Updates from the ICP Vegetation

Gina Mills and Harry Harmens

(ICP Vegetation, CEH Bangor, UK)

* Supported by Defra (UK), NERC (UK) & UNECE

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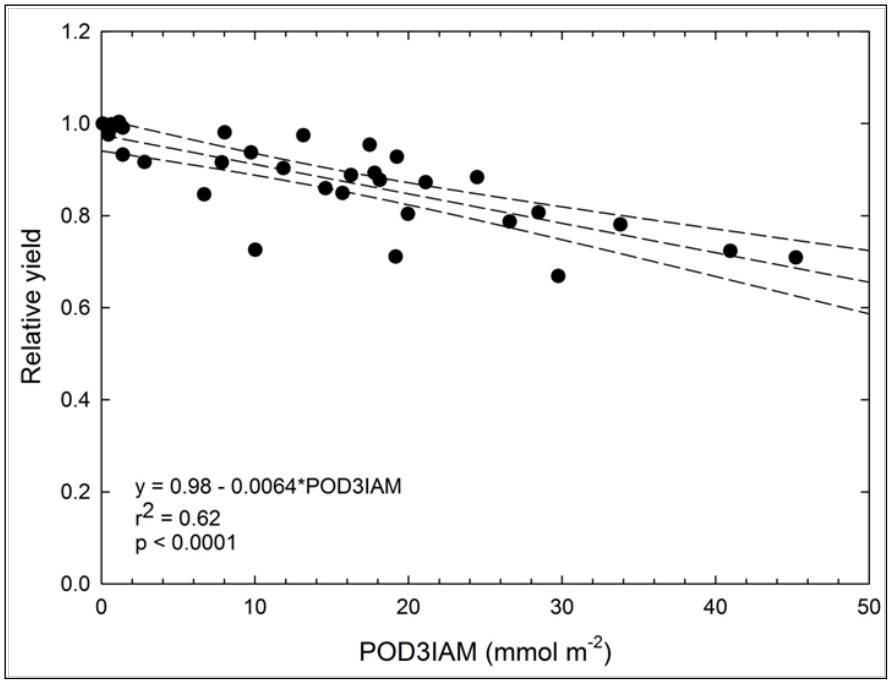
Revision of Modelling and Mapping Manual, Chapter 3

The 27th TFM of the ICP Vegetation (Paris, January, 2014) agreed:

- No changes to the existing critical levels
- New references included where ozone response functions and supporting evidence for ozone critical levels have been published
- New flux model parameterisations for additional species to be added to Annex
- Text related to integrated assessment modelling (Section 3.5.2.6) updated:
  - New terminology for the simplified generic ozone flux – $POD_Y IAM$ will replace $POD_Y gen$ (POD_Y = Phytotoxic Ozone Dose above a flux threshold of Y nmol m^{-2} s^{-1})
  - New critical level and dose-response function for $POD_y IAM$ for integrated assessment modelling (see next slide)

New response function for use in IAM



- **New POD_3IAM – effect relationship** for use in integrated assessment modelling at European scale only (for effects of ozone on wheat, 90 d exposure period)

- **Critical level**: 8 mmol m^{-2} (representing 5% yield decline)

- For use in scenario analysis and optimisation runs within GAINS to provide indication of potential effects on wheat yield under non-limiting water availability
- Two parameterisations flux model: 1) Northern & Central Europe, 2) Mediterranean areas (as defined in the M&M Manual)

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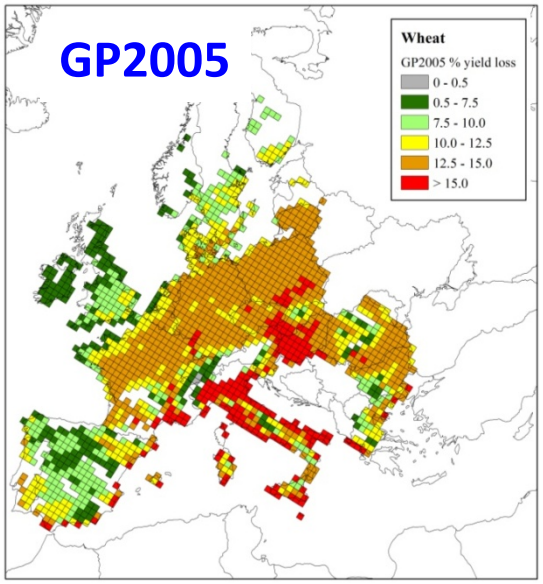
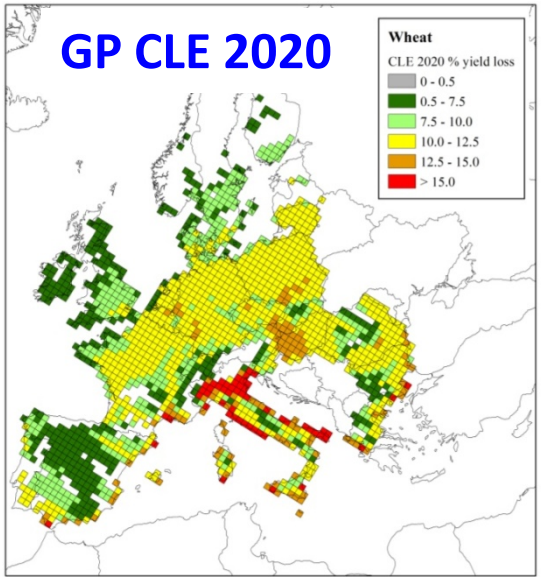
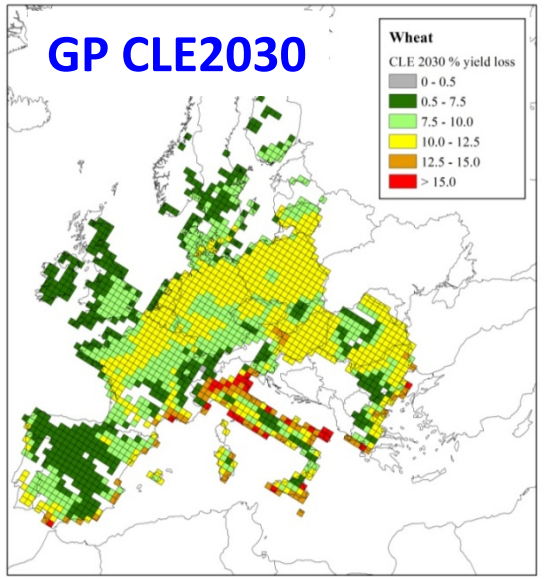
Ozone and food security

Application of POD_3IAM response function to GP scenarios





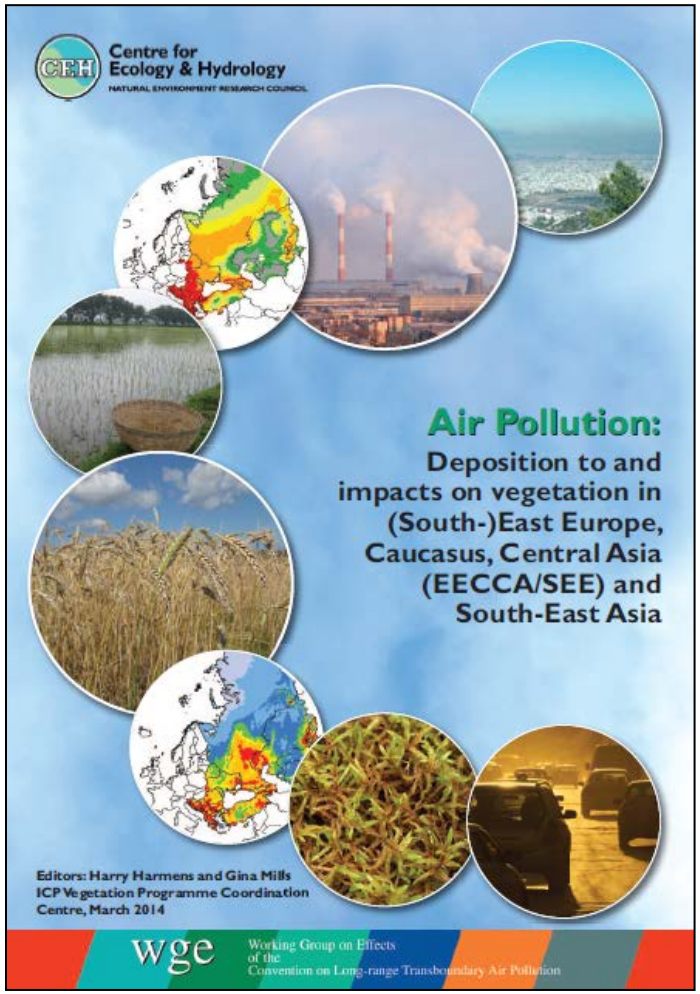


- Revised Gothenburg Protocol: **Mean yield loss* (%) for 27+NO+CH:**
  12.4% for GP2005, 10.3% for GP CLE2020

Note:

* Generic crop flux model (IAM), assumes no water limitation, one parameterisation used for all Europe
* Data included in Guidance Document for Environmental Improvements (ECE/EB.AIR/2013/8)

EECCA/SEE and South-East Asia report



Content

- ❑Air Pollution deposition and impacts in EECCA and SEE
  (N, O_3, heavy metals, POPs)
- ❑Concentrations and effects on vegetation in SE Asia
- ❑Conclusions and recommendations
- ❑Annex: Country reports (9 countries)

*** Copies available at this meeting**

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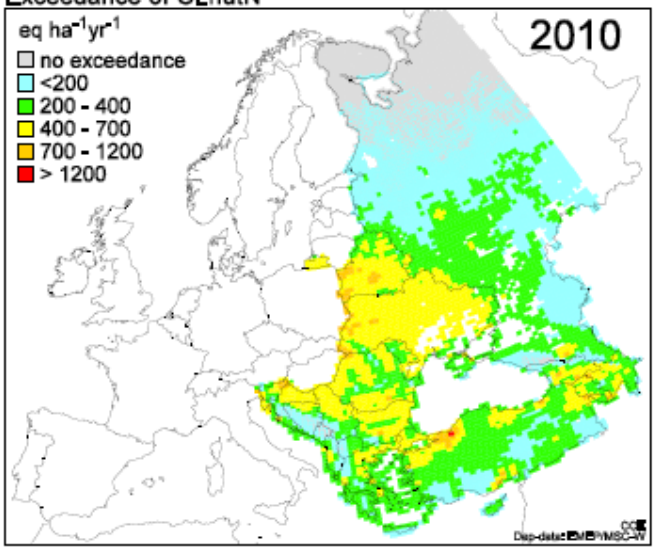
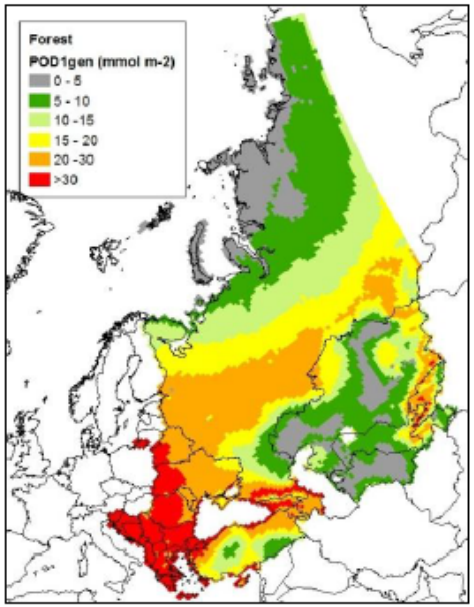
Examples of maps from the ICP Vegetation EECCA/SEE/SEA report

Nitrogen

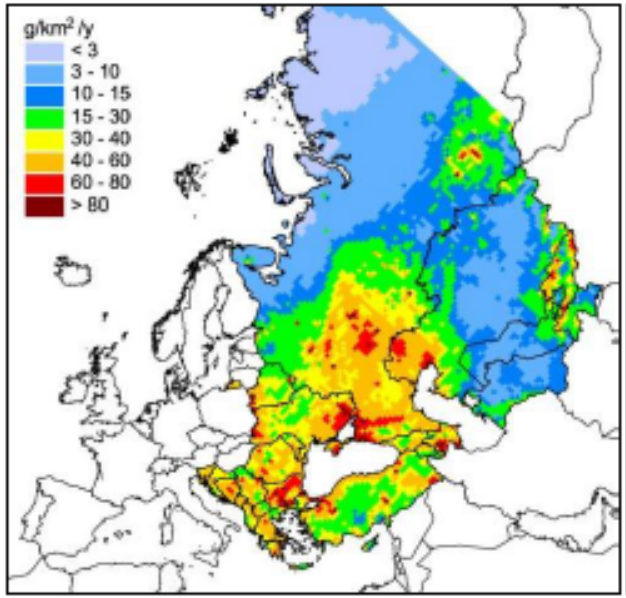




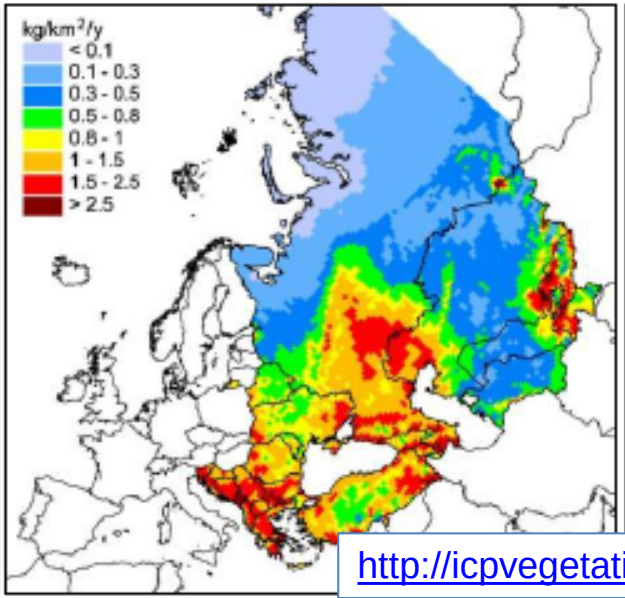
Ozone

POD_1IAM for forest trees, mean of 2007 – 2011

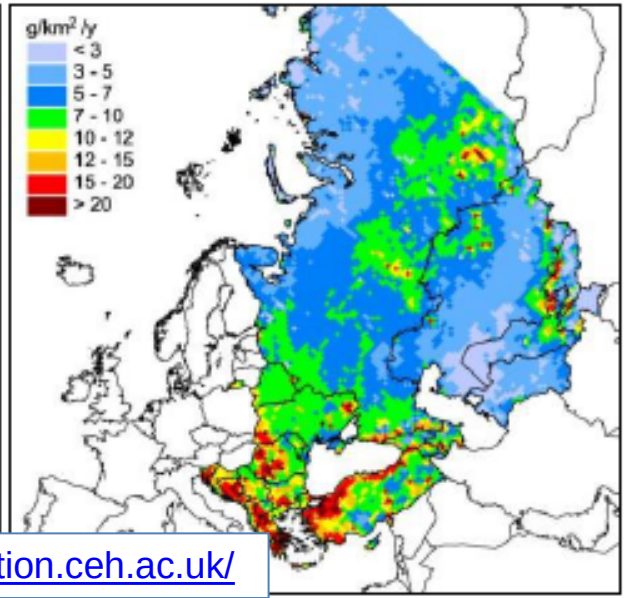
Cadmium



Lead



Mercury



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New Smart phone App

Recording incidences of leaf ozone injury

Smart-phone App linked to ICP Vegetation web site

Location on interactive map

Spring/summer 2014: Testing by experts and interested scientists
Spring/summer 2015: European (and Global) roll out to scientists and public

To test the App this year, please email Gina Mills (gmi@ceh.ac.uk)

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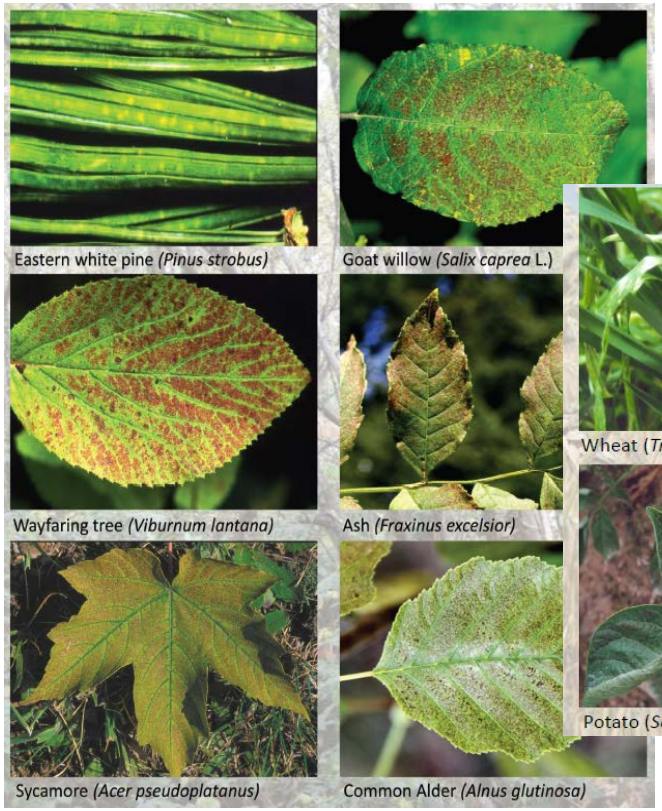
ICP Vegetation ozone injury brochure



*** Available in English (now) and Russian (very soon!)**

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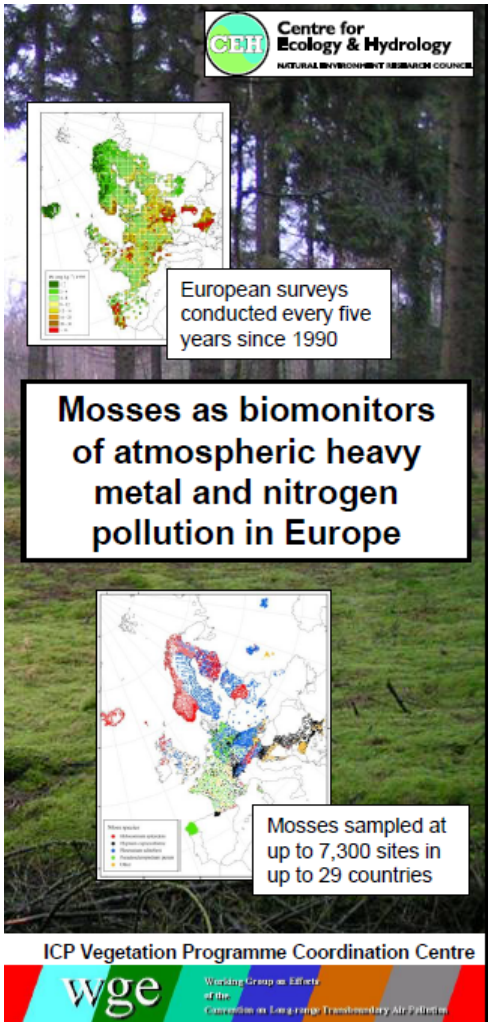
European moss survey



- Coordination European Moss Survey transferred to the Russian Federation: Marina Frontasyeva, JINR, Dubna: Extending participation EECCA countries
- Next European moss survey in 2015/16

ICP Vegetation Medium-term workplan

Annual activities:

- ❑ Report on supporting evidence for ozone impacts on vegetation
- ❑ Report on progress with the moss survey 2015/2016
- ❑ Contributions to common workplan items of the WGE

2015:

- ❑ Report on implications of rising background ozone for vegetation in Europe
- ❑ Report on the interacting effects ozone and N and climatic stresses on vegetation

Tentatively for 2016:

- ❑ Report on field-based evidence of ozone impacts on vegetation
- ❑ Report on ozone impacts on biodiversity
- ❑ Ozone critical levels workshop