Forest Condition in Europe

2011 Technical Report of ICP Forests and FutMon

Annex to chapters 5 and 8
Annex to

Nagel et al. 2011: Exceedance of critical loads for acidity and nutrient nitrogen and scenarios for the future development of soil solution chemistry

and

Schlutow et al. 2011: Development of vegetation under different deposition scenarios

In:


This annex contains plotwise results for FutMon/ICP Forests Level II plots related to

- Calculation of critical loads of acidity and nutrient nitrogen, critical load exceedances by actual measured and scenario modelled deposition.
- Dynamic modelling of soil chemistry applying the VSD+ model.
- Assessment of biological responds to changes in site conditions using the BERN model.
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ICP Forest Level II Site: ID 10037 Country: France

Critical Load calculation: SMB method
Deposition measured: 1996 - 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen

**ICP Forest Level II Site:** ID 10037  
**Country:** France

**Critical Load calculation:** SMB method

**Deposition modelled:** EMEP 1980, NATIONAL 2000, COB 2020, Low* 2020, MFR 2020

**Deposition measured:** 1996 – 2009
Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.

Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen.
Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 10041**  
Country: France

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: ID 10046  Country: France
Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 10046

Country: France

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 10057**  
Country: France

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 10063
Country: France

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 10063

Country: France

VSD+ model geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured/observed values (points)
ICP Forest Level II Site: **ID 10084**  
Country: France

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site | ID 10084 | Country: France
---|---|---
VSD+ model | geochemical dynamics | 

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)

ICP Forest Level II Site | ID 10084 | Country: France
---|---|---
BERN model | biodiversity effects |
Results for ICP Forest Level II plots

Possibility of existence for understory species

- Polytrichum formosum
- Avenella flexuosa
- Epilobium angustifolium
- Maianthemum bifolium
- Rubus idaeus
- Stellaria holostea
- Dicranella heteromalla
- Dicranum striatum
- Scleropodium purum
- Convallaria majalis
- Leucobryum glaucum
- Molinia caerulea
- Solidago gigantea
- Vaccinium myrtillus
- Dicranum scoparium
- Hypnum cupressiforme
- Thuidium tamariscinum
- Dryopteris carthusiana
- Juncus effusus
- Oxalis acetosella
- Sorbus aucuparia
- Atrichum undulatum
- Dicranum undulatum
Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: ID 10093 Country: France

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  ID 10093  Country: France

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site:  **ID 10098**  
Country: France

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

VSD+ model

ID 10098

geochemical dynamics

Country: France

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site | ID 10098 | Country: France

BERN model | biodiversity effects

**Level II Plot 10098**
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

**Possibility of existence for understory species**

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<td>Dryopteris dilatata</td>
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<td>Dryopteris filx-mas</td>
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<td>Fragaria vesca</td>
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<td>Luzula pilosa</td>
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<td>Milium effusum</td>
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<td>Oxalis acetosella</td>
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</table>
Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: **ID 20011**  
Country: Belgium

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 20012**  
Country: Belgium

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 20013  
Country: Belgium

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 20014  Country: Belgium

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: **ID 20015** Country: Belgium

Critical Load calculation: SMB method


Deposition measured: 1996 – 2007

Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 20016  Country: Belgium

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen.
Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)

ICP Forest Level II Site  ID 20016  Country: Belgium

VSD+ model  geochemical dynamics

BERN model  biodiversity effects
Results for ICP Forest Level II plots  May 2011

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Level II Plot 20016
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio after CLE-scenario

Possibility of existence for understory species

- Corylus avellana
- Polygonatum multiflorum
- Adoxa moschatellina
- Asarum europaeum
- Carex hirta
- Cornus sanguinea
- Dryopteris filix-mas
- Galium odoratum
- Lonicera periclymenum
- Pteridium aquilinum
- Aegopodium podagraria
- Brachypodium sylvaticum
- Carex sylvatica
- Crataegus monogyna
- Euonymus europaeus
- Sorbus aucuparia
- Rubus fruticosus agg.
- Anencus dioicus
- Brachythecium rutabulum
- Circaea lutetiana
- Cypripedium calceolus
- Galanthus nivalis
- Pulmonaria obscura
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: **ID 20017**  
Country: Belgium  
Critical Load calculation: SMB method  

Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 20018 Country: Belgium

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 20020  Country: Belgium

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 20019  Country: Belgium

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 20021  
Country: Belgium

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site
ID 20021
Country: Belgium

VSD+ model
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site  ID 20021  Country: Belgium

BERN model  biodiversity effects

Level II Plot 20021
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Possibility of existence for understory species

Legend:
- Athyrium filix-femina
- Dryopteris filicella
- Dryopteris filix-mas
- Impatiens parviflora
- Oxalis acetosella
- Rubus fruticosus
- Anthoxanthum odoratum
- Galeopsis tetrahit
- Luzula sylvestra
- Athyrium filix-femina
- Dryopteris carthusiana
- Holcus mollis
- Deschampsia caespitosa
- Poa nemoralis
- Sambucus nigra
- Rhamnus frangula
- Sorbus aucuparia
- Rubus idaeus
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: ID 40301  
Country: Germany

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  ID 40301  Country: Germany

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
Results for ICP Forest Level II plots

ICP Forest Level II Site: ID 40301

Country: Germany

BERN model: biodiversity effects

Level II Plot 40301
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Possibility of existence for understory species

Legend:
- Agrostis tenuis
- Anthoxanthum elatius
- Arenella flexuosa
- Carex pilulifera
- Cenephyrophus canescens
- Dactylis glomerata
- Festuca ovina
- Holcus mollis
- Luzula campestris
- Luzula luzuloides
- Milium effusum
- Nardus stricta
- Calluna vulgaris
- Vaccinium myrtillus
- Vaccinium vitis-idaea
- Diplotaxis heteromalla
- Dicranum scoparium
- Euphymium striatum
- Hylocomium supressiforme
- Mnium hornum
- Polypodium vulgare
- Polytrichum formosum
- Cladonia furcata
- Cladonia pyxidata
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: ID 40507  
Country: Germany

Critical Load calculation: SMB method


Deposition measured: 1996 – 2008

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 40507

Country: Germany

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: *ID 40606*  
Country: Germany  

Critical Load calculation: SMB method  
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 40606

Country: Germany

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured/observed values (points)
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site  ID 40606  Country: Germany

BERN model biodiversity effects

Level II Plot 40606
Dynamic possibility for natural communities depending on changes of base saturation and C/N-ratio

Possibility of existence for understory species

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<td>2000</td>
<td>2020</td>
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Legend:
- Mercurialis perennis
- Althyrum flex-femina
- Circaea lutetiana
- Hedera helix
- Impatiens noli-tangere
- Holcus lanatus
- Poa pratensis
- Primula elatior
- Viola reichenbachiana
- Rubus idaeus
- Sambucus nigra
- Dryopteris carthusiana
- Lamium galeobdolon
- Milium effusum
- Polygonon convolvulus
- Melica uniflora
- Stachys sylvatica
- Galeopsis tetrahit
- Anemone nemorosa
- Deschampsia caespitosa
- Dryopteris dilatata
- Lamium maculatum
- Galium aparine
- Brachypodium sylvaticum
- Oxalis acetosella
- Urtica dioica
- Brachythecium rutabulum
Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: **ID 40802**  
Country: Germany

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site ID 40802 Country: Germany

VSD+ model geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 40808  
Country: Germany

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 40808  
Country: Germany

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 41302
Country: Germany

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 41302  
Country: Germany

**VSD+ model**  
**geochemical dynamics**

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 50001  
Country: Italy

Critical Load calculation: SMB method
Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 50001

Country: Italy

VSD+ model
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site | ID 50001 | Country: Italy

BERN model | biodiversity effects

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**Level II Plot 50001**

Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio after CLE-scenario.

**Legend**

- Possibility
  - 100%
  - 90%
  - 86%
  - 76%
  - 50%
  - 35%
  - 20%

**Possibility of existence for understory species**

- Homalothecium sericeum
- Sorbus torminalis
- Sorbus aucuparia
- Dentaria bulbifera
- Epipactis microphylla
- Galium odoratum
- Geranium robertianum
- Vicia sepium
- Neotia nidus-avis
- Convolvulus arvensis
- Hypericum tetragonum
- Agrostis tenuis
- Anemone nemorosa
- Dentaria empephylos
- Rubus caesius
- Galeopsis speciosa
- Galeum urbanum
- Cephalanthera rubra
- Mycels muralis
- Viola reichenbachiana
- Sanciula europaea

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Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: **ID 50006**  
Country: Italy

Critical Load calculation: SMB method


Deposition measured: 1997 – 2006

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots  May 2011

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ICP Forest Level II Site  ID 50006  Country: Italy

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 50006

Country: Italy

BERN model: biodiversity effects

Level II Plot 50006
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio after CLE-scenario

Possibility of existence for understory species

Prunus avium, Acer campestre, Agrostis tenuis
Acer pseudoplatanus, Anemone nemorosa, Daphne laureola
Dentaria bulbifera, Fagus sylvatica, Cephalanthera alba
Digitalis grandiflora, Dryopteris filix-mas, Epipactis helleborine
Euphorbia dulcis, Avenella flexuosa, Dicranum undulatum
Galium aparine, Galium rotundifolium, Geranium robertianum
Helleboris viridis, Lamium galeobdolon, Lilium martagon
Luzula forsteri, Mercurialis perennis, Moehringia trinervia
Mycetis muralis, Poa nemoralis, Prenanthes purpurea
Pteridium aquilinum, Rubus hirtus, Salvia glutinosa
Sanicula europaea
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: ID 50008 Country: Italy

Critical Load calculation: SMB method
Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 50008

Country: Italy

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site  ID 50008  Country: Italy

BERN model  biodiversity effects

Level II Plot 50008  Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio after CLE-scenario

Legend

Possibility
100%  90%  80%  70%  60%  50%  40%  30%  20%  10%  0%

Possibility of existence for understory species

<table>
<thead>
<tr>
<th>Species</th>
<th>Possibility degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picea abies</td>
<td>0.8</td>
</tr>
<tr>
<td>Acer campestre</td>
<td>0.6</td>
</tr>
<tr>
<td>Anemone nemorosa</td>
<td>0.4</td>
</tr>
<tr>
<td>Daphne laureda</td>
<td>0.2</td>
</tr>
<tr>
<td>Abies aba</td>
<td>0.8</td>
</tr>
<tr>
<td>Digitalis grandiflora</td>
<td>0.6</td>
</tr>
<tr>
<td>Euphorbia dulcis</td>
<td>0.4</td>
</tr>
<tr>
<td>Epipactis helleborine</td>
<td>0.2</td>
</tr>
<tr>
<td>Galium aparine</td>
<td>0.8</td>
</tr>
<tr>
<td>Geranium robertianum</td>
<td>0.6</td>
</tr>
<tr>
<td>Helleboris viridis</td>
<td>0.4</td>
</tr>
<tr>
<td>Lilium martagon</td>
<td>0.2</td>
</tr>
<tr>
<td>Luzula forsteri</td>
<td>0.8</td>
</tr>
<tr>
<td>Moehringia trinervia</td>
<td>0.6</td>
</tr>
<tr>
<td>Mycemis muralis</td>
<td>0.4</td>
</tr>
<tr>
<td>Prenanthes purpurea</td>
<td>0.2</td>
</tr>
<tr>
<td>Pteridium aquinum</td>
<td>0.8</td>
</tr>
<tr>
<td>Salvia glutinosa</td>
<td>0.6</td>
</tr>
<tr>
<td>Sanicula europea</td>
<td>0.4</td>
</tr>
<tr>
<td>Agrostis tenuis</td>
<td>0.2</td>
</tr>
<tr>
<td>Dentaria bulbifera</td>
<td>0.8</td>
</tr>
<tr>
<td>Dryopteris filix-mas</td>
<td>0.6</td>
</tr>
<tr>
<td>Avenella flexuosa</td>
<td>0.4</td>
</tr>
<tr>
<td>Galium rotundifolium</td>
<td>0.2</td>
</tr>
<tr>
<td>Lamium galeobdolon</td>
<td>0.8</td>
</tr>
<tr>
<td>Mercurialis perennis</td>
<td>0.6</td>
</tr>
<tr>
<td>Poa nemorals</td>
<td>0.4</td>
</tr>
<tr>
<td>Rubus hirtus</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: ID 50009 Country: Italy

Critical Load calculation: SMB method


Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 50009

Country: Italy

VSD+ model geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site:  
ID 50010  
Country: Italy

Critical Load calculation: SMB method
Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Results for ICP Forest Level II plots  May 2011

Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: **ID 50012**  
Country: Italy

Critical Load calculation: SMB method


Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site | ID 50012 | Country: Italy

VSD+ model | geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 50017  
Country: Italy

Critical Load calculation: SMB method


Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 50017  
Country: Italy

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site  ID 50017  Country: Italy

BERN model  biodiversity effects

Level II Plot 50017
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio after CLE-scenario

Possibility of existence for understory species

Legend
- Possibility
- 100%
- 90%
- 80%
- 70%
- 60%
- 50%
- 40%
- 30%
- 20%
- 10%
- 0%

Species list:
- Sorbus aucuparia
- Avenella flexuosa
- Rhododendron ferrugineum
- Maianthemum bifolium
- Cetraria islandica
- Dicranum scoparium
- Plagiothecium laetum
- Sphagnum capillifolium
- Rubus idaeus
- Vaccinium myrtillus
- Vaccinium vitis-idaea
- Homogyne alpina
- Lenzia sylvestica sieberi
- Melampyrum sylvarum
- Cladonia pyxidata
- Hylocomium splendens
- Pleurozium schreberi
- Sphagnum quinquefarium
- Senecio ovatus
- Lonicera caerulea
- Hypnum cupressiforme
- Cladonia rangiferina
- Barbilophozia lycoapidioides
- Rhytiadiadelthus triperti
- Vaccinium uliginosum
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: **ID 50027**  |  Country: Italy

Critical Load calculation: SMB method


Deposition measured: 2000 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  |  ID 50027  |  Country: Italy

**ICP Forest Level II Site**

**ID 50027**

gEOCHEMICAL DYNAMICS

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 60919  Country: United Kingdom

Critical Load calculation: SMB method

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site ID 60919 Country: United Kingdom

VSD+ model geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 60920**  
Country: United Kingdom

Critical Load calculation: SMB method


Deposition measured: 1996 – 2004

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 60920

Country: United Kingdom

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 60921 Country: United Kingdom
Critical Load calculation: SMB method
Deposition measured: 1996 – 2004

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  ID 60921  Country: United Kingdom

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 60922**  
Country: United Kingdom

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Results for ICP Forest Level II plots May 2011

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ICP Forest Level II Site: **ID 70010**  
Country: Ireland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: ID 70011   Country: Ireland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots

ICP Forest Level II Site  ID 70011  Country: Ireland

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 70016  Country: Ireland

Critical Load calculation: SMB method

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: **ID 80011**  
Country: Denmark

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen.
ICP Forest Level II Site    ID 80011    Country: Denmark

VSD+ model    geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured/observed values (points)
ICP Forest Level II Site

ID 80011

Country: Denmark

BERN model biodiversity effects

Level II Plot 80011
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio after CLE-scenario

Possibility of existence for understory species

- Brachythecium rutabulum
- Dicranum scoparium
- Hypnum cupressiforme
- Bazzania trilobata
- Calluna vulgaris
- Festuca rubra commutata
- Moehringia trimervia
- Vaccinium myrtillus
- Rubus fruticosus agg.
- Plagiothecium laetum
- Dicranum undulatum
- Lophocolea bidentata
- Briza media
- Cladonia arbuscula
- Juncus effusus
- Polytrichum formosum
- Vaccinium uliginosum
- Mnium hornum
- Hylocomium splendens
- Avenella flexuosa
- Calamagrostis villosa
- Cladonia rangiferina
- Melampyrum sylvaticum
- Sorbus aucuparia
- Vaccinium vitis-idaea
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: **ID 80034**  
Country: Denmark

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots

May 2011

ICP Forest Level II Site

ID 80034

Country: Denmark

VSD+ model
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 90001 Country: Greece

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 90001

Country: Greece

VSD+ model

dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 90002**  
Country: Greece

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
Results for ICP Forest Level II plots

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Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: ID 90003  Country: Greece

Critical Load calculation: SMB method


Deposition measured: 2008, 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: **ID 90004**  
Country: Greece

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 90004  
Country: Greece

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)

ICP Forest Level II Site  
ID 90004  
Country: Greece

BERN model  
biodiversity effects
Results for ICP Forest Level II plots May 2011

Level II Plot 90004
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio after CLE-scenario

Possibility of existence for understory species

Legend:
- 99% - 99.9%
- 95% - 99.9%
- 50% - 59.9%
- 33% - 49.9%
- < 33%
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: ID 110054  Country: Spain

Critical Load calculation: SMB method
Deposition measured: 2003 - 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  ID 110054  Country: Spain

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 140009  Country: Austria

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site  ID 140009  Country: Austria

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site  |  ID 140009  |  Country: Austria

BERN model  |  biodiversity effects

Level II Plot 140009
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Possibility of existence for understory species

Legend
- 100%
- 90%
- 80%
- 70%
- 60%
- 50%
- 40%
- 30%
- 20%

Prunus avium
Dentaria bulbifera
Euphorbia amygdaloides
Hieracium racemosum
Oxalis acetosella
Sedum nodosa
Viola reichenbachiana
Dianthus pyrrhocoris
Cephalanthera rubra
Athyrium filix-femina
Dentaria amnephytos
Galiun odoratum
Lamium galeobdolon
Poa nemoralis
Senecio ovatus
Atrichum undulatum
Hylocomium cupressiforme
Carex sylvatica
Cirsium lutetiana
Galium rotundifolium
Rubus fruticosus agg.
Veronica montana
Brachythecium velutinum
Polytrichum formosum

Annex Page 157
Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: **ID 140016**  
Country: Austria

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site | ID 140016 | Country: Austria

VSD+ model | geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
Results for ICP Forest Level II plots May 2011

ICP Forest Level II Site  ID 140016  Country: Austria

BERN model  biodiversity effects

Level II Plot 140016
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Possibility of existence for understory species

Oxalis acetosella  Calamagrostis villosa  Dryopteris dilatata
Rubus idaeus  Vaccinium myrtillus  Homogyne alpina
Luzula luzuloides  Luzzula sylvatica  Lycopodium annotinum
Barbliophozia foerkei  Bazania trilobata  Calypogeia azurea
Calypogeia integristipula  Cetraria islandica  Cladonia cernua
Cladonia coniocrea  Cladonia digitata  Cladonia furcata
Cladonia macrocerae  Cladonia rangiferina  Dicranum scoparium
Hylocomium splendens  Lepidozia replans  Piagiochila asplenioide
Plagiomnium undulatum  Plagiothecium curvifolium  Pleurozium schreberi
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: ID 150001 Country: Finland

Critical Load calculation: SMB method

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: **ID 150002**  
Country: Finland  
Critical Load calculation: SMB method  
Deposition measured: 1996, 1997  

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: ID 150003 Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 150003

Country: Finland

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 150004 Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996, 1997

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  |  ID 150004  |  Country: Finland

VSD+ model  |  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150005**  
Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site | ID 150005 | Country: Finland

VSD+ model | geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150006**  
Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: ID 150007  Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996, 1997

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: ID 150008 Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996, 1997

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 150008

Country: Finland

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 150009  
Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996 – 2003

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 150009  
Country: Finland

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site  ID 150009  Country: Finland

BERN model  biodiversity effects

Level II Plot 150009
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Possibility of existence for understory species
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: **ID 150010**  
Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site  ID 150010  Country: Finland

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 150011 Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

VCID 150011

Country: Finland

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 150012  
Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 150012

Country: Finland

VSD+ model

dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150013**  
Country: Finland  
Critical Load calculation: SMB method  
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen.
ICP Forest Level II Site  ID 150013  Country: Finland

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 150014 Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996, 1997

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

VSD+ model

ID 150014

geochemical dynamics

Country: Finland

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 150015  Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996, 1997

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 150015

Country: Finland

VSD+ model geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured/observed values (points)
ICP Forest Level II Site: ID 150016 Country: Finland

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 150016

Country: Finland

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 150017  Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 150017

Country: Finland

VSD+ model
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150018**  
Country: Finland

Critical Load calculation: SMB method  
Deposition measured: 1996 – 2007

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: ID 150019  Country: Finland

Critical Load calculation: SMB method

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 150019  
Country: Finland

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150020**  
Country: Finland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site: ID 150021  Country: Finland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site ID 150021 Country: Finland

VSD+ model
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site:  

- ID: 150022  
- Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996, 1997

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  |  ID 150022  |  Country: Finland

VSD+ model  |  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
Results for ICP Forest Level II plots  
May 2011

ICP Forest Level II Site: **ID 150023**  
Country: Finland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen.
ICP Forest Level II Site

ID 150023

Country: Finland

VSD+ model geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150025**  
Country: Finland

Critical Load calculation: SMB method


Deposition measured: 1996 – 2007

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 150025

Country: Finland

VSD+ model

dynamic change of geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150026**  
Country: Finland  

Critical Load calculation: SMB method  


Critical and deposition loads of sulphur and nitrogen in different years,
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site: ID 150027  Country: Finland

Critical Load calculation: SMB method

Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 150028 Country: Finland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 150029 Country: Finland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 150030  Country: Finland
Critical Load calculation: SMB method

Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: **ID 150031**  
Country: Finland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 150032  
Country: Finland

Critical Load calculation: SMB method
Deposition measured: 2005 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site  ID 150032  Country: Finland

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 150033**  
Country: Finland

Critical Load calculation: SMB method
Deposition measured: 2005 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 530001 Country: Poland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Results for ICP Forest Level II plots

May 2011

ICP Forest Level II Site  ID 530001  Country: Poland

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: **ID 530002**
Country: Poland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 530003 Country: Poland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 530004  
Country: Poland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
ICP Forest Level II Site

ID 530004

Country: Poland

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 530005  Country: Poland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 530006  
Country: Poland

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 540201  
Country: Slovak Republic

Critical Load calculation: SMB method


Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 540201

Country: Slovak Republic

VSD+ model

dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site  ID 540201  Country: Slovak Republic

BERN model  biodiversity effects

Level II Plot 540201
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Legend
- 100%
- 90%
- 80%
- 70%
- 60%
- 50%
- 40%
- 30%
- 20%
- 10%

Possibility of existence for understory species

Crataegus monogyna  Prunus avium  Rhamnus cathartica  Rubus bifrons  Brachypodium sylvaticum  Fragaria vesca  Hypericum perforatum  Rubus fruticosus agg.  Viola hirsuta
Euonymus europaeus  Prunus spinosa  Rosa arvensis  Acer campestre  Euphorbia cyparissias  Galium aparine  Poa nemoralis  Vicia cassubica
Ligustrum vulgare  Pyrus pyraster  Rubus fruticosus agg.  Allium vineale  Festuca rubra  Galium sylvaticum  Prunella vulgaris  Vincetoxicum hirundinaria

Annex Page 255
Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: ID 540203  Country: Slovak Republic

Critical Load calculation: SMB method
Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 540203  
Country: Slovak Republic

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 540204  
Country: Slovak Republic

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 540204  
Country: Slovak Republic  

VSD+ model  
geochemical dynamics  

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 540206  
Country: Slovak Republic

Critical Load calculation: SMB method


Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 540206

Country: Slovak Republic

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 540207  
Country: Slovak Republic

Critical Load calculation: SMB method


Deposition measured: 1998 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

VSD+ model

ID 540207

dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site:  ID 540208  
Country: Slovak Republic  

Critical Load calculation: SMB method  
Deposition measured: 1999 – 2009  

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

VSD+ model

ID 540208

geochemical dynamics

Country: Slovak Republic

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 540209

Country: Slovak Republic

Critical Load calculation: SMB method


Deposition measured: 2001 – 2008

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site

ID 540209

Country: Slovak Republic

**VSD+ model**

**geochemical dynamics**

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 560003  
Country: Lithuania  

Critical Load calculation: SMB method  
Deposition measured: 2005 – 2009  

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site | ID 560003 | Country: Lithuania

VSD+ model | geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 560003, Country: Lithuania

BERN model

**Level II Plot 560003**
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

**Possibility of existence for understory species**

<table>
<thead>
<tr>
<th>Species</th>
<th>Possibility Degree [-]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhamnus frangula</td>
<td>0.7</td>
</tr>
<tr>
<td>Agrostis tenuis</td>
<td>0.6</td>
</tr>
<tr>
<td>Senecio jacobae</td>
<td>0.5</td>
</tr>
<tr>
<td>Festuca ovina ovina</td>
<td>0.4</td>
</tr>
<tr>
<td>Melampyrum pratense</td>
<td>0.3</td>
</tr>
<tr>
<td>Vaccinium myttitus</td>
<td>0.2</td>
</tr>
<tr>
<td>Brachypodium pinnatum</td>
<td>0.1</td>
</tr>
<tr>
<td>Pleurozium schreberi</td>
<td>0.0</td>
</tr>
<tr>
<td>Mycetes muralis</td>
<td>0.5</td>
</tr>
<tr>
<td>Empetrum nigrum</td>
<td>0.8</td>
</tr>
<tr>
<td>Crataegus monogyna</td>
<td>0.7</td>
</tr>
<tr>
<td>Convallana majalis</td>
<td>0.6</td>
</tr>
<tr>
<td>Polytrichum formosum</td>
<td>0.5</td>
</tr>
<tr>
<td>Corylus avellana</td>
<td>0.4</td>
</tr>
<tr>
<td>Vaccinium vitis-idea</td>
<td>0.3</td>
</tr>
<tr>
<td>Polygongumum multiflorum</td>
<td>0.2</td>
</tr>
<tr>
<td>Scleropodium purum</td>
<td>0.1</td>
</tr>
<tr>
<td>Poa pratensis</td>
<td>0.0</td>
</tr>
<tr>
<td>Dactylis glomerata</td>
<td>0.9</td>
</tr>
<tr>
<td>Calluna vulgaris</td>
<td>0.8</td>
</tr>
<tr>
<td>Hypnum cupreosifolme</td>
<td>0.7</td>
</tr>
<tr>
<td>Anthoxanthum odoratum</td>
<td>0.6</td>
</tr>
<tr>
<td>Sorbus aucuparia</td>
<td>0.5</td>
</tr>
<tr>
<td>Dicranum polysetum</td>
<td>0.4</td>
</tr>
<tr>
<td>Hylocomium splendens</td>
<td>0.3</td>
</tr>
<tr>
<td>Dicranella heteromalla</td>
<td>0.2</td>
</tr>
<tr>
<td>Galloplis tetrahit</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Conclusion: Changes in main tree species are recommended
ICP Forest Level II Site: ID 560006  
Country: Lithuania

Critical Load calculation: SMB method


Deposition measured: 1999 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 560006

Country: Lithuania

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 580521  Country: Czech Republic
Critical Load calculation: SMB method
Deposition measured: 1997 - 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 580521

Country: Czech Republic

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site | ID 580521 | Country: Czech Republic

BERN model biodiversity effects

![Graph showing biodiversity effects]

Level II Plot 580521
Dynamic possibility for natural communities depending on changes of base saturation and C/N-ratio

![Graph showing possibility of existence for understory species]

Legend:
- Sorbus aucuparia
- Carex curta
- Avenella flexuosa
- Epilobium angustifolium
- Rubus idaeus
- Urtica dioica
- Dicranella heteromalla
- Hypnum cupressiforme
- Polytrichum alpinum
- Agrostis tenuis
- Carex montana
- Digitalis purpurea
- Galium saxatile
- Stellaria alpina
- Vaccinium myrtillus
- Dicranum scoparium
- Plagiothecium curvisulcum
- Polytrichum fimbriatum
- Calamagrostis villosa
- Carex ovata
- Dryopteris dilatata
- Luzula luzuloides
- Trisetum spicatum
- Brachythecium rutabulum
- Dicranum undulatum
- Plagiothecium laetum
- Polytrichum longisetum
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: ID 582015  
Country: Czech Republic

Critical Load calculation: SMB method
Deposition measured: 1997 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  ID 582015  Country: Czech Republic

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 582102  
Country: Czech Republic

Critical Load calculation: SMB method
Deposition measured: 2000 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 582102  
Country: Czech Republic

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 582103  Country: Czech Republic

Critical Load calculation: SMB method


Deposition measured: 2003 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
Results for ICP Forest Level II plots  May 2011

ICP Forest Level II Site
ID 582103
Country: Czech Republic

VSD+ model
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 582161  
Country: Czech Republic

Critical Load calculation: SMB method


Deposition measured: 1996 – 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  |  ID 582161  |  Country: Czech Republic

VSD+ model  |  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 582161

Country: Czech Republic

BERN model biodiversity effects

Level II Plot 582161
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Possibility of existence for understory species
Conclusion: Tree species correspond to site conditions and will remain adapted
ICP Forest Level II Site: ID 582163  
Country: Czech Republic

Critical Load calculation: SMB method


Deposition measured: 2003 - 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 582163

Country: Czech Republic

VSD+ model geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 582251  
Country: Czech Republic  
Critical Load calculation: SMB method  
Deposition measured: 2004 - 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen.
ICP Forest Level II Site

ID 582251

Country: Czech Republic

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
Results for ICP Forest Level II plots May 2011

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ICP Forest Level II Site: ID 582361 Country: Czech Republic

Critical Load calculation: SMB method


Deposition measured: 1998 - 2009

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site

ID 582361

Country: Czech Republic

VSD+ model

geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 600010  
Country: Slovenia

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years
ICP Forest Level II Site: ID 660101
Country: Cyprus

Critical Load calculation: SMB method

Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  
ID 660101  
Country: Cyprus

VSD+ model  
geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 660102 Country: Cyprus

Critical Load calculation: SMB method


Critical and deposition loads of sulphur and nitrogen in different years, inside the critical load function (green line) significant harmful effects of acidification or eutrophication do not occur according to present knowledge.
Acceptable intake and critical load exceedances by measured deposition due to sulphur and nitrogen
ICP Forest Level II Site  ID 660102  Country: Cyprus

VSD+ model  geochemical dynamics

Dynamic change of geochemical parameters, modelled with VSD+ (lines) and measured / observed values (points)
ICP Forest Level II Site: ID 660102, Country: Cyprus

BERN model biodiversity effects

Level II Plot 660102
Dynamic of possibility for natural communities depending on changes of base saturation and C/N-ratio

Legend
Possibility
- 100%
- 90%
- 80%
- 70%
- 60%
- 50%
- 40%
- 30%
- 20%

Possibility of existence for understory species

- Berberis cretica
- Stachelina uniflora
- Teucrium chamaedrys
- Smilax aspera
- Ranunculus repens
- Cotinus coggyria pubescens
- Galium aparine
- Brachypodium sylvaticum
- Silene italica
- Crataegus monogyna
- Calamintha dinopodium
- Viola reichenbachiana
- Ruscus aculeatus
- Dorycnium hirsutum
- Phillyrea latifolia
- Cercis silquastrum
- Filipendula vulgaris
- Pistacia lentiscus
- Rubia tenuifolia
- Pteridium aquilinum
- Genista lydia
- Agropyron repens repens
- Dactylis glomerata
- Hedera helix
- Brachypodium pinnatum
- Festuca pratensis
- Veronica persica

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Conclusion: Tree species correspond to site conditions and will remain adapted.