

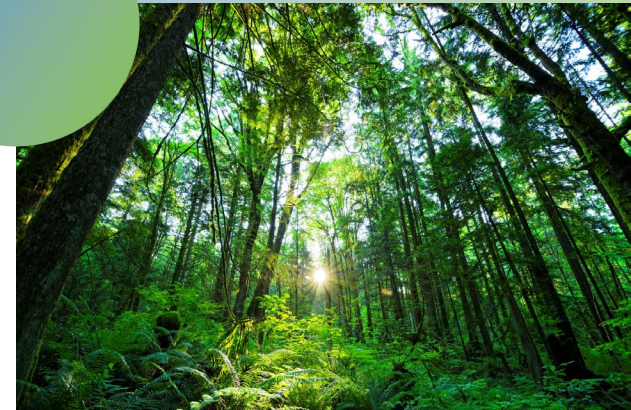
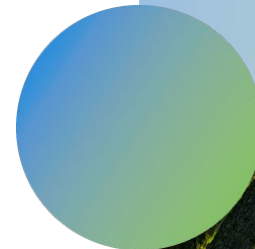


Thematic focus: Forest Damage

Item 4(a)

Document: ECE/TIM/EFC/WP.2/2023/5,
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Joint Working Party on Forest Statistics, Economics
and Management, May 31-2 June 2023

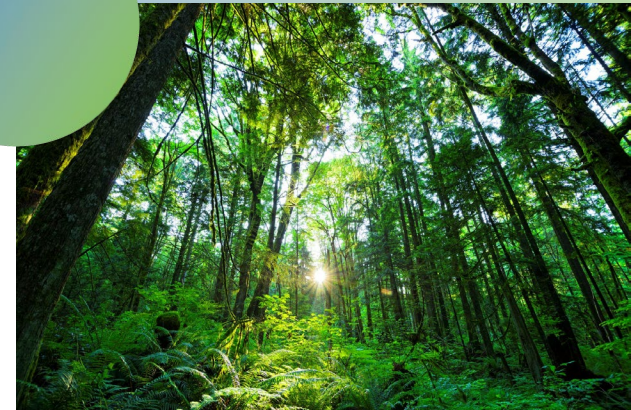




Main results

Stefanie Linser
& Andrzej Talarczyk

Joint Working Party on Forest Statistics, Economics
and Management, May 31-2 June 2023



Project on reporting and assessment of forest damage and disturbance in the ECE region

Objective

- Improve knowledge, methodology and reporting capacity on forest damage and disturbance in the UNECE region

Project team

- Michael Köhl, University of Hamburg
- Guy Robertson, USDA Forest Service
- Roman Michalak, UNECE
- Stefanie Linser, BOKU Vienna
- Markus Melin, LUKE Finland
- Frank Koch, USDA Forest Service
- Andrzej Talarczyk, Forest and Natural Resources Research Centre / Taxus IT
- Bastian Stahl
- Talha Sadiq, Canadian Forest Service

Implemented and supported by

- Authors team and Joint ECE/FAO Forestry and Timber Section
- UNECE/FAO Team of Specialists on Monitoring Sustainable Forest Management
- Austria, Canada, Finland, Germany, and the United States of America
- Experts of the UNECE region

Scope

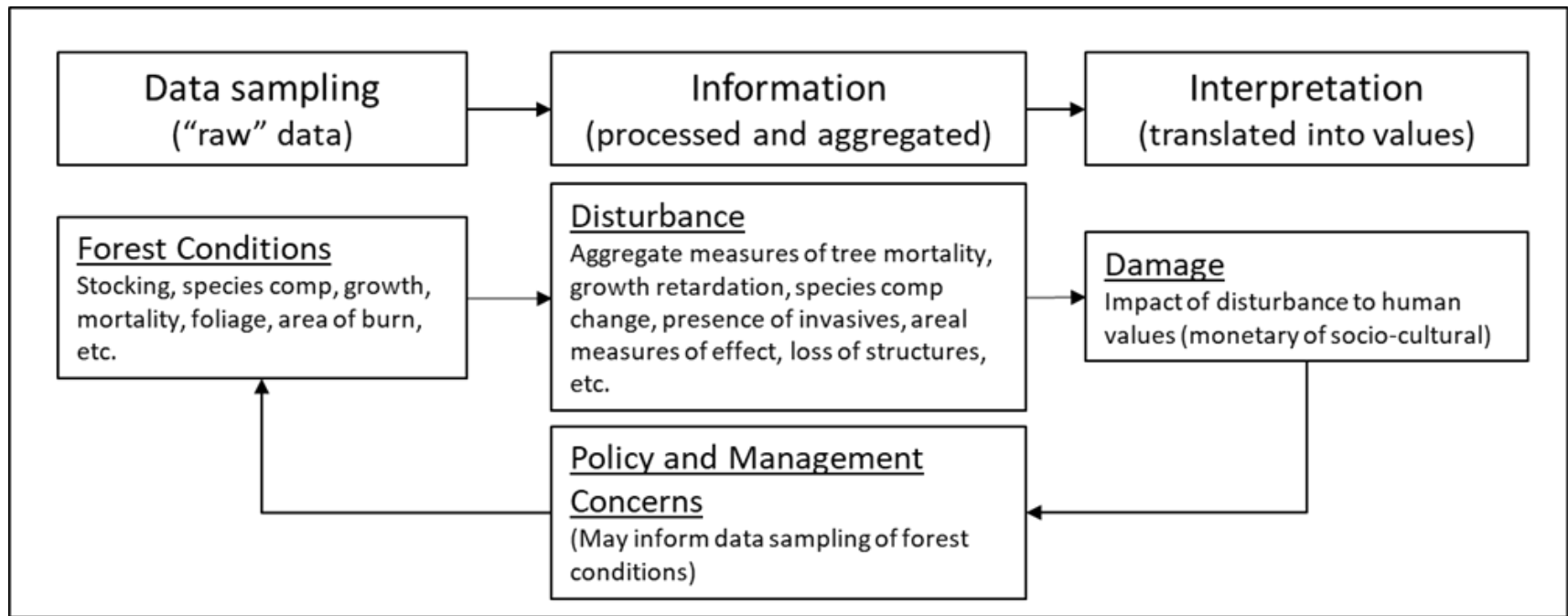
- **Conceptual foundations for forest damage/disturbance reporting in the UNECE**, Guy Robertson, Stefanie Linser, Roman Michalak
- **Forest damage/disturbance reporting in the UNECE-region**, Michael Köhl, Stefanie Linser
- **Survey on assessment methods applied at the national level**, Stefanie Linser, Michael Köhl, Bastian Stahl
- **FRA reporting on forest damage/disturbance – status, shortcomings, and way forward**, Markus Melin
- **Interpreting forest damage/disturbance data**, Guy Robertson, Stefanie Linser, Michael Köhl, Roman Michalak, Andrzej Talarczyk
- **Innovative tools in line with methodologies for regionally consistent forest damage/disturbance assessment**, Frank Koch, Andrzej Talarczyk

Conceptual foundations for forest disturbance and damage reporting in the UNECE region

- **WHY do we measure forest d/d?**
 - targeted management responses
 - obtain information on values lost (goods, services, non-material values)
 - increase scientific knowledge
 - broadscale change detection (from field to global level reporting)
 - environmental accounting
- **WHAT is measured?**
 - tree mortality/cover, tree damage/defoliation, damage to other ecosystem components (e.g., soil), pathogens, socioeconomic variables, geophysical variables (e.g. soil moisture and temperature)
- **HOW is d/d measured?**
 - ground-based observation, plot-based sampling, remote sensing

Conceptual foundations for forest disturbance and damage reporting in the UNECE region

- “Disturbance” and “damage” are often used interchangeably, but **disturbance is valued neutral**; **damage relates to negative impacts to human values**

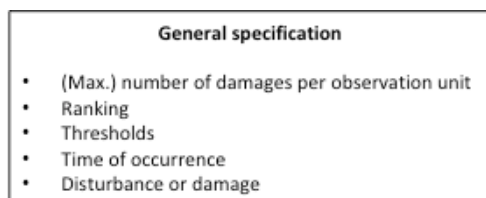


Disaster - great damage overwhelming available local resources for response
Forest damage/disturbance ≠ **Forest health/vitality**

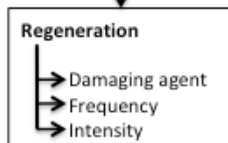
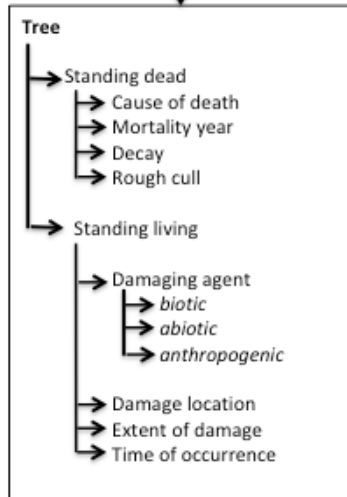
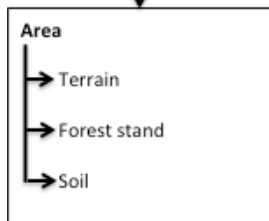
Survey on assessment methods applied at the national level

- **50 Survey questions elaborated by the ToS/FTS on d/d monitoring at national level and on information beyond what is so far reported to FRA**
- **Sent in 2021 to all 56 UNECE NCs, 39 responses covering 98% of UNECE forest area**
- **Current level of detail deemed insufficient, more detail of the specific d/d causes**
- **If more than one cause of d/d then distinguish between primary, secondary and subsequent causes**
- **Ranking acc. to severity of d/d regarding tree vitality**
- **Other reporting attributes used:**
 - **volume of growing stock affected**
 - **market value affected**

Survey on assessment methods applied at the national level



Observation unit



NFI



Dedicated monitoring of damage



Stand-wise inventory



Damage questionnaire



Managerial records



Damage agent mitigation survey/ reports



Forest damage reporting in the ECE-region

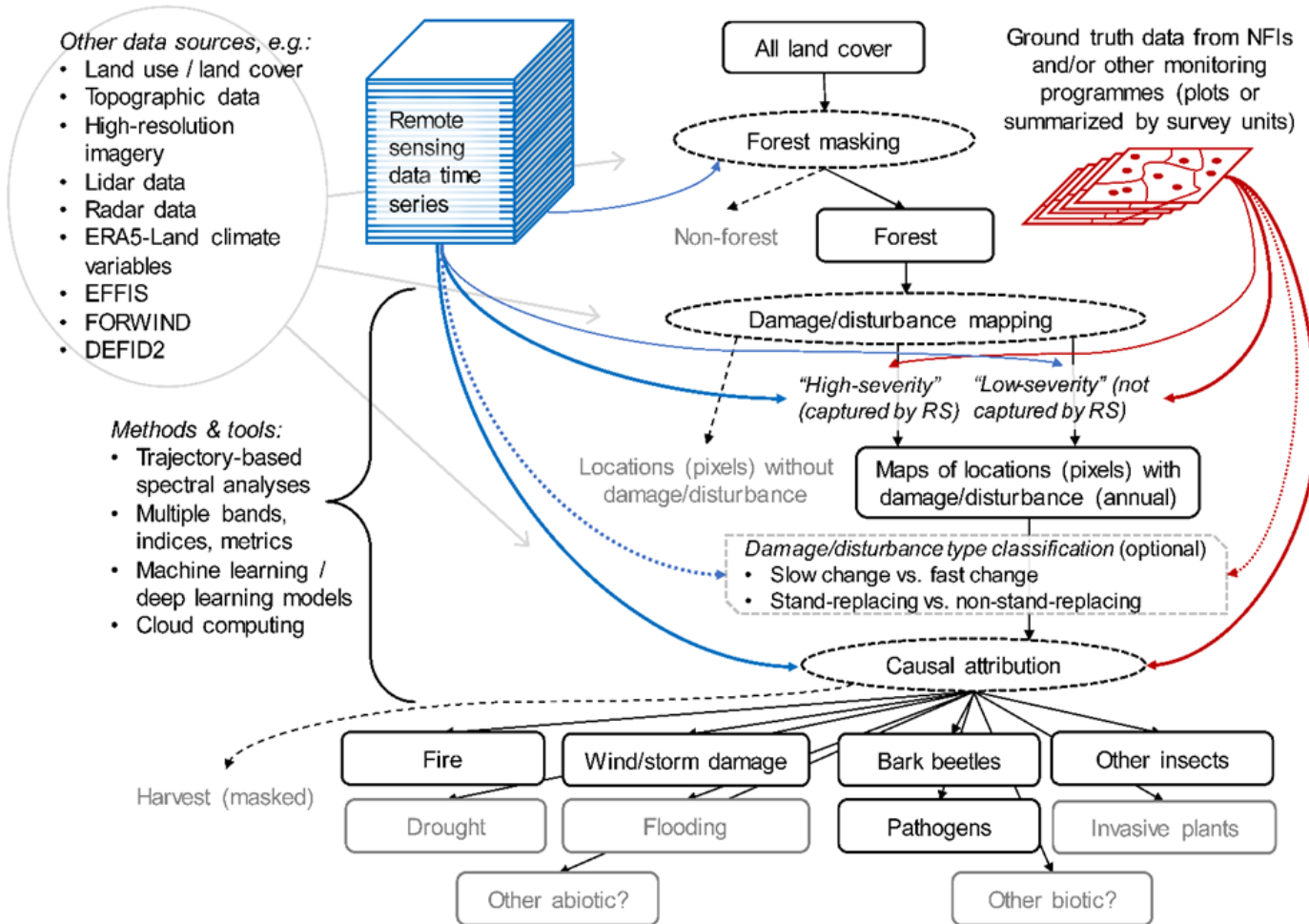
National forest damage reporting is diverse

- **Different reporting to:** Central Asia and Caucasus Forest Assessments, Montreal Process, Forest Europe (SoEF), Global (FRA)
- **Different data collection systems and sampling designs**
- **Different applied methodologies:** e.g., area related data (ha) vs. tree related data (m³)
- **Different forest d/d accounting:** current vs. accumulated damage
- **Different national reporting focuses and monitored causes of d/d**

FRA reporting on forest damage/disturbance

- **Most of UNECE countries reported d/d data to Global FRA (49 of the 56).**
- **Out of 89 million ha of forest affected by fire in 2015, 11 million ha were damaged in the UNECE region.**
- **Most of other global forest damage (40 million ha) was reported by the UNECE region (33 million ha).**
- **Temporal resolution of national datasets varies**
- **National thresholds vary from FRA thresholds**
- **Different in level of detail**

Innovative tools

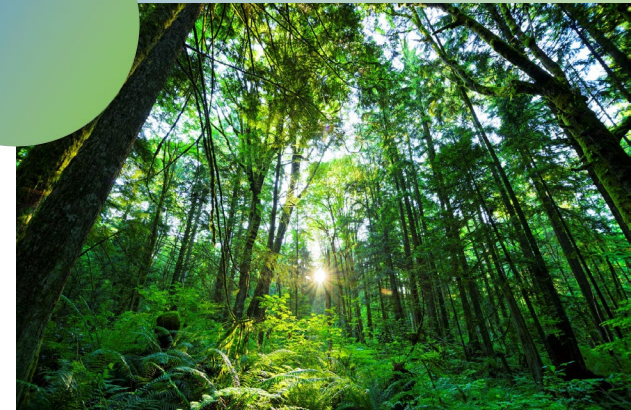




Conclusions and next steps

Michael Köhl
& Roman Michalak

Joint Working Party on Forest Statistics, Economics
and Management, May 31-2 June 2023



Conclusions

No dedicated reporting activity covering the entire UNECE-region.

Consider the following principles for d/d reporting

- Identify and promote **best practices** and promising **technical innovations**
- Foster **communication** between countries and international forest experts
- **Build on existing reporting processes**, notably FRA and C&I processes.
- Commit to an incremental process of **continuous improvement** focused on key variables, specific problem areas, or promising innovations
- Support **coordination** in the development of **international** and **national** reporting systems

Conclusions – General Aspects

- **Concept on damage/ disturbance**
reporting on damages/disturbance as a compromise
- **Periodicity**
adjust reporting periods (FRA: provision for annual reporting)
- **Thresholds**
use country specific thresholds; provide natl. criteria applied
- **Double counting**
*distinguish between primary damage and consequential damage/
disturbance according to national approach*

Conclusions – General Aspects

- **Completeness vs. Specificity**

e.g. insects, certain weather events in more detail

- **Harmonization**

Continue harmonization efforts

International Data Providers

- **Time allocation of damages**

Establish a uniform nomenclature for the temporal allocation of the damage/ disturbances

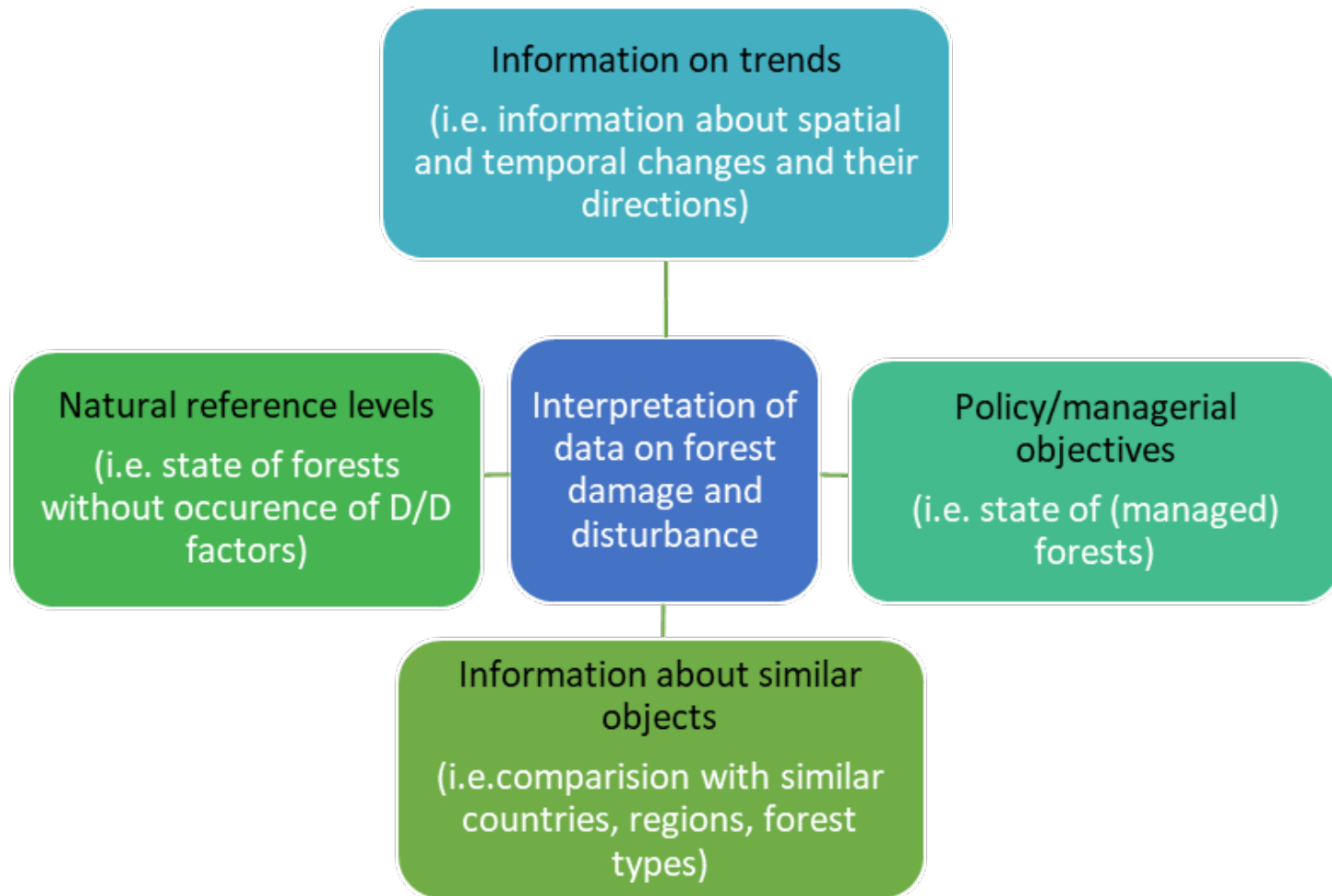
- **Data integration**

Integrate auxiliary data

Conclusions – General Aspects

- Additional attributes to be considered
 - *Volume of growing stock affected*
 - *Salvage timber (volume and value) accrued*
 - *Market value affected*
 - *Forest age of the affected area*
 - *Attributes related to terrain*
 - *Damage/ disturbance of forest soils*
 - *Damage/ disturbance of regeneration*
 - *Status of wood decay in dead trees*
 - *Damage/ disturbance caused by invasive species*

Improvement of international reporting: interpretation method



Improvement of international reporting: purpose of reporting

- **Monitoring the overall condition of forests**
- **Assessing the type and scale of impact of damaging factors, including**
 - changes in climatic conditions
- **Gathering knowledge to increase forest resilience**
- **Assessing the effectiveness of applied protecting actions**
- **Assessing the impact on wood removals**
- **Obtaining information for insurance and compensation purposes**
- ...

Improvement of international reporting: **next steps**

- **Refine international data collection**
 - comprehensive review and refinement of the global and pan-European reporting on forest damage and (purpose, format, frequency, and extent)
 - consider requirements of state-of-the-art forest policy, forest management, as well as the societal demands.
- **Improve data interpretation and communication**
 - produce an innovative policy brief on forest damage/disturbance in the UNECE region



Food and Agriculture Organization
of the United Nations

THANK YOU

Andrzej Talarczyk

Expert

Forest and Natural Resources Research Centre / Taxus IT

Roman Michalak

Economic Affairs Officer

Joint UNECE/FAO Forestry and Timber Section

31 May 2023, Geneva

Joint Working Party on Forest Statistics, Economics
and Management, May 31-2 June 2023

