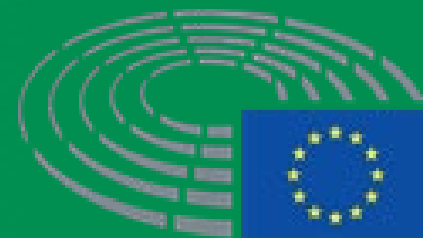


The logo for the Bavarian State Institute for Forests and Forestry (LWF), consisting of the letters 'LWF' in a bold, black, sans-serif font.

**Bavarian State Institute  
for forests and forestry**



BAYERISCHE  
FORSTVERWALTUNG

A photograph of a dense forest with tall, thin trees and a thick canopy of green leaves, serving as the background for the text.

## **Panel 2: Harmonised forest monitoring**

**Dr Peter Pröbstle,  
President of the Bavarian State Institute of Forest and Forestry (LWF)**

The logo for the Zentrum Wald Forst Holz, featuring a stylized green tree icon above the text.

**ZENTRUM WALD FORST HOLZ**  
WEIHENSTEPHAN

## **Dr. Peter Pröbstle**

President of the  
**Bavarian State Institute for Forestry  
(LWF)**

Head of the  
**Centre for Forest, Wood and Forestry Weihenstephan  
(ZWFH)**

ZWFH = Cooperation between three Bavarian forestry partners since 2003:

- Forestry professorships at the Technical University of Munich (TUM)
- Faculty of Forestry at Weihenstephan-Triesdorf University of Applied Sciences (HSWT)
- Bavarian State Institute for Forestry (LWF)

**This cooperation, which is unique in the EU, bundles our activities in forestry research, teaching and consulting in Bavaria.**



## The forest in Bavaria

**2.6 million hectares of forest**

**> 1 billion m<sup>3</sup> timber stock (Vfm mR)**

➤ 400 m<sup>3</sup>/ha (Vfm mR)

approx. 26 million fm/year growth

approx. 22 million cubic metres/year utilisation

**over 700,000 forest owners**

62 % softwood, 38 % hardwood

### Main tree species:

Spruce, pine, beech, oak  
and others

56% private forest,

32% state/federal forest,

12% municipal forest,

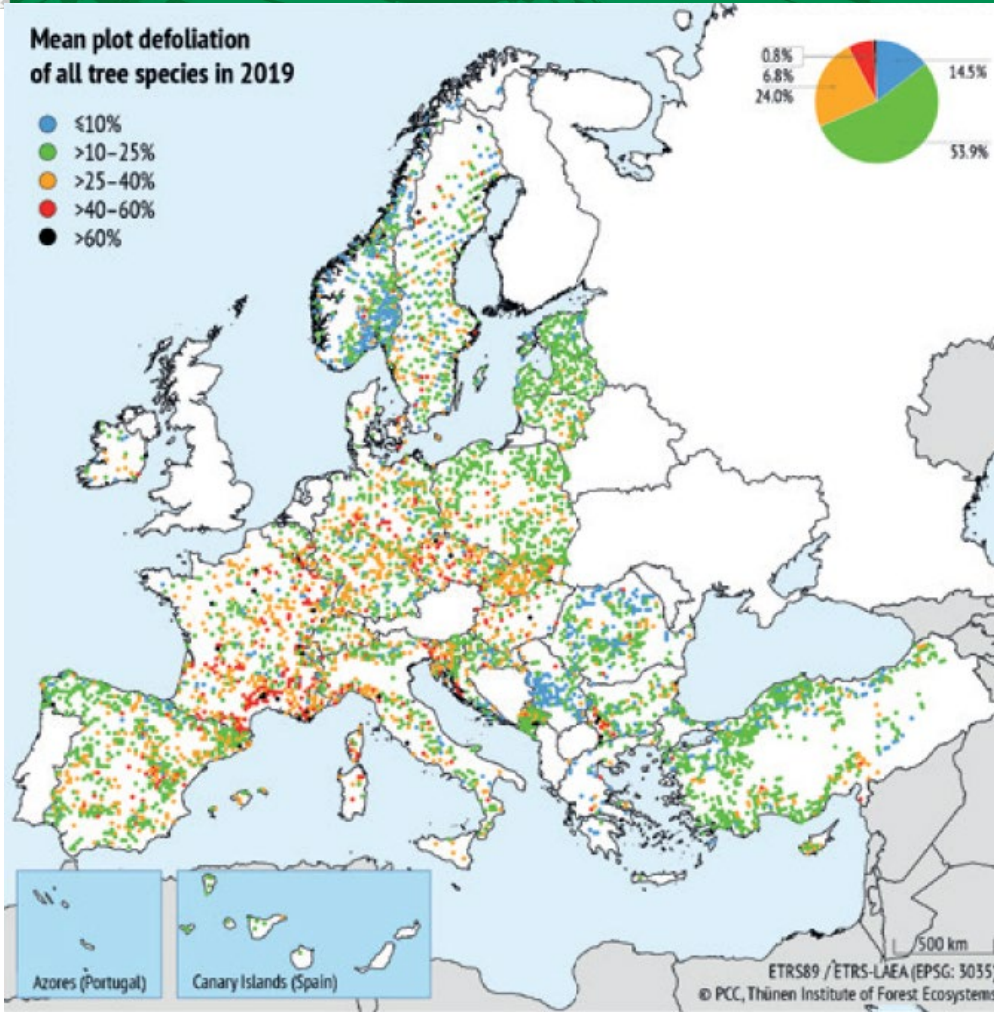
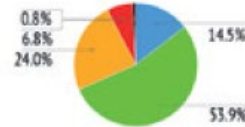
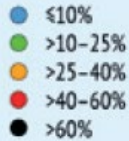
### The challenge of climate change:

Drought and heavy rainfall, bark beetles and  
other insect pests, invasive species



**Is there no European forest monitoring yet?**

Mean plot defoliation  
of all tree species in 2019

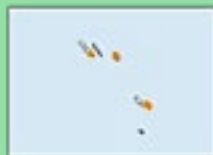


## Level I: Crown condition

"large scale forest condition monitoring"

Since the late 1980s, the **crown condition** of around 130,000 trees on approximately 6,000 plots has been monitored in **30 European countries**.

- **Harmonised European data collection and storage already exists**
- Sampling points remain secret. This is the only way to ensure that plots remain largely unaffected  
➔ **EU forest monitoring law must guarantee this**



Azoren



Kanarische Inseln



Zypern

● Level II

## Level II: Intensive monitoring

"intensive forest monitoring"

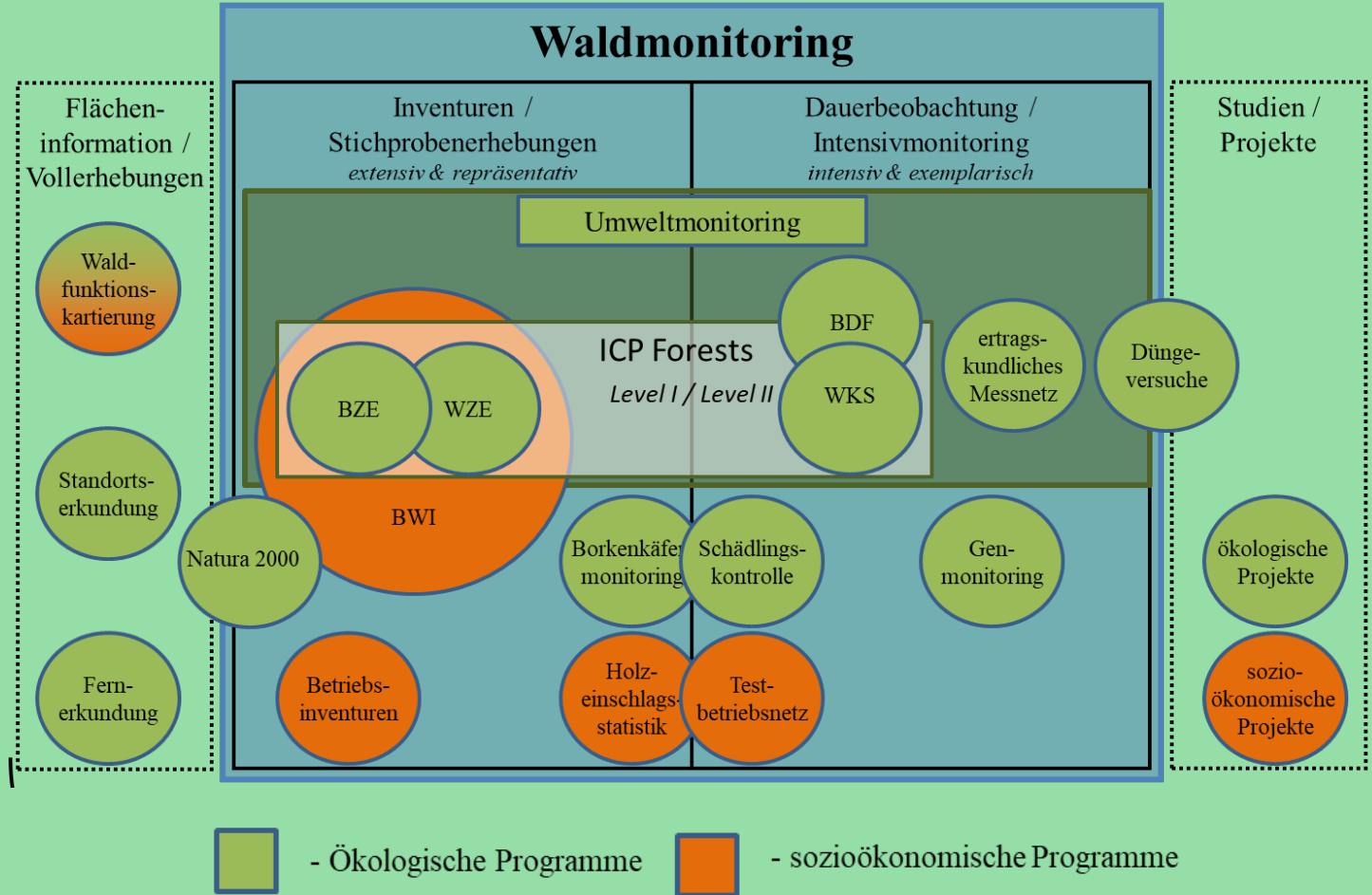
Almost **800** "Level II" areas

- Crown condition
- Needle/leaf analyses
- Soil chemistry
- Tree growth
- Ground vegetation
- Deposition
- and much more

➔ **Harmonised European data collection and storage also exists here**

**Do other  
national forest monitoring systems  
collect further data?**

**(Examples from Bavaria)**





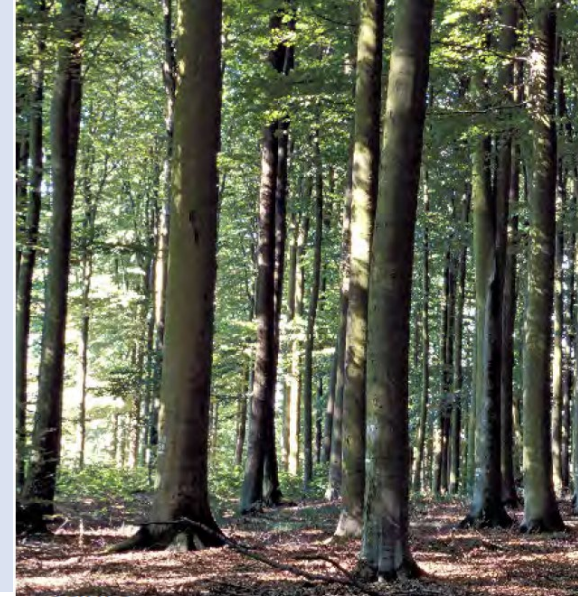
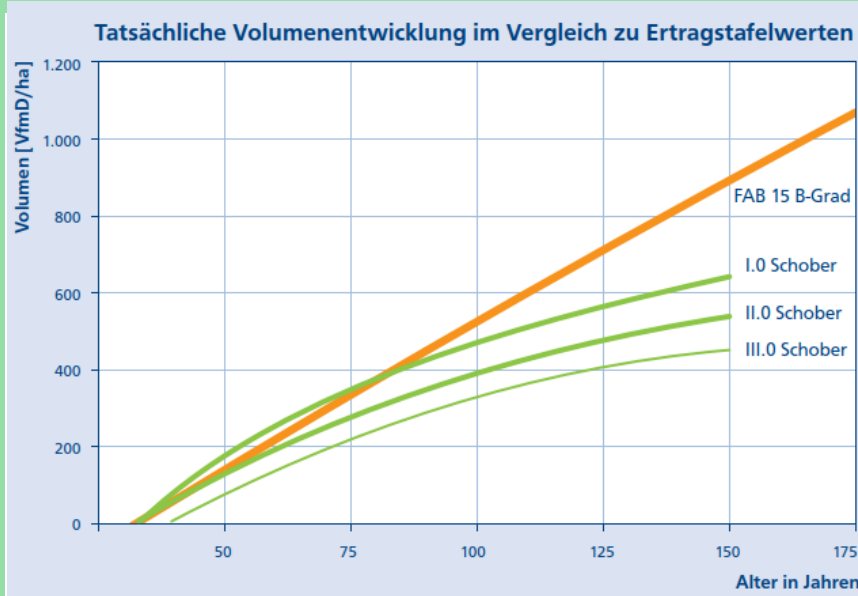
**We already have european and national  
partly well coordinated  
partly very long existing  
forest monitoring systems.**

So the question arises:

**Should we build on existing monitoring systems  
and harmonise them in the best possible way?**

or

**Should a standardised new forest monitoring system with modern  
methods replace the old monitoring systems?**



A. v. Ganghofer  
\*1827-†1900



F. v. Baur  
1878-1897



R. Weber  
1897-1905



V. Schüpfer  
1905-1937



K. Vanselow  
1937-1951



E. Assmann  
1951-1972



F. Franz  
1972-1993



H. Pretzsch  
1993-2023

## Forests are very long-lived ecosystems

- Monitoring must therefore also be designed for the long term
- Jumps in data series must be voided/minimised by changing methods

### What needs to be done?

- Continue to use existing monitoring systems wherever possible
- Carefully merge and harmonise the monitoring system

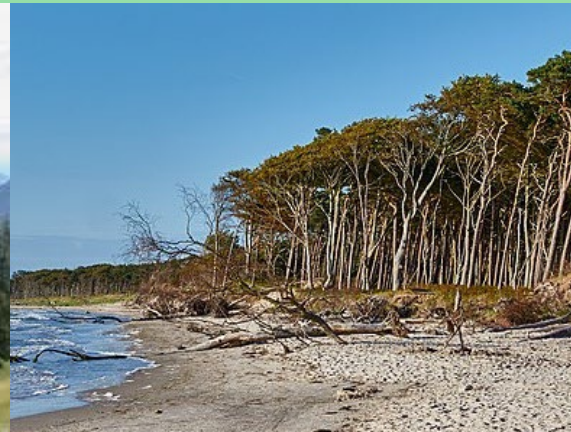


## Forests are extremely diverse and varied habitats

→ Forest monitoring must therefore also be versatile and customised

### What needs to be done?

- Maintain existing forest monitoring systems that are adapted to forest types and social conditions
- On the part of the EU, make the national results plausible and harmonise/modernise the recording methods in the long term



## Forest monitoring is long-term and cost-intensive

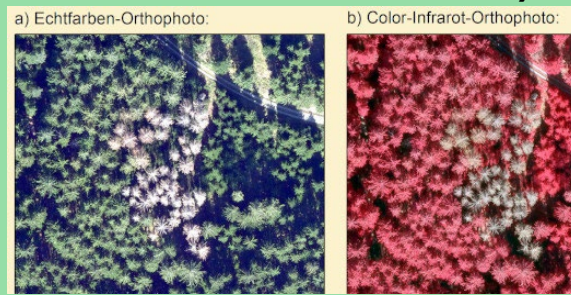
→ The aim is to record **decision-relevant indicators** to forest management

### What needs to be done?

→ First step: Clearly **define the individual objectives** of forest monitoring

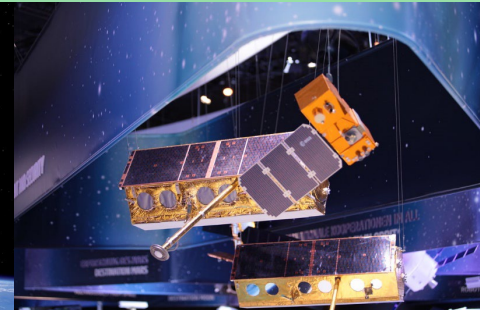
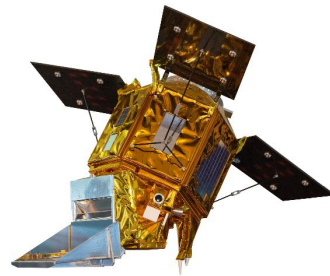
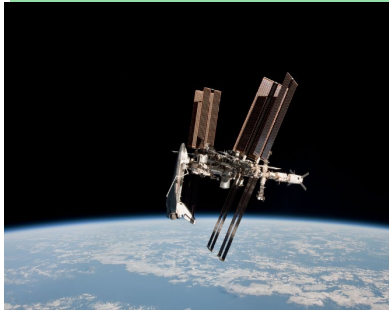
→ Second step: Do **surveys** already exist **for each target**?

→ Third step: Select **suitable indicators** and **data collection methods** that are necessary for the specific target achievement  
**(Do not reverse the order!)**




## Introduction of new forest monitoring methods

- Forest monitoring must be planned **for many decades** (*experiment from 1870*).
- Every long-term monitoring method must be **very accurate & reliable**.  
*Accuracy buffers "method jumps" in the long data series if the methods are/have to be changed. Old and new method covers reality.*  
*(e.g. the Federal Forest Inventory (D) has a confidence interval of approx. 1%)*
- Many of today's satellite analyses have an EU-wide hit probability of 80-90%.  
This does not yet **cover reality accurately enough**.  
**BUT:** Satellite technology is developing rapidly and is creating new outstanding possibilities almost every month that were undreamt of years ago
- For long-term monitoring, it probably makes more sense to **wait a few more years** for technical progress in satellite technology.



## Concrete adaptation proposals for the Forest Monitoring Law

- Integrate the existing **ICP Forests Monitoring** into the programm (organisation, scientific expertise, existing data infrastructure, etc.)
- Formulate clear **objectives** for forest monitoring so that each **indicator** collected can also **be assigned** to a **target**
- **Indicators** should be **recorded on a subsidiary basis by the EU countries** and be compatible with existing monitoring time series.  
The countries and the Commission will jointly work out how the data collected can be made comparable or converted (harmonisation)
- The **Commission** can already use remote sensing methods today to **to check and supplement** the data supplied by the federal states
- **Data protection** must be guaranteed (location of the inventory points, owner-related data)

A photograph of a man and a woman in a forest. The man, on the left, is wearing a dark green jacket with red and white stripes on the sleeves and is pointing upwards with his right hand. He is holding a clipboard in his left hand. The woman, on the right, is wearing a similar jacket and is holding a camera. They are both looking upwards and to the right. The background is a blurred forest scene.

**Thank you for listening.  
I look forward to  
your questions.**