



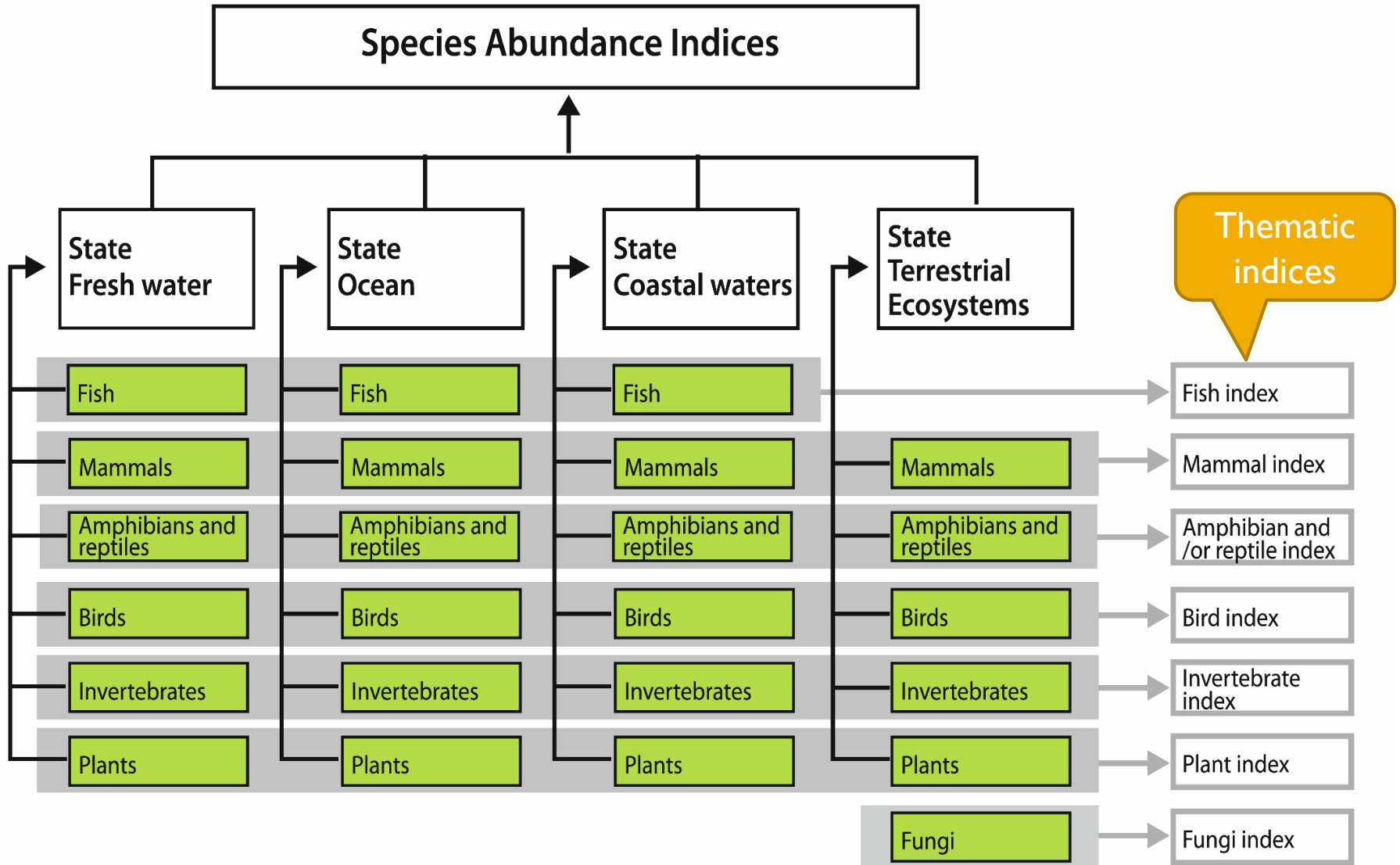
The Norwegian Nature Index and Assessment of Ecological Condition

Erik Framstad and Signe Nybø, NINA

Objectives for the Nature Index by the Ministry of Environment in 2007

- ▶ Overview of state and trends of biodiversity
- ▶ Easy to communicate
- ▶ Scientifically sound
 - ▶ Involve relevant institutions with biodiversity data
 - ▶ Involve group of statisticians
- ▶ Increase understanding of need for more biodiversity monitoring

Nature Index Framework: State and trends of biodiversity within ecosystems

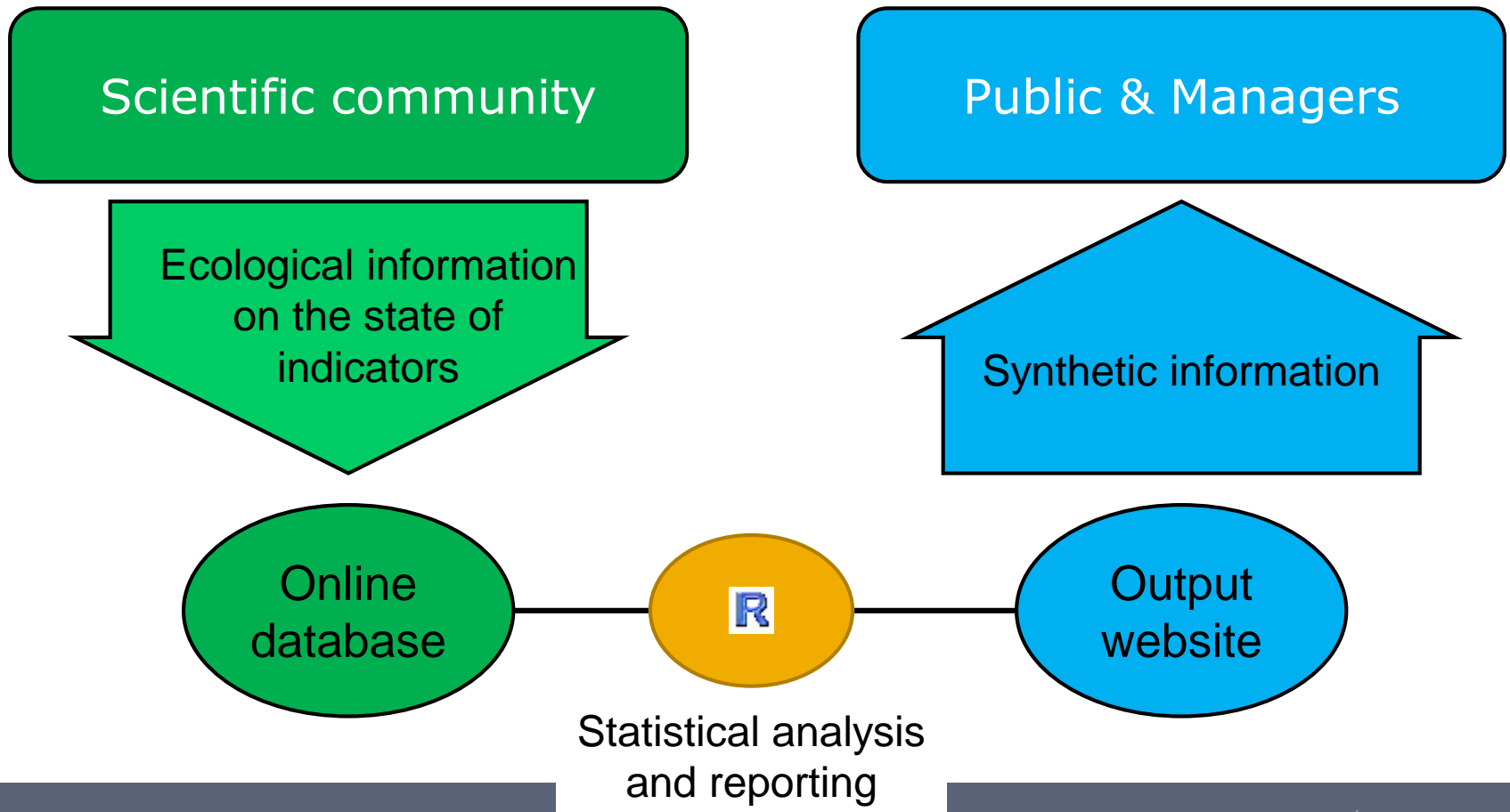


301 indicators, updated ever 5 years

- ▶ Between 30 and 80 indicators per ecosystem
- ▶ Covering species abundances and aggregated indexes
- ▶ Based on monitoring, modelling, expert assessment
- ▶ Varied spatial and temporal resolution
- ▶ Scaled between 0 and 1 (= reference state)
- ▶ Weighted average indicator values per ecosystem
 - ▶ weighted by spatial coverage and functional group

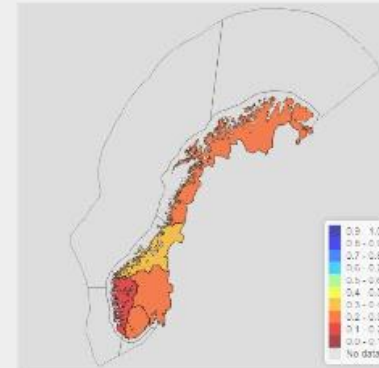
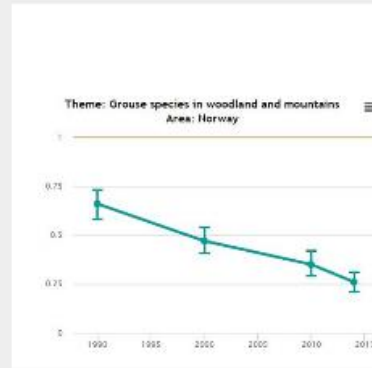
How data is stored and published

..... Input database –log in www.naturindeks.no



Nature Index for Norway

The Nature Index measures the condition of biological diversity in Norway, and gives an oversight into the development of the ecosystems, for selected species groups and themes.



The figure shows developments for grouse species from 1990 onwards.

Indicators



Ingolf Retvei/Oppdal Bygdeallmenning

Indicators are principally species which together represent the biological diversity of an ecosystem. For every indicator a condition value between 0

Ecosystem



Camilla Næss/NINA

The Nature Index gives a good pointer to the condition of biological diversity in the main ecosystems mountain, woodland, wetland, open land below the treeline

Thematic indices



Jan Ove Gjershaug/NINA

The large number of indicators makes it possible to present particular thematic indices for selected species groups, ecosystems, and influences. Thematic

Trends and state of individual indicators

HOME

SPECIES/INDICATORS

ECOSYSTEMS

THEMATIC INDICES

ABOUT THE NATURE INDEX

KEY FIGURES



Ecosystem

Freshwater



Organism group: Bird

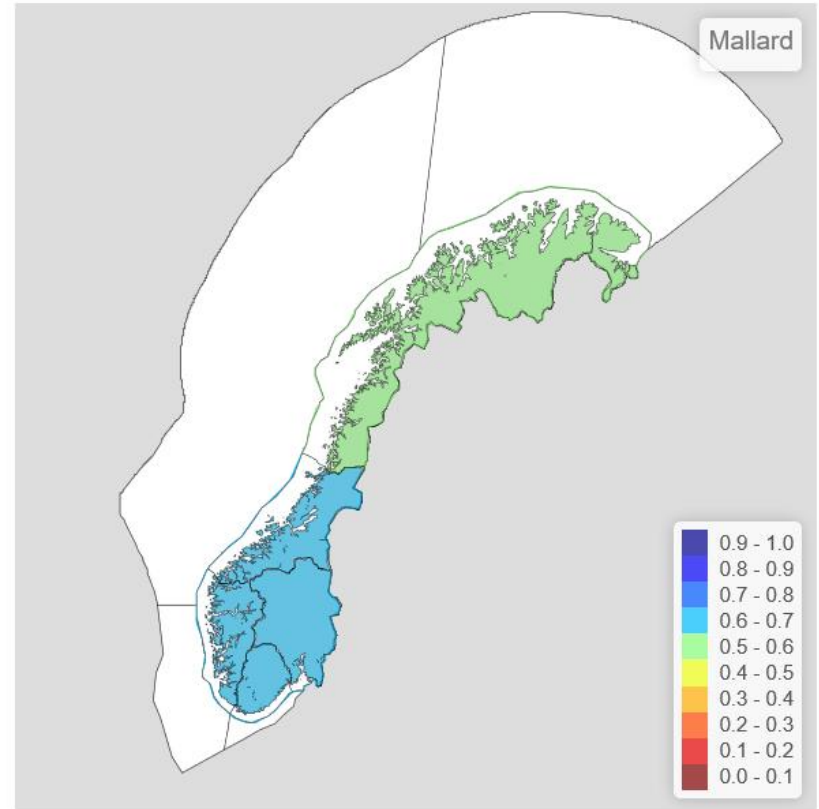
In Norway the mallard breeds commonly in well-vegetated lakes over large areas of the country, with declining densities towards the north and with elevation.



© Jan Ove Gjershaug

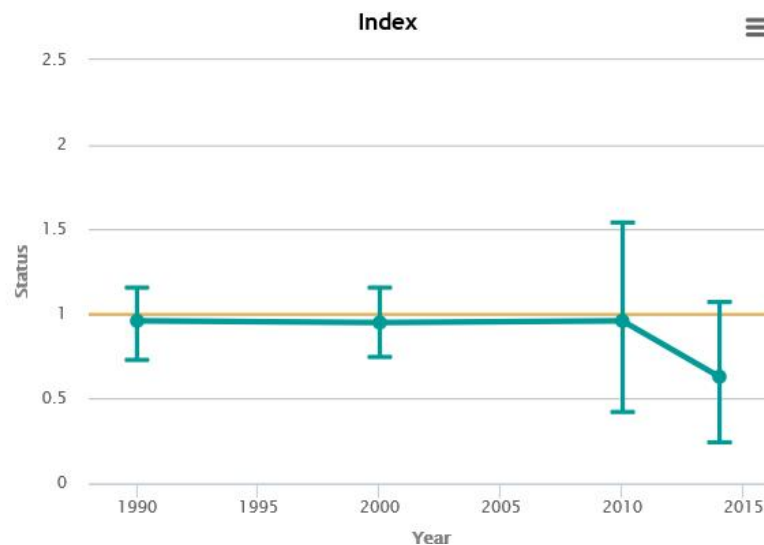
Indicator

Mallard



Mallard

► Explanation of graph:



Move glider to see development over time



Expert(s):

Hans Christian Pedersen, NINA

State of biodiversity in fresh water

NATURE INDEX



Contact us

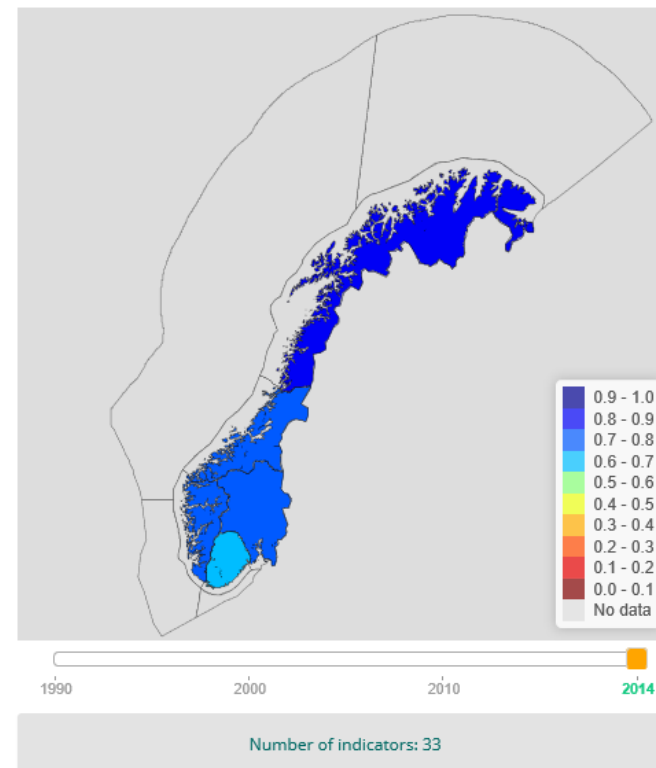
HOME SPECIES/INDICATORS ECOSYSTEMS THEMATIC INDICES ABOUT THE NATURE INDEX KEY FIGURES



Ecosystem

Freshwater

The Nature Index for freshwater indicates the biological diversity is in good condition with an index value of 0.75 in 2014. The condition is best in north Norway. A range of management actions have produced positive developments after 1990; among others protection of certain threatened species, reduced amounts of acid rain, and liming of watersheds. At the same time, increased overfertilising and habitat destruction through physical interventions have had a negative effect. Increased pressure on biological diversity in freshwater is expected. Read more in [chapter 7](#)



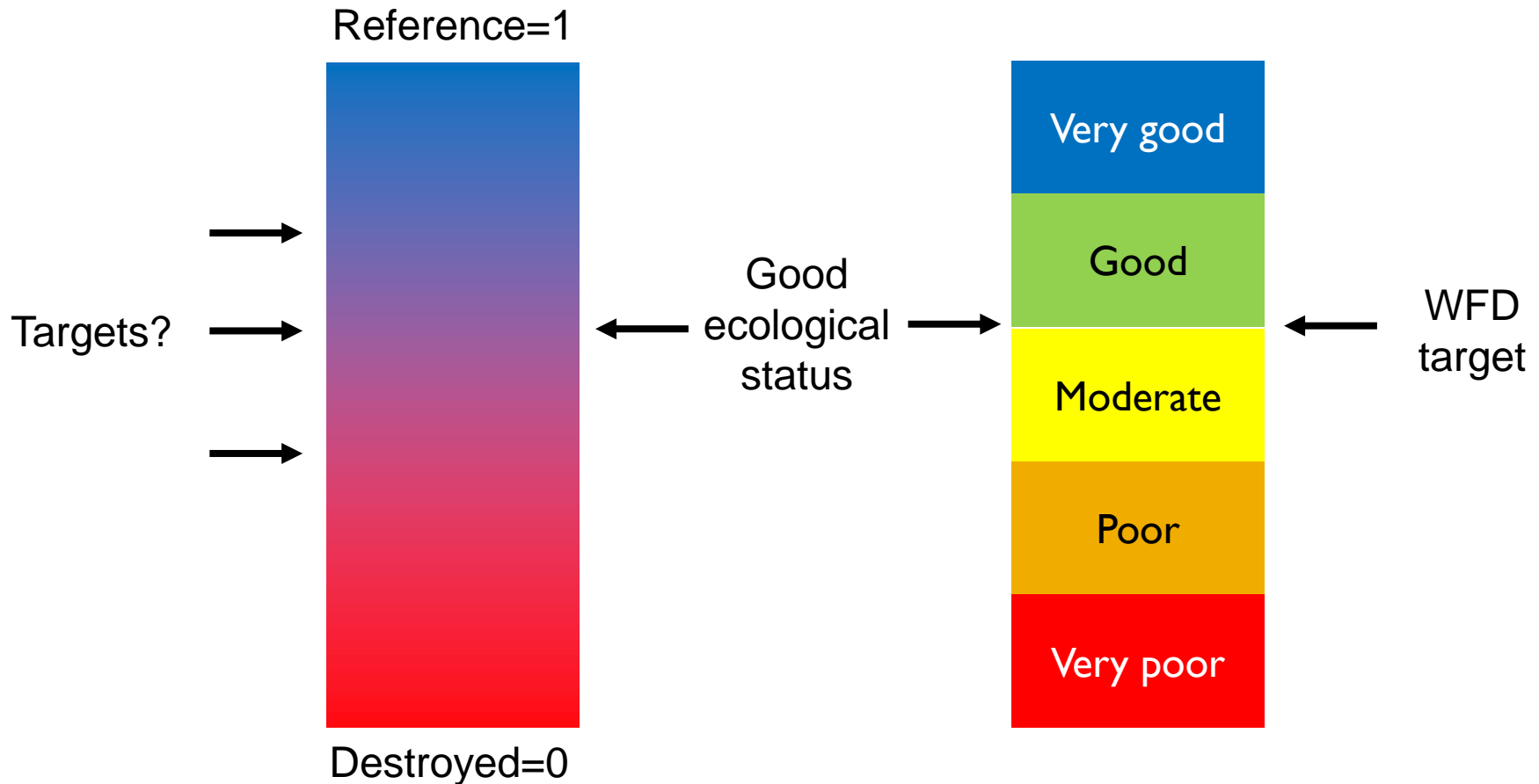
Experience from the Nature Index

- ▶ Useful for reporting on biodiversity
 - ▶ National headline indicator for biodiversity
 - ▶ Data resolution limits usefulness in practical management
- ▶ Provides common framework for synthesis of biodiversity trends
- ▶ Highlights need to fill gaps in monitoring
- ▶ Fosters cooperation among scientists across ecosystems
- ▶ Raises awareness among non-scientists

Objectives of Norway's action plan for natural diversity (2016)

1. Ecosystems shall be in good ecological state, and deliver important ecosystem services
2. No species or habitat types shall become extinct. Negative trends for threatened species and habitat types shall improve
3. A representative selection of Norwegian nature shall be sustained for coming generations (by protection and sustainable use)

From state and trends to assess status and management targets



Expert group to design system for assessing good ecological status

- ▶ Develop definitions for good ecological status
- ▶ Cover major ecosystems (not covered by WFD)
- ▶ Propose indicators for measuring ecological status
 - ▶ Reflecting ecosystem structure and function
- ▶ Build on existing knowledge and classification systems
- ▶ Be less comprehensive than the WFD

Reference state and good ecological status for terrestrial ecosystems

- ▶ Reference state: intact nature with natural dynamics and variation
 - ▶ Lacking significant human impact, absence of 'modern' pressures
 - ▶ Climate of 1961-1990
 - ▶ Species and habitats pre 1800
- ▶ Good ecological status: only small deviations from a reference state for
 - ▶ Structure, function and productivity

Seven features of good ecological status

Only minor deviations from reference state for

1. Primary production
2. Distribution of biomass among trophic levels
3. Functional groups within each trophic level
4. Important habitat building species and biophysical structures
5. Viability of populations
6. Biodiversity
7. Abiotic conditions (e.g. acidification, temperature)

Three approaches for assessing overall ecological status

- ▶ Overall weighted mean value of indicators, weighted per feature
- ▶ Worst of mean values per feature
- ▶ Expert assessment of trends and shifts in time series of indicator values per feature
- ▶ All tested in pilot projects for Trøndelag, Arctic and Barents' Sea

State of play

- ▶ June 2017: Report from expert group on good ecological status
- ▶ June 2018: Report on operational indicators
- ▶ June 2019: Report on pilot project in Trøndelag, Arctic and Barents' Sea
- ▶ 2020: System implemented for all of Norway
- ▶ 2021: Management targets to be set