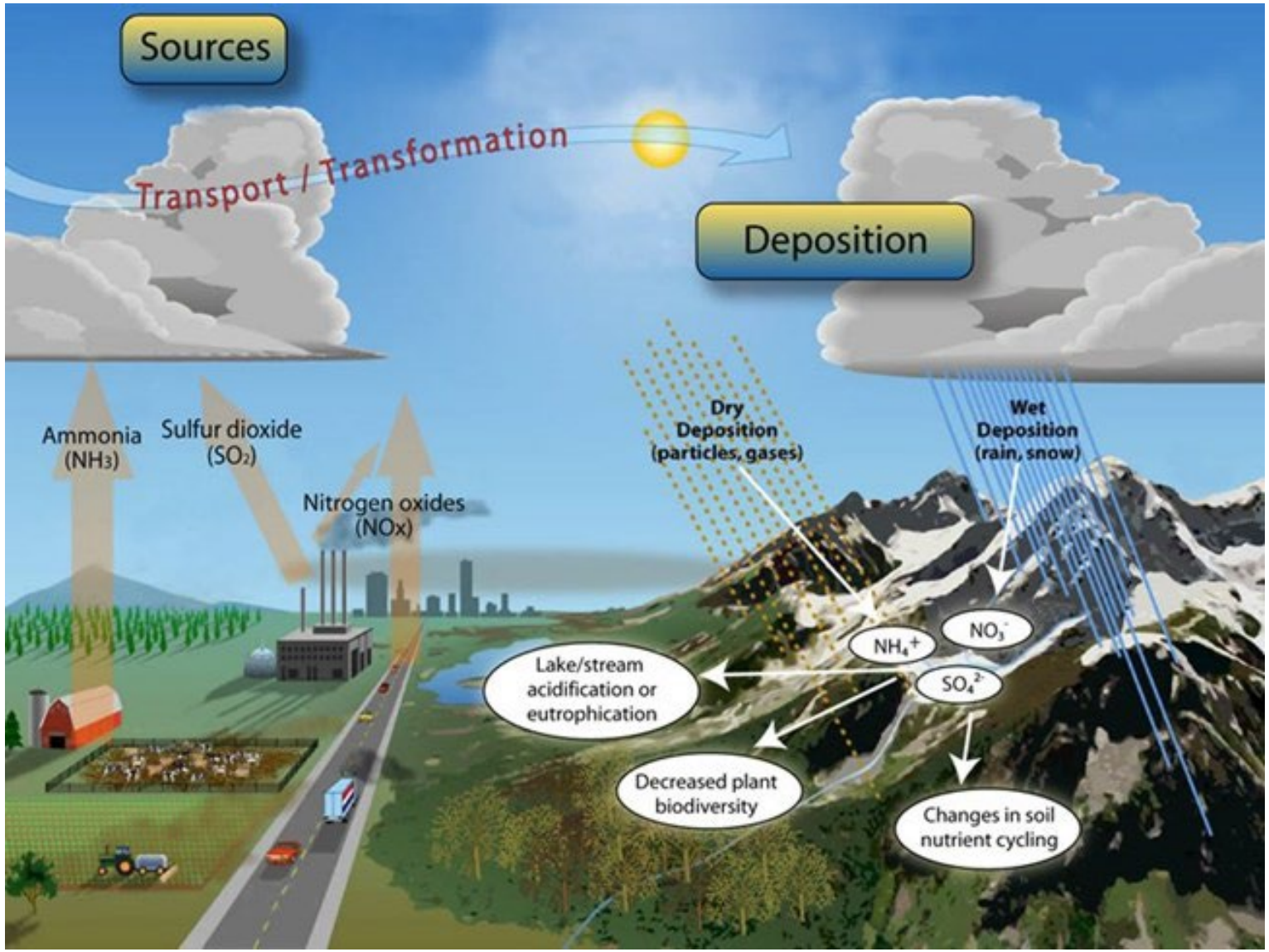
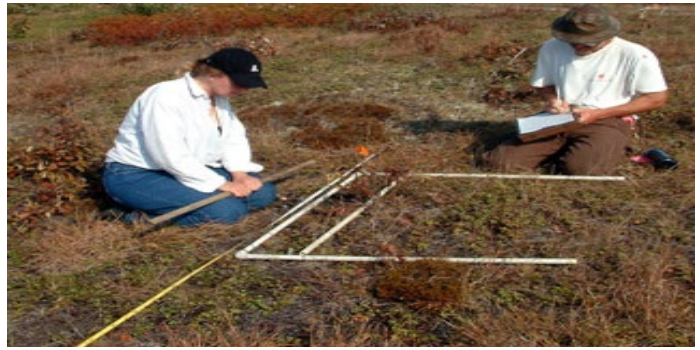
Air pollution and biodiversity

Thematic session 9th joint WGE/EMEP meeting

Salar Valinia ICP IM, Filip Moldan & Sara Jutterström CDM


Sources
Transport / Transformation
Deposition
Ammonia (NH3)
Sulfur dioxide (SO2)
Nitrogen oxides (NOx)
Dry Deposition (particles, gases)
Wet Deposition (rain, snow)
NH4+
NO3-
SO4 2-
Lake/stream acidification or eutrophication
Decreased plant biodiversity
Changes in soil nutrient cycling

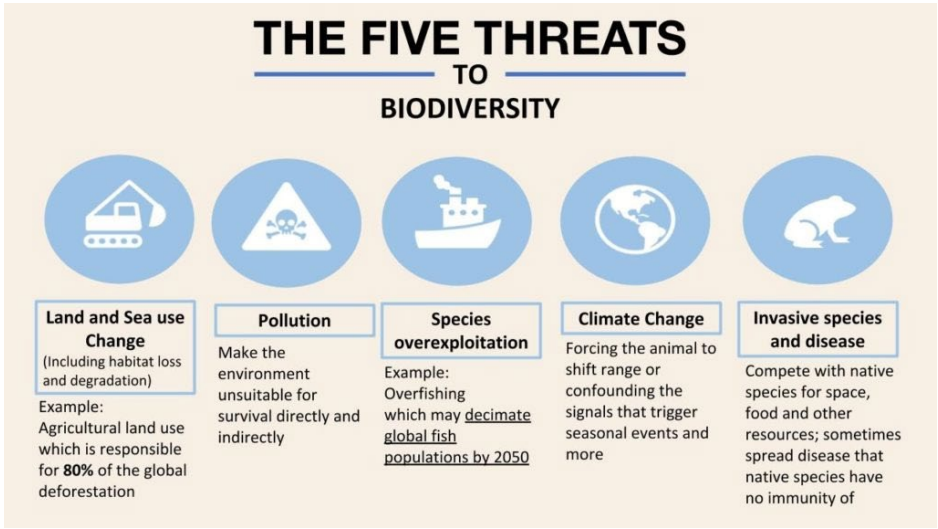
Grassland	E **Grasslands** and land dominated by forbs, mosses or lichens	E1 Dry grasslands
		E2 Mesic grasslands
		E3 Seasonally wet and wet grasslands
		E4 Alpine and subalpine grasslands
		E5 Woodland fringes, clearings and tall forb stands
		E6 Inland salt steppes
		E7 Sparsely wooded grasslands
Heathland and shrub	F **Heathland**, scrub and tundra	F1 Tundra
		F2 Arctic, alpine and subalpine scrub
		F3 Temperate and mediterraneo-montane scrub
		F4 Temperate shrub heathland
		F5 Maquis, arborescent matorral and thermo-Mediterranean brushes
		F6 Garrigue
		F7 Spiny Mediterranean heaths
		F8 Thermo-Atlantic xerophytic scrub
		F9 Riverine and fen shrubs
		FA Hedgerows
		FB Shrub plantations
Attributed to sparsely vegetated land	B **Coastal** habitats	B1 Coastal dunes and sandy shores
		B2 Coastal shingle
		B3 Rock, cliffs, ledges and shores, including supralittoral
Wetlands	D **Mires**, bogs and fens	D1 Raised and blanked bogs
		D2 Valley mires, poor fens and transition mires
		D3 Aapa, palsa and polygon mires
		D4 Base-rich fens and calcareolus spring mires
		D5 Sedge and reedbeds, normally without free-standing water
		D6 Inland saline and brackish marshes and reedbeds



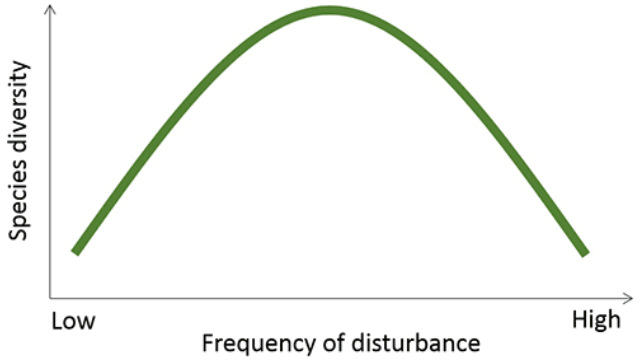
ENSUCON

ivl SVENSKA MILJÖINSTITUTET

WGE monitoring has not be designed to adress biodiversity on a larger scale



Air pollution is often not the main driver



High complexity

Aim of the session

To address the current state of knowledge on air pollution effects on biodiversity and to highlight ongoing work within the Air Convention &

To discuss future challenges and recommendation on how to proceed with the work of air pollution effects on biodiversity focusing on:

(i) Linkages between air pollution and biodiversity

(ii) Monitoring needs and gaps

(iii) Internal coordination within the convention

(iv) Implications for WP and should biodiversity be part of the GP review?

Agenda

- **Introduction to the session. Organizational team (10 min)**
- **Empirical critical loads. Marcus Geupel, CCE (5+5 min)**
- **Integration between air pollution, climate, and biodiversity. Jesper Bak, Vice chair WGE (15+5)**
- **Collaboration between Air convention and Montreal Kunmings protocol (CBD). Filip Moldan and Sara Jutterström CDM, (15+5 min)**
- **Ozon and biodiversity. Felicity Hayes ICP Vegetation MSC-East (15+5)**
- **Linking chemistry and biology in aquatic ecosystems – Heleen de Wit. ICP Waters (15+5)**
- **Linking nitrogen deposition and biodiversity – James Weldon, ICP Integrated Monitoring (15+5)**
- **Summary of the session – Organizational team (5)**

Thank you!

Challenges:

- WGE was not originally designed to address impact on biodiversity
- Air pollution is often not the dominant driver of biodiversity change
- Biodiversity is a complex issue

Opportunities:

- Politically viable
- Data and expertise overlaps with work on acidification and eutrophication
- Tools developped and successfully applied (such as Critical Loads) can accomodate biodiversity

Current work of WGE related to biodiversity

Ongoing dialogue with CBD

Biota has been focus of ecosystem effect work all along, work continues, step to biodiversity is not large (e.g. ICP Waters, revision of CLempN)

ICP M&M will include biodiversity in the next Call for data

ICP IM expands to cover larger variety of ecosystems

ICP Forests work on bryophytes and lichens

Model development by several parties/research teams

CDM has further work on BD in it's mandate

…and more