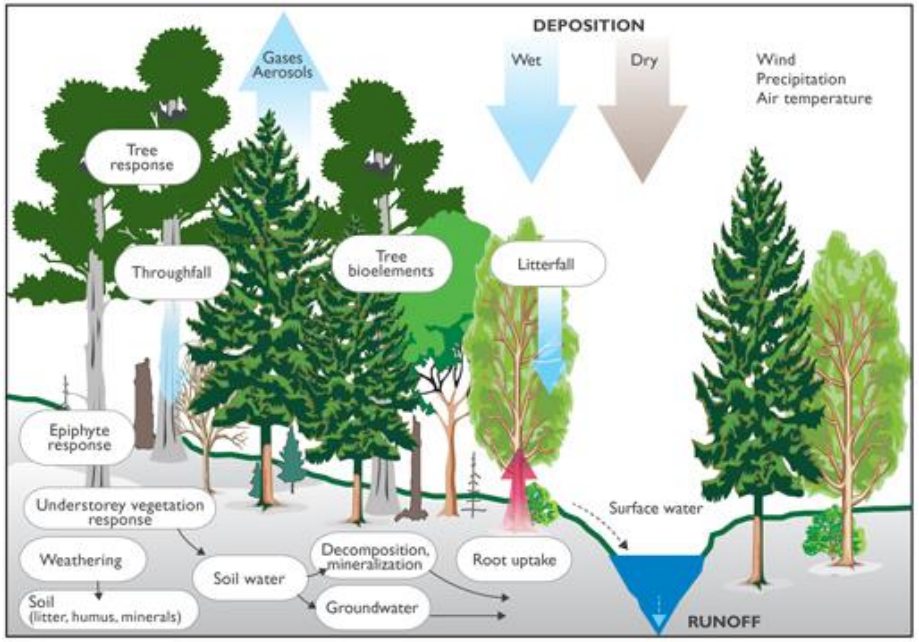
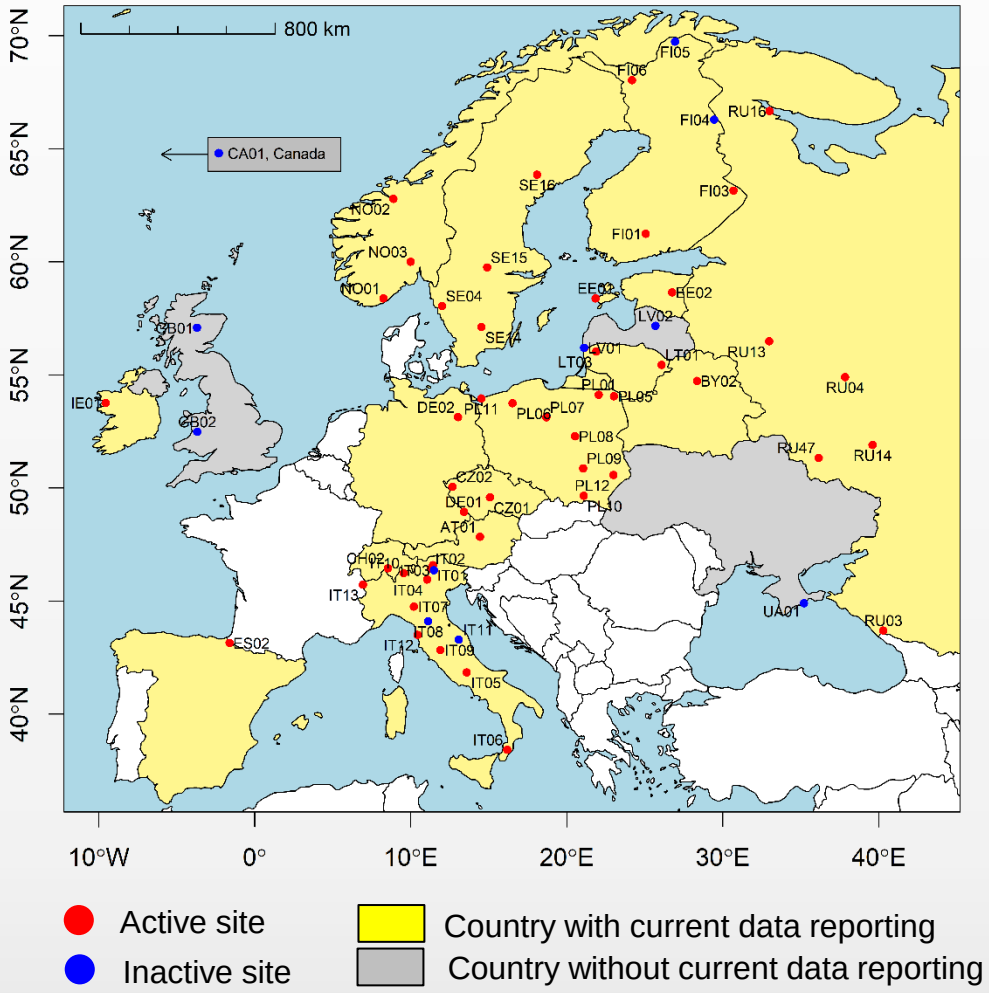
ICP Integrated Monitoring of Air Pollution Effects on Ecosystems – ICP IM

U. Grandin, S. Valinia and M. Forsius



Integrated monitoring sites, 2021

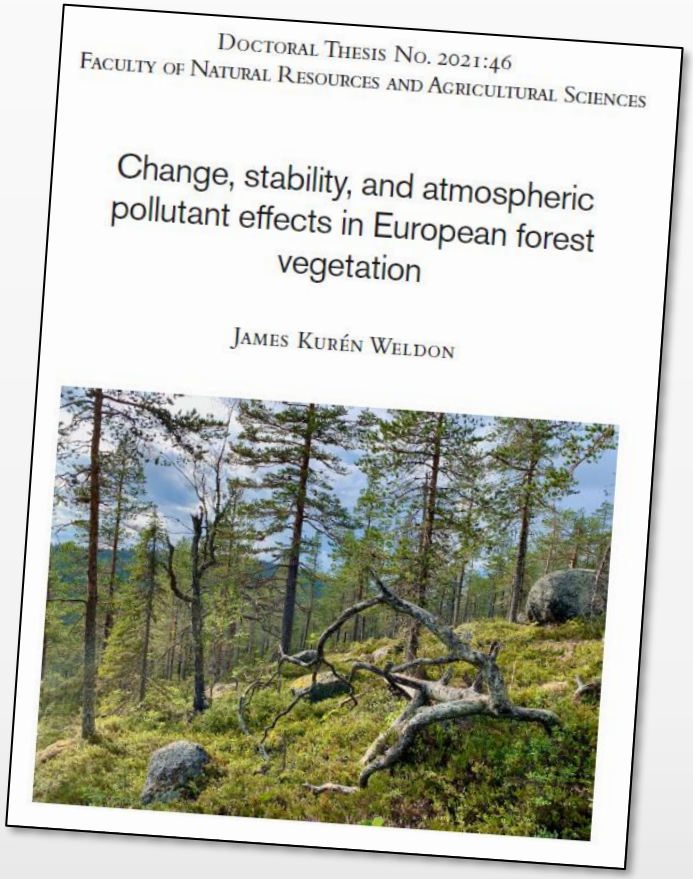


15 active countries

48 active sites

Recent scientific activities

Scientific publications in priority topics areas



Long-term study of epiphytic lichens

Weldon & Grandin. The Lichenologist 2021, 53:203-213

- More than 20 years of IM data on epiphytic lichens
- Sharp decline in S deposition

Main result

- Only weak or no recovery in the epiphytic lichen community despite rapid decline in air pollution

Main conclusion

- Due to slow colonisation rate lichens do not always indicate increasing air quality (but are still considered as quick indicator of decreasing air quality)

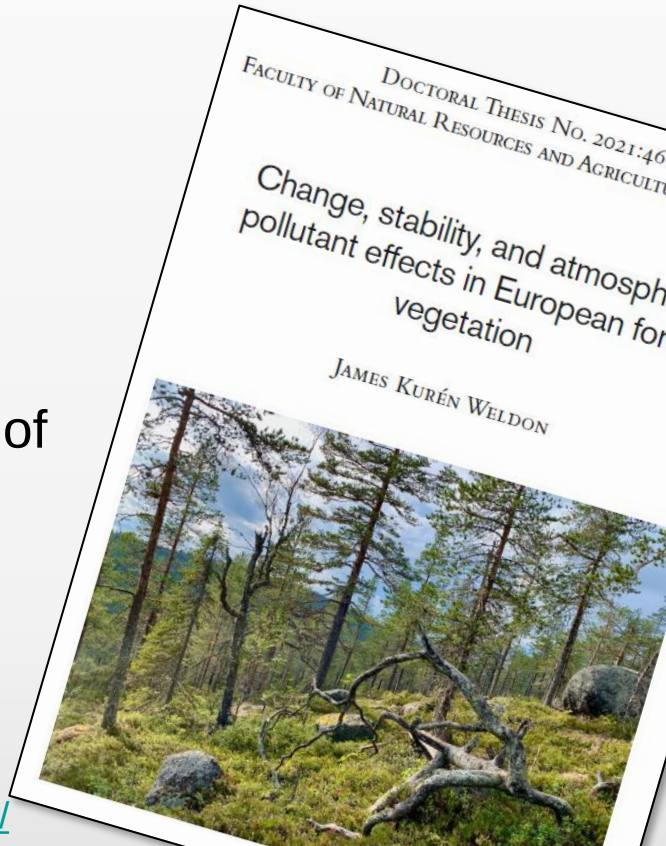
Weldon &.Grandin, The Lichenologist. (2021), https://doi.org/10.1017/S0024282921000037

PhD thesis based on IM and Forests data

Successfully defended last Friday!

Main findings

- Reiterate the need of long term ecological monitoring
- The forest bryophyte community respond differently to NO3 and NH4 deposition
- Slow recolonisation may limit the usefulness of lichens as an indicator of improving air quality
- Refuge patches are important for forest resilience after major disturbances



Whole thesis: https://pub.epsilon.slu.se/24882/

Activities on the 2020-21 CLRTAP work plan

WP Activity	Time frame	Responsible	Status
1.1.1.15 Scientific paper on the impacts of internal catchment-related nitrogen parameters to TIN leaching	2020	Programme Centre and NFPs	Draft MS, to be submitted
1.1.1.16 Scientific paper on HM trends in concentrations and fluxes across ICP IM sites in Europe	2021	Programme Centre and individual researchers	Draft MS, to be submitted
1.1.1.17 Scientific paper on the effects of N enrichment on forest vegetation. A co-operation between ICP IM and ICP Forests.	2020	ICP IM chairs	Submitted MS Part of PhD thesis

Suggestions for the 2022-2023 Work Plan

Suggested activities 2022-23 Work Plan	Time frame	Responsible
Operationalise and advertise "IM light" as an attractive monitoring protocol, aiming at adding more ecosystem types in the IM monitoring	2022	IM Chairs and Programme Centre
Continued work on the trends in ecosystems connected to the review of the Gothenburg Protocol and questions asked from the policy groups (to be determined in later)	2022	IM Chairs and Programme Centre
Scientific paper on modelling and assessment of biodiversity and ecosystem impacts, in cooperation with e.g. CDM	2023	IM Chairs and Programme Centre

Other Planned Activities

- Further work along with the Long Term Strategy, e.g. develop concepts for multi pollutant – multi effect relationships (NOx, O3, acidity, heavy metals, POPs, etc).
- Cooperation with other ICPs, particularly regarding:
  - dynamic modelling (all ICPs),
  - cause-effect relationships in terrestrial systems (ICP Forests, ICP Vegetation), and
  - surface waters (ICP Waters).
- Increased cooperation and use of EMEP data in evaluations of IM data
- Participation in the development of the European LTER-network to an ESFRI Research Infrastructure (www.lter-europe.net).
- Cooperation with other external organisations (LifeWatch, GEO BON, …).
- Continued influence on the NECD monitoring, reporting and analyses

Move of IM data base

The move of the IM data base is completed

New host is the Swedish University of Agricultural Sciences

The new data base is built from scratch

- **SQLite** as database format
- Data assurance routines programmed in **Python 3**
- Pedagogic data error reports in **html** format to data providers (when needed)

Move of IM Programme Centre

As brought up under *Finance and budgetary matters*

The Finnish Environment Institute (SYKE) will end its hosting of the IM Programme Centre

- Call for new host at the IM Task Force meeting, in May 2021.
- Positive response from the Swedish University of Agricultural Sciences (SLU)
- SLU has a strong group to staff the new programme centre
- The old Programme Centre will support during a transition period
- Final decision to be made at EB meeting in December
- Martin Forsius will still be around

Thank you SYKE!

- SYKE has hosted the Programme Centre for 30 years
- Program Centre has done a tremendous job

Thanks Martin, Sirpa, Maria, Jussi and all others!

We would like to express our deep gratitude for all the commitment and excellent work!

Summary for the minutes

- Showed highlights form a PhD thesis entirely based on ICP data
- Plans for continued work on critical load exceedances and empirical ecosystem impact indicators, in cooperation with other ICPs and EMEP
- Continued work on Hg and other heavy metals
- ICP IM database has been moved from SYKE to SLU
- ICP IM Programme Centre suggested to be moved from SYKE to SLU

Suggested activities 2022-23 Work Plan
Operationalise and advertise “IM light” as an attractive monitoring protocol, aiming at adding more ecosystem types in the IM monitoring
Continued work on the trends in ecosystems connected to the review of the GP and questions asked from the policy groups (to be determined in later)
Prepare scientific paper on modelling and assessment of biodiversity and ecosystem impacts, in cooperation with e.g. CDM

Thanks for your attention

Gammtratten IM site SE16. Photo: Ulf Grandin.