Integration of simulated and empirical critical loads to unique values per Habitat type

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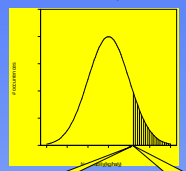
Simulation approach

Vegetation database (160 000 relevés)
↓ ↓ ↓
response per vegetation type (association)



P_{80} of N availability

critical conditions per vegetation type

P_{20} of pH

SMART^{-1}

inverted soil chemical model:
produces deposition that corresponds to critical conditions (either N or pH) for each soil type

Table of critical loads per association / soil type combination (192 records)

uncertainty analysis:

low uncertainty in expected value (~1 kg.ha^{-1}.y^{-1})
high uncertainty in individual prediction (~15 kg.ha-1.y-1)

Empirical approach

Observational and experinental data (many sources)

EUNIS type	Empirical Critical Load Range				
	5	10	15	20	25
F1					
F2					
F4.11					
F4.11					
F4.2					
E1.26					
D1					
etc.					

Table of critical load ranges per EUNIS type (27 records)

What we need:
- **enough detail for local application**
- **international support**
- **unique value per habitat type**

What we cannot use:
- **ranges**
- **standard deviations**

Integration:

Use funnel procedure to combine both approaches…

Habitat type	Association		
	….	….	….
	….	….	….
	Translation table…		….
	….	….	….
	….	….	….

Habitat type	EUNIS type		
	….	….	….
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	Translation table…		….
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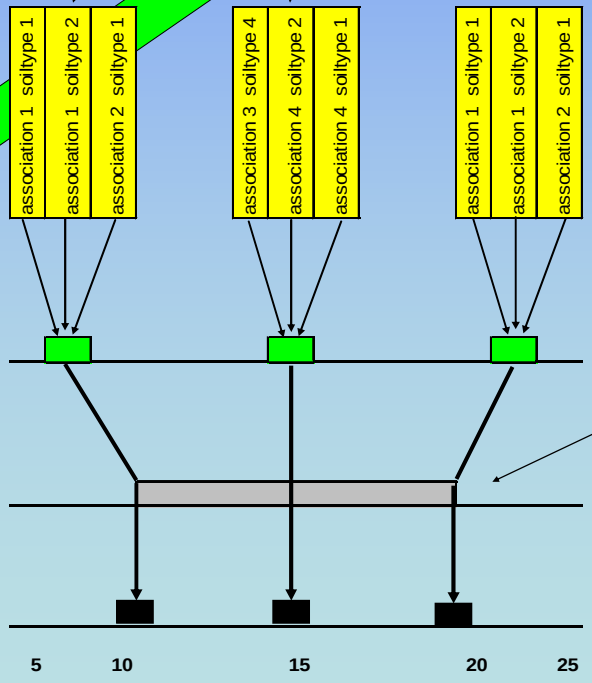

Similated values per association / soiltype combinatoin

Mean values per Habitat type

Fit to empirical range

Final values

scale: kg N ha^{-1}.y^{-1}