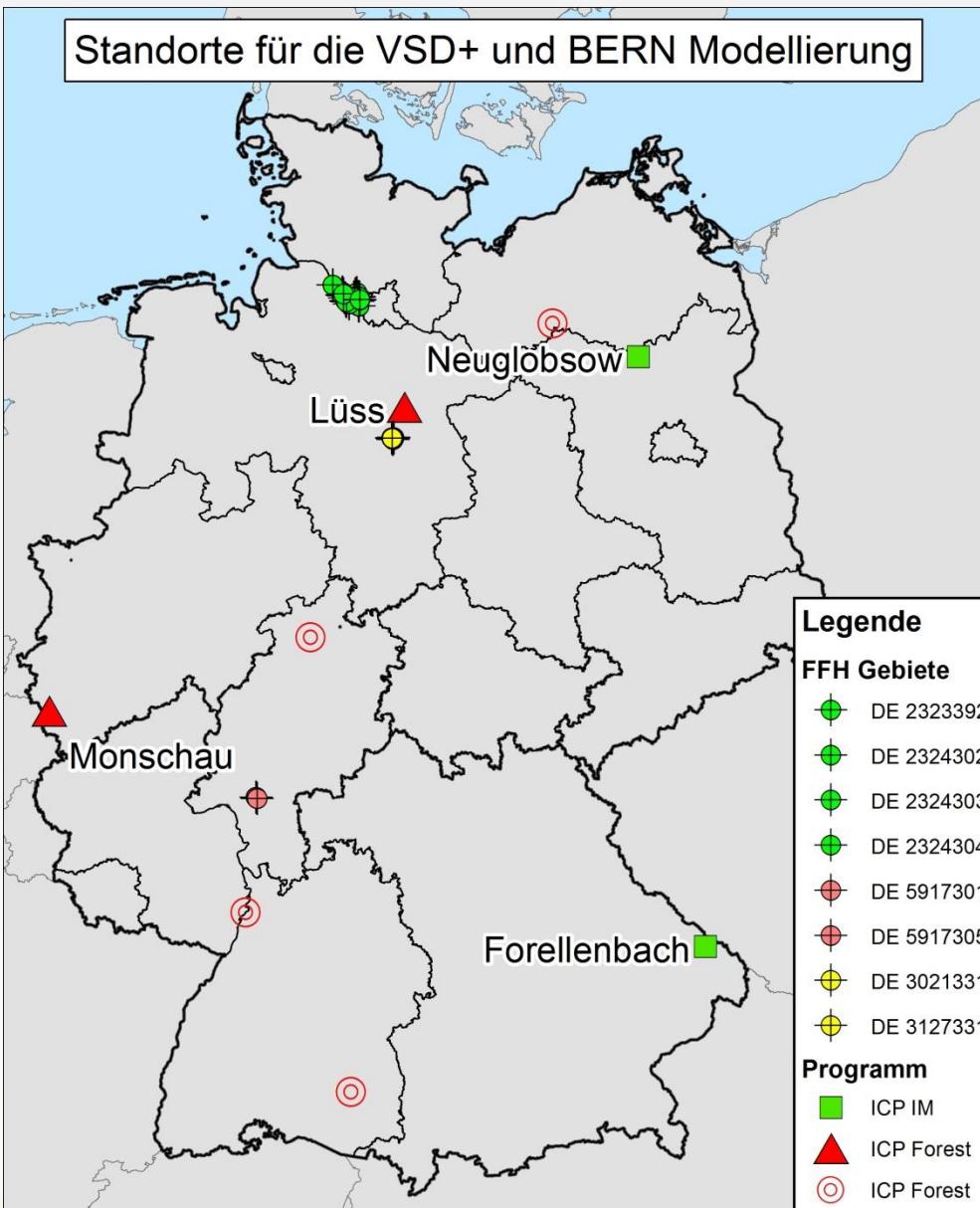


22th ICP IM Workshop Westport, 07.05.2014

Dynamic modelling on German ICP IM plots

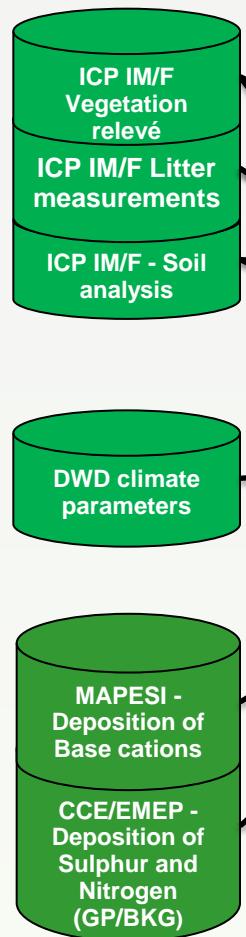


Ecosystem Analysis
Environmental Data Management

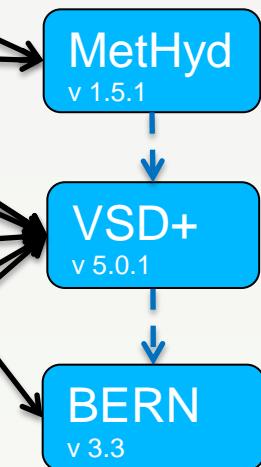




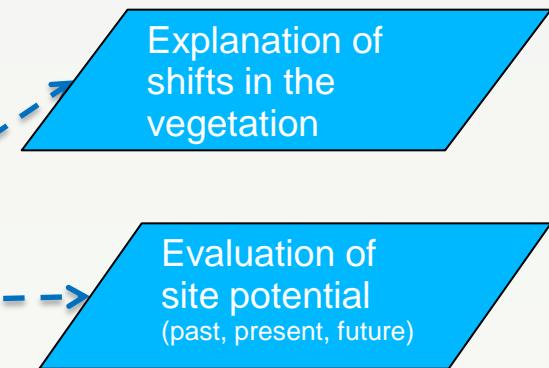
Data sources:



Methods/Models:



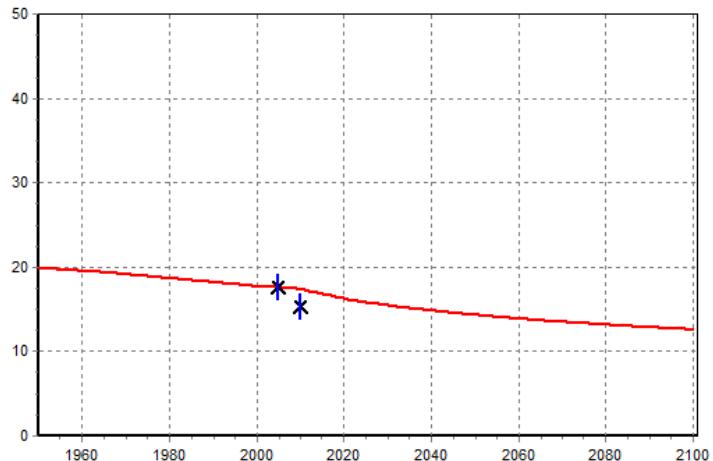
Results:



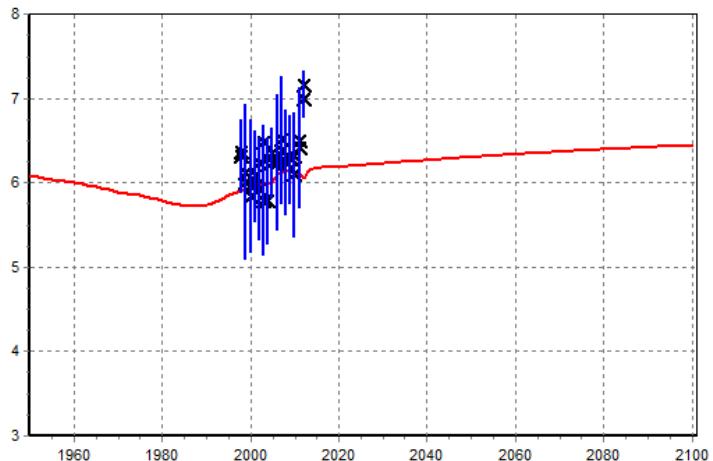


Neuglobsow

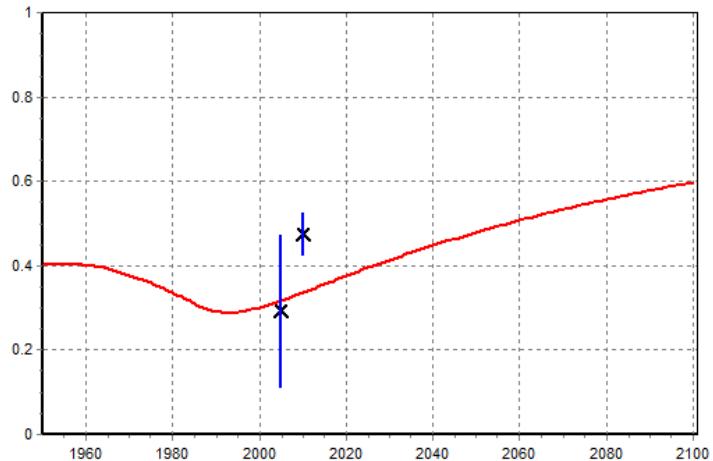
Average soil C:N (g/g)



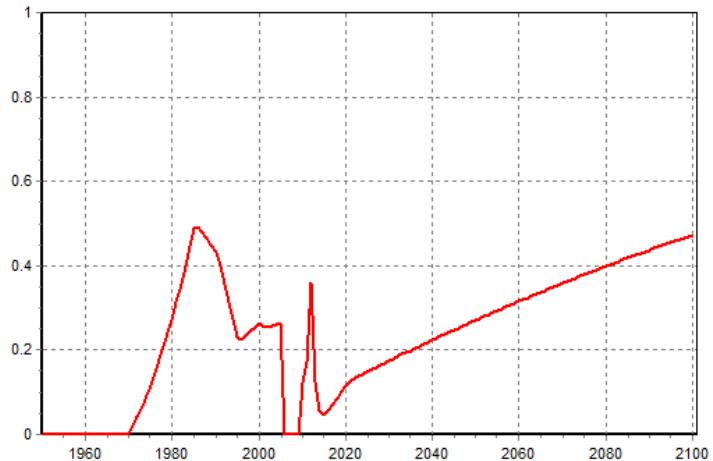
pH



EBc

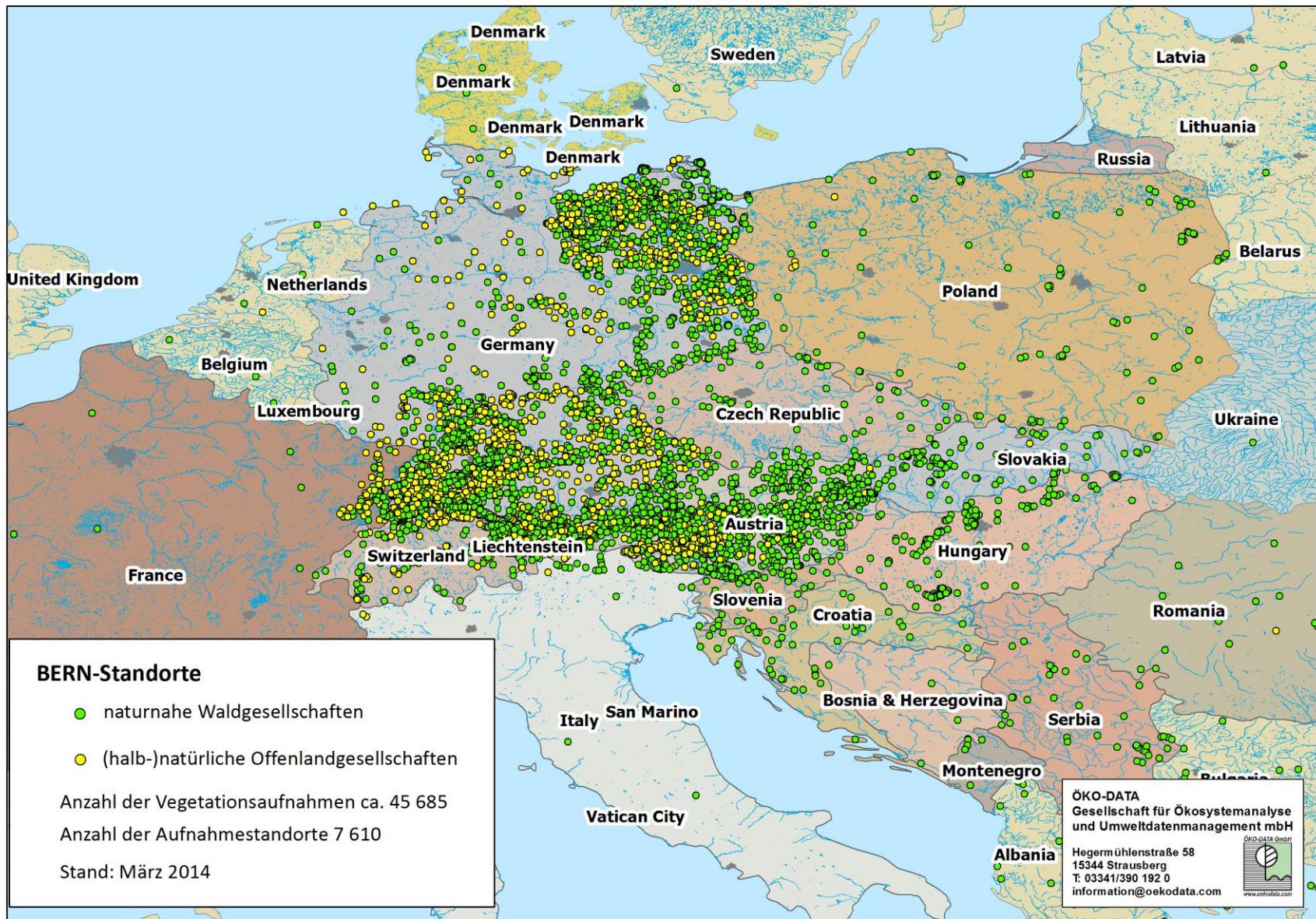


[NO3-] (eq/m3)





The **BERN** model: **Bioindication of Ecosystems Regeneration towards Natural Conditions**





BERN Model: Database

- 673 natural or semi-natural plant communities
- 1928 constant plant species of communities

Gesellschaft

ID: 2010 Naturnähe: natürlich Gefährdung: * = ungefährdet

Pruno-Fraxinetum excelsi OBERDORFER 1953

Erste Nutzungsart: Wald Zweite Nutzungsart: Dritte Nutzungsart:

Art

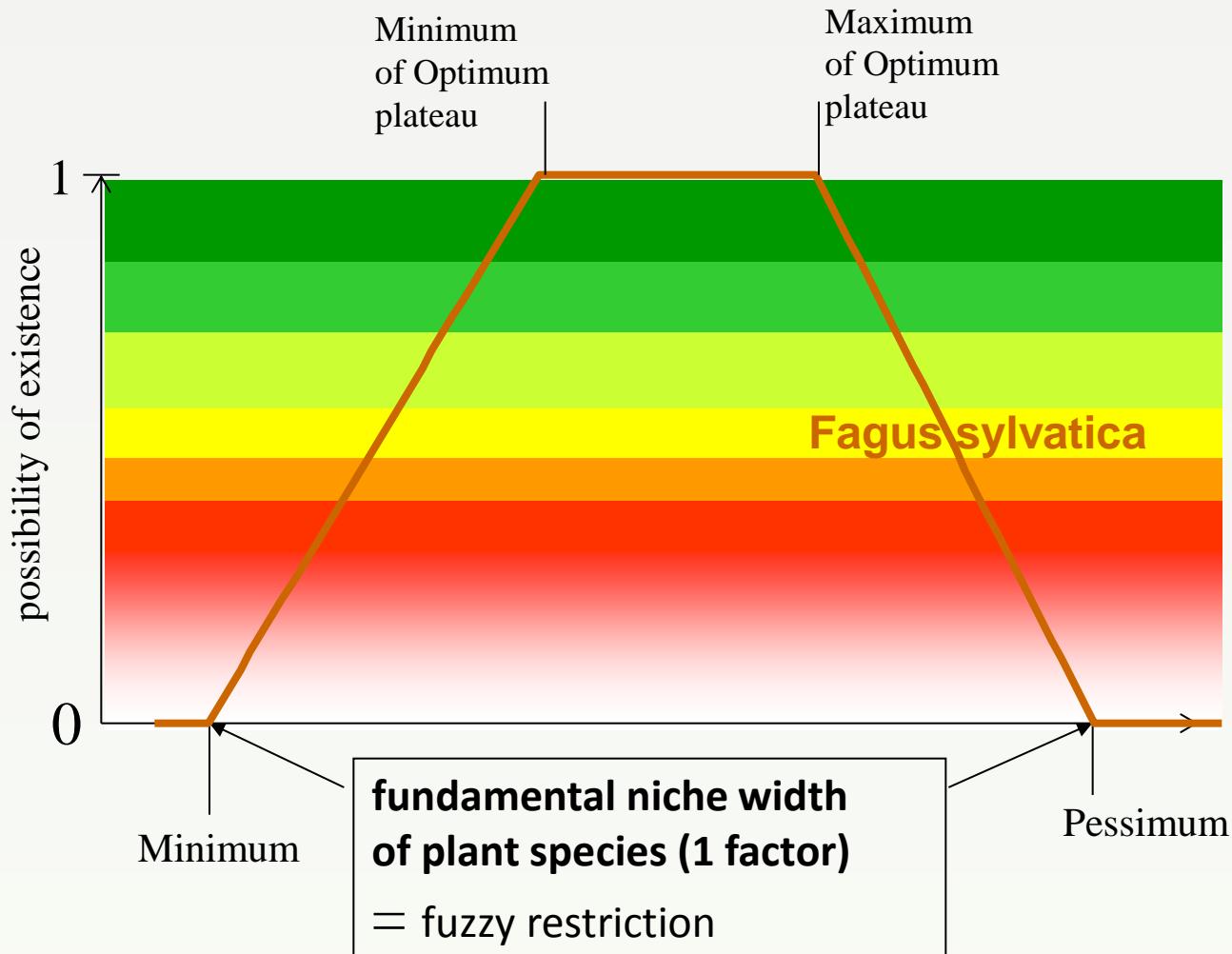
| ID | 120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------|------------------|-----------------------------------|--|--|--|---------|---------|--|--|--------------------|-------|------|------|-----------------|----|------|------|-----------|----|----|----|-----------------------|-------|-------|-------|-------------------|-----|-----|-----|-----------------|-----|-----|-----|-------------|-------|------|-------|--|--|--|-----------------------------------|--|--|--|-----|--|--|--|----------------|--|--|--|------------------|--|--|--|------------------------|--|--|--|------|
| Name | Fraxinus excelsior | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Parameter | Status of protection | Ellenberg values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th colspan="4">Optimum</th> </tr> <tr> <th>Minimum</th> <th>Maximum</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>soil water content</td> <td>0,070</td> <td>0,26</td> <td>0,36</td> </tr> <tr> <td>base saturation</td> <td>15</td> <td>34,2</td> <td>43,8</td> </tr> <tr> <td>C/N-ratio</td> <td>10</td> <td>16</td> <td>19</td> </tr> <tr> <td>climat. water balance</td> <td>-39,5</td> <td>139,6</td> <td>229,2</td> </tr> <tr> <td>vegetation period</td> <td>100</td> <td>165</td> <td>205</td> </tr> <tr> <td>solar radiation</td> <td>341</td> <td>518</td> <td>607</td> </tr> <tr> <td>temperature</td> <td>-23,3</td> <td>7,22</td> <td>22,48</td> </tr> <tr> <td></td> <td></td> <td></td> <td>[m³/m²]</td> </tr> <tr> <td></td> <td></td> <td></td> <td>[%]</td> </tr> <tr> <td></td> <td></td> <td></td> <td>[mm/veg.month]</td> </tr> <tr> <td></td> <td></td> <td></td> <td>[days>10°C/year]</td> </tr> <tr> <td></td> <td></td> <td></td> <td>[kWh/m² y]</td> </tr> <tr> <td></td> <td></td> <td></td> <td>[°C]</td> </tr> </tbody> </table> | | | Optimum | | | | Minimum | Maximum | | | soil water content | 0,070 | 0,26 | 0,36 | base saturation | 15 | 34,2 | 43,8 | C/N-ratio | 10 | 16 | 19 | climat. water balance | -39,5 | 139,6 | 229,2 | vegetation period | 100 | 165 | 205 | solar radiation | 341 | 518 | 607 | temperature | -23,3 | 7,22 | 22,48 | | | | [m ³ /m ²] | | | | [%] | | | | [mm/veg.month] | | | | [days>10°C/year] | | | | [kWh/m ² y] | | | | [°C] |
| Optimum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Minimum | Maximum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| soil water content | 0,070 | 0,26 | 0,36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| base saturation | 15 | 34,2 | 43,8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C/N-ratio | 10 | 16 | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| climat. water balance | -39,5 | 139,6 | 229,2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| vegetation period | 100 | 165 | 205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| solar radiation | 341 | 518 | 607 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| temperature | -23,3 | 7,22 | 22,48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | [m ³ /m ²] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | [%] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | [mm/veg.month] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | [days>10°C/year] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | [kWh/m ² y] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | [°C] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="button" value="change"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="button" value="Art suchen"/> Fraxinus excelsior | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Datensatz: 1 120 von 1928 > >> << < <input checked="" type="checkbox"/> Ungefiltert <input type="button" value="Suchen"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

No. of species: 18 charakter. hochstet Bedeckung:

| | | | | |
|-----------------------|--------------------------|-------------------------------------|-----|----------------------------|
| Urtica dioica | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 5 | Details... |
| Carex acutiformis | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 15 | Details... |
| Adoxa moschatellina | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 0,2 | Details... |
| Festuca gigantea | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |
| Deschampsia cespitosa | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 15 | Details... |
| Oxalis acetosella | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |
| Alnus glutinosa | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 35 | Details... |
| Fraxinus excelsior | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 35 | Details... |
| Ranunculus ficaria | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 15 | Details... |
| Stellaria holostea | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |
| Lysimachia vulgaris | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |
| Humulus lupulus | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 5 | Details... |
| Milium effusum | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |
| Prunus padus | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 40 | Details... |
| Carex brizoides | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |
| Eurhynchium striatum | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |
| Scrophularia nodosa | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | Details... |

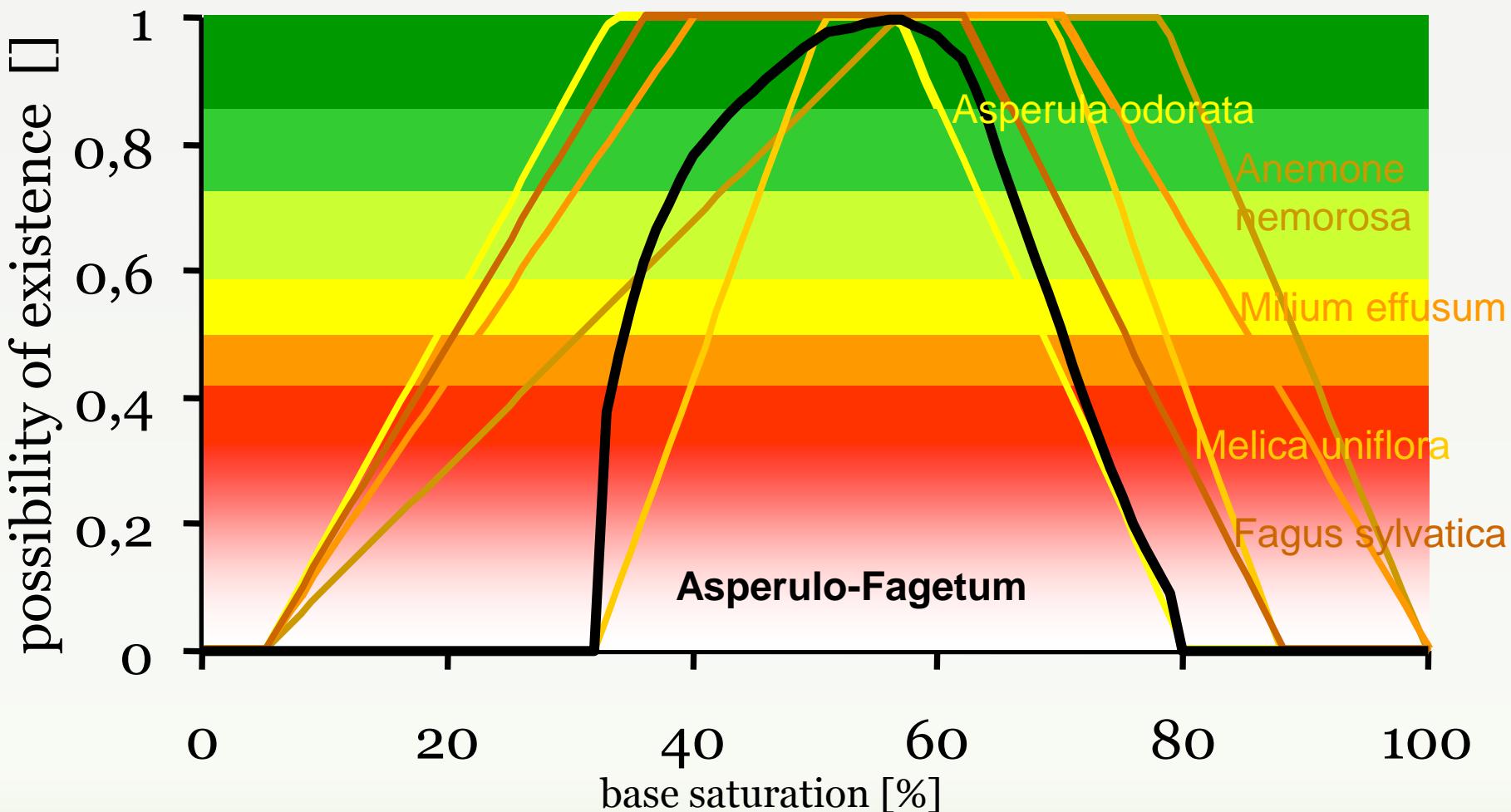


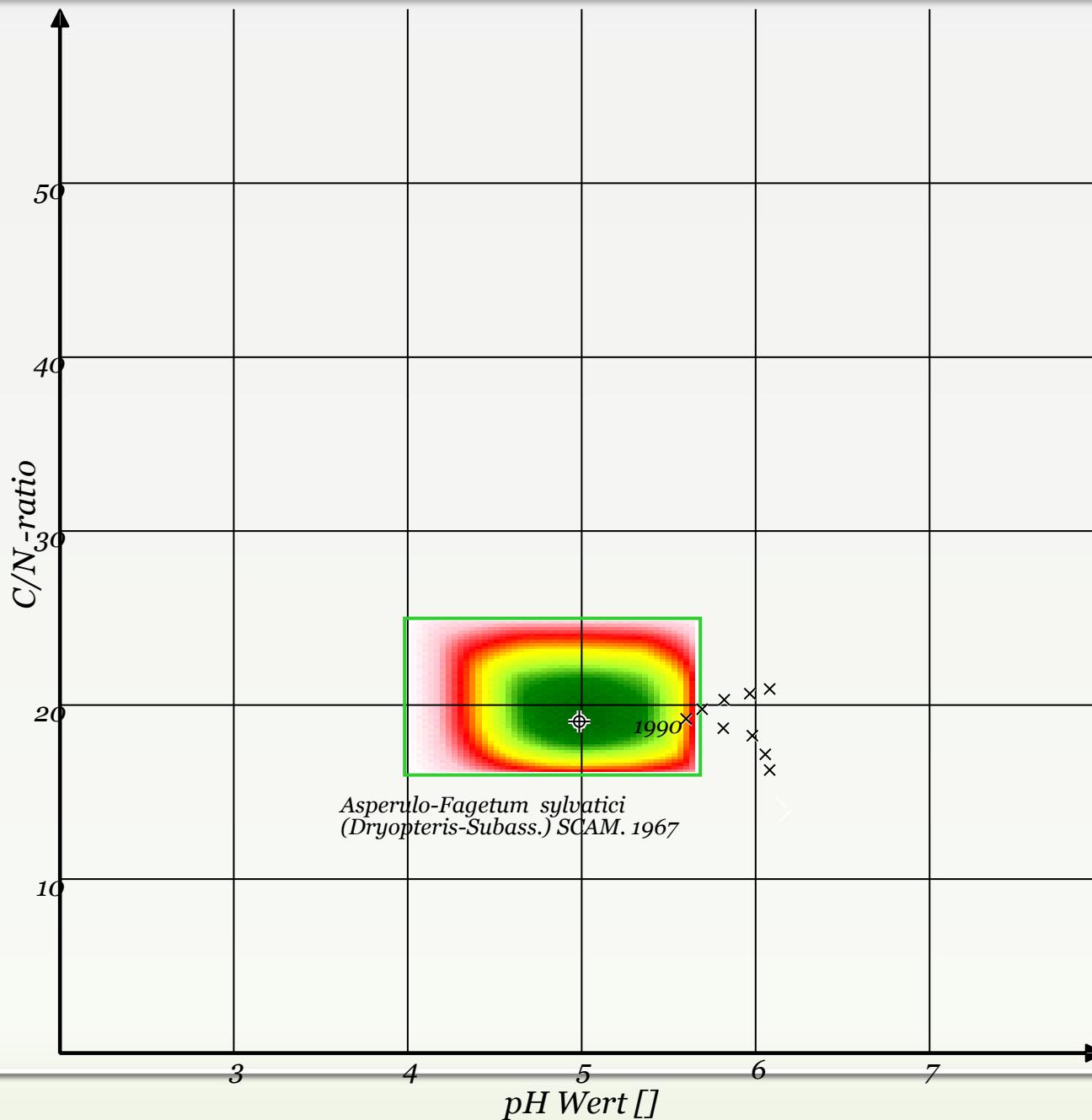
Possibility distribution function (PDF) (acc. ZADEH (1978))

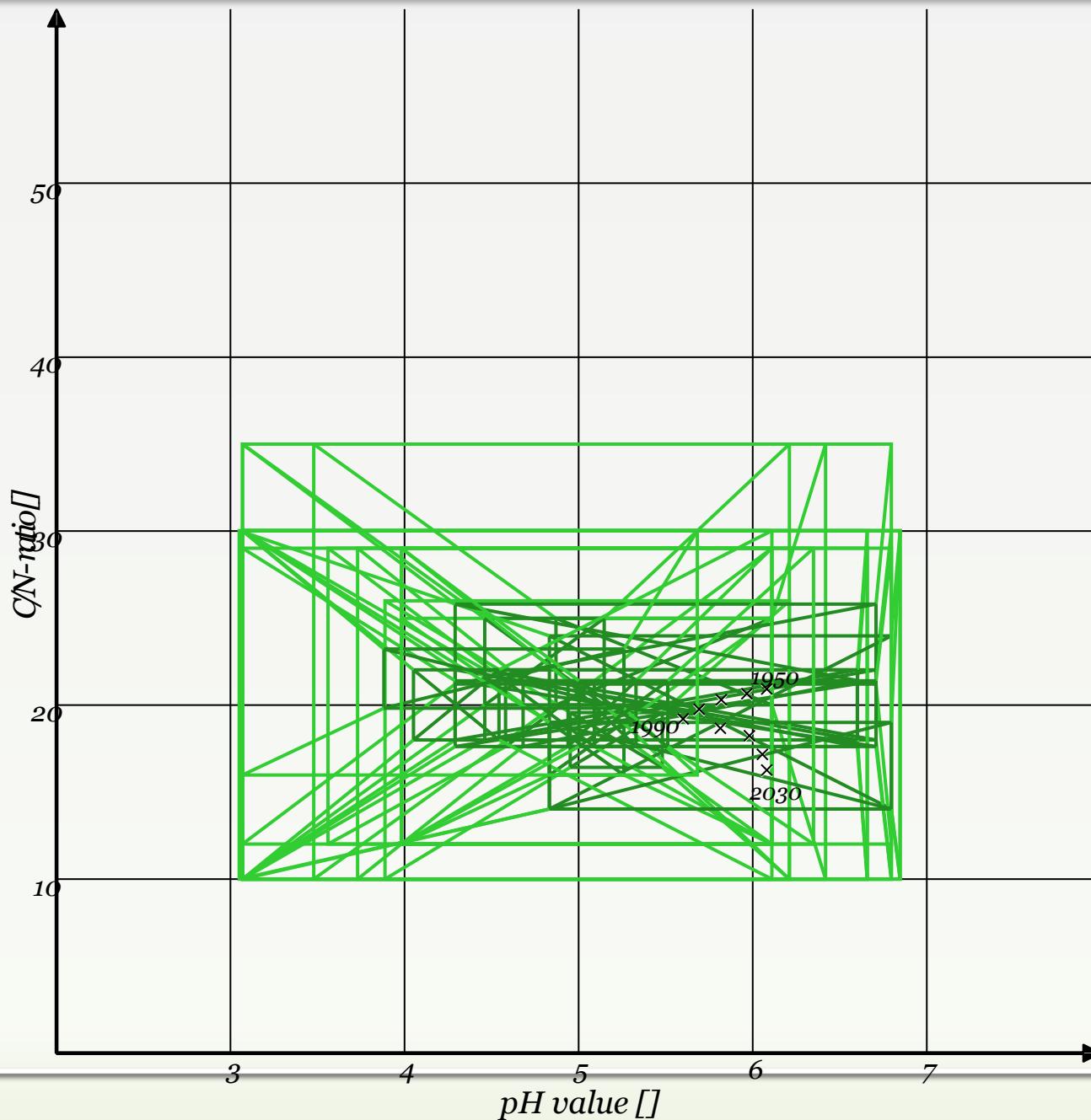


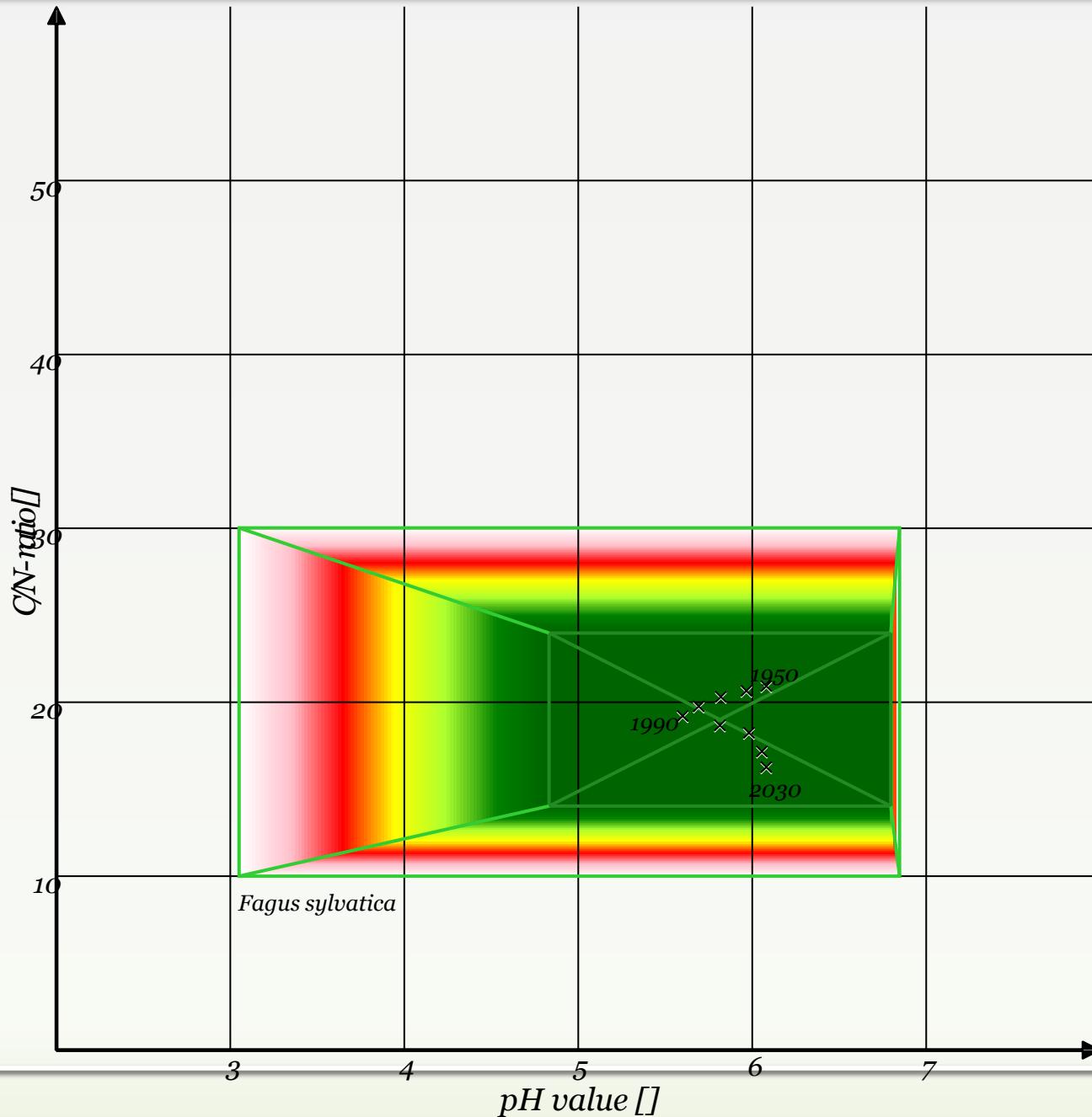


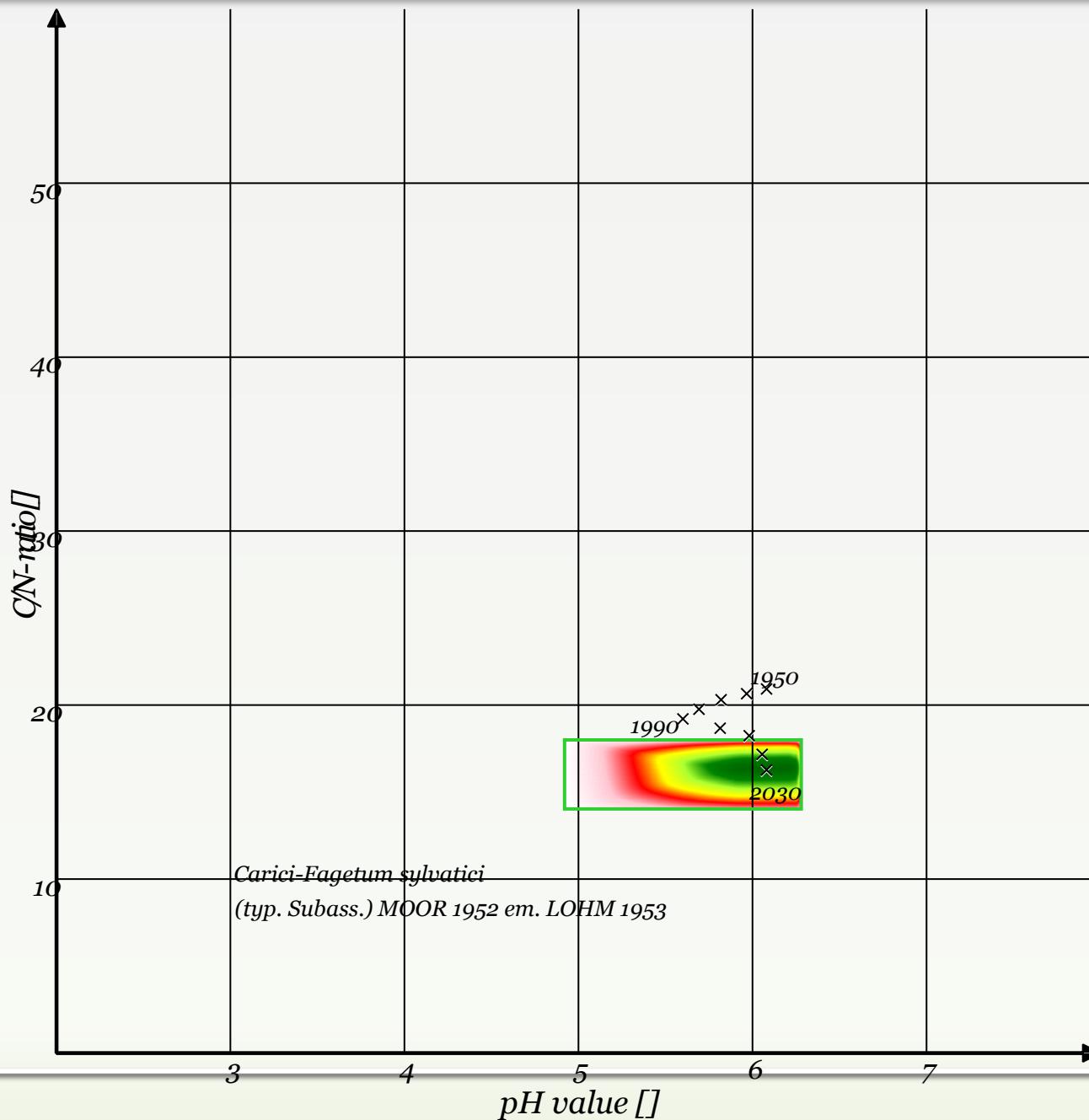
BERN Model: Possibility distribution function of constant species





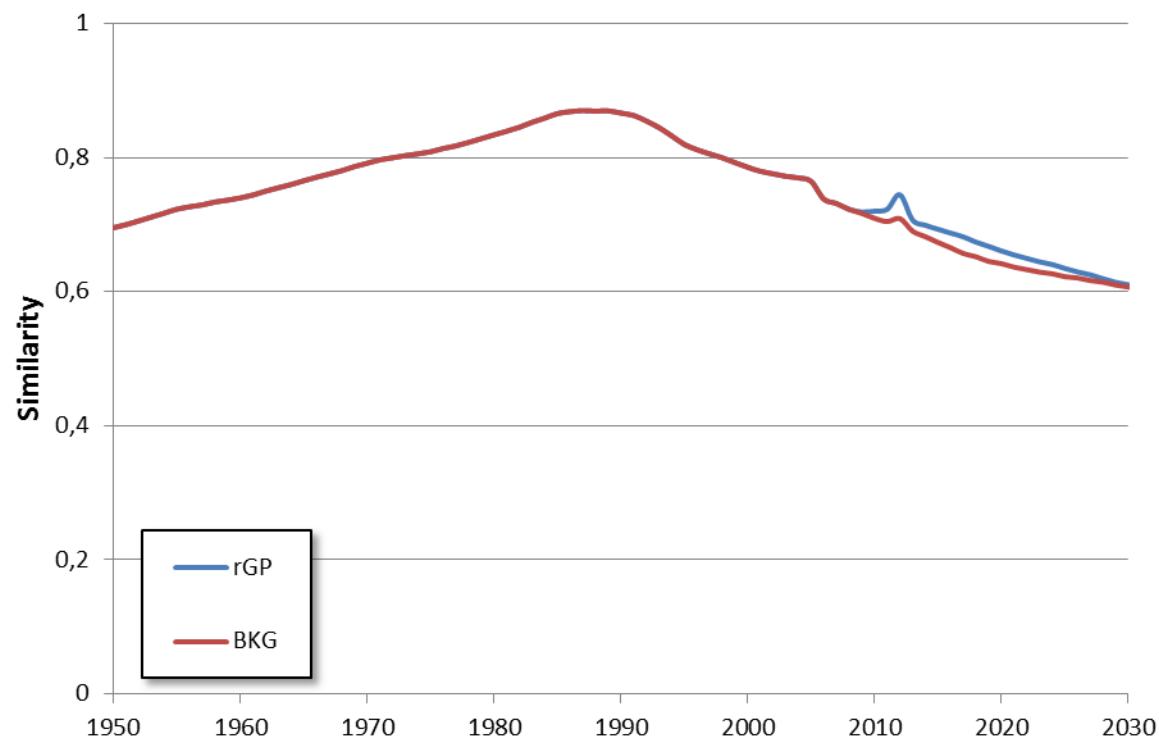






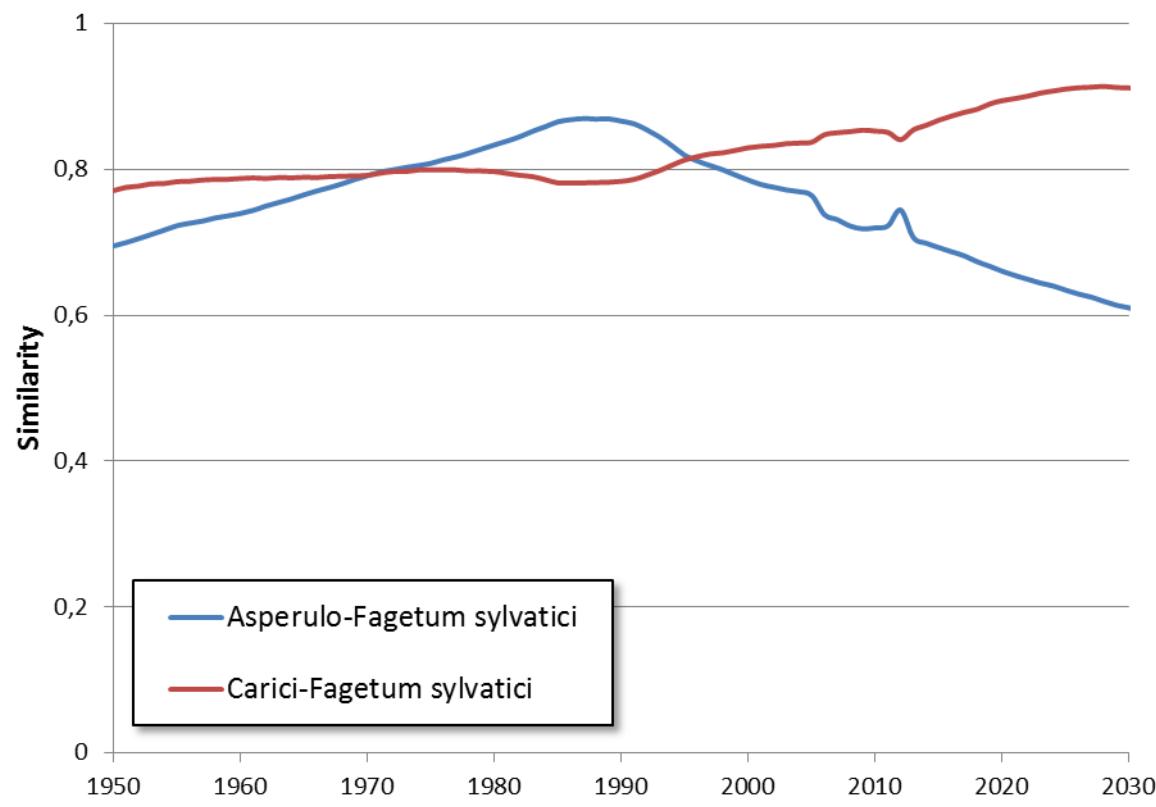


Neuglobsow - Asperulo-Fagetum sylvatici (Sørensen Index)





Neuglobsow - (Sörensen Index)





Lessons learned so far:





Outlook:

- Continue the work
- Extend to other sites (other networks)
- Formalize needed input data and models for such exercises

Many thanks to Burkhard Beudert and Hubert Schulte-Bispig!



Thank you for your attention

For further information please contact

www.oeekodata.com

or email to

thomas.scheuschner@oeekodata.com



**Ecosystem Analysis
Environmental Data Management**

