

Hur och varför förändras den biologiska mångfalden i Sverige?

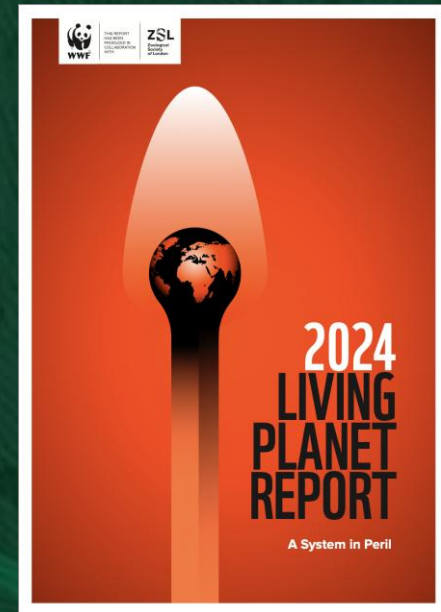
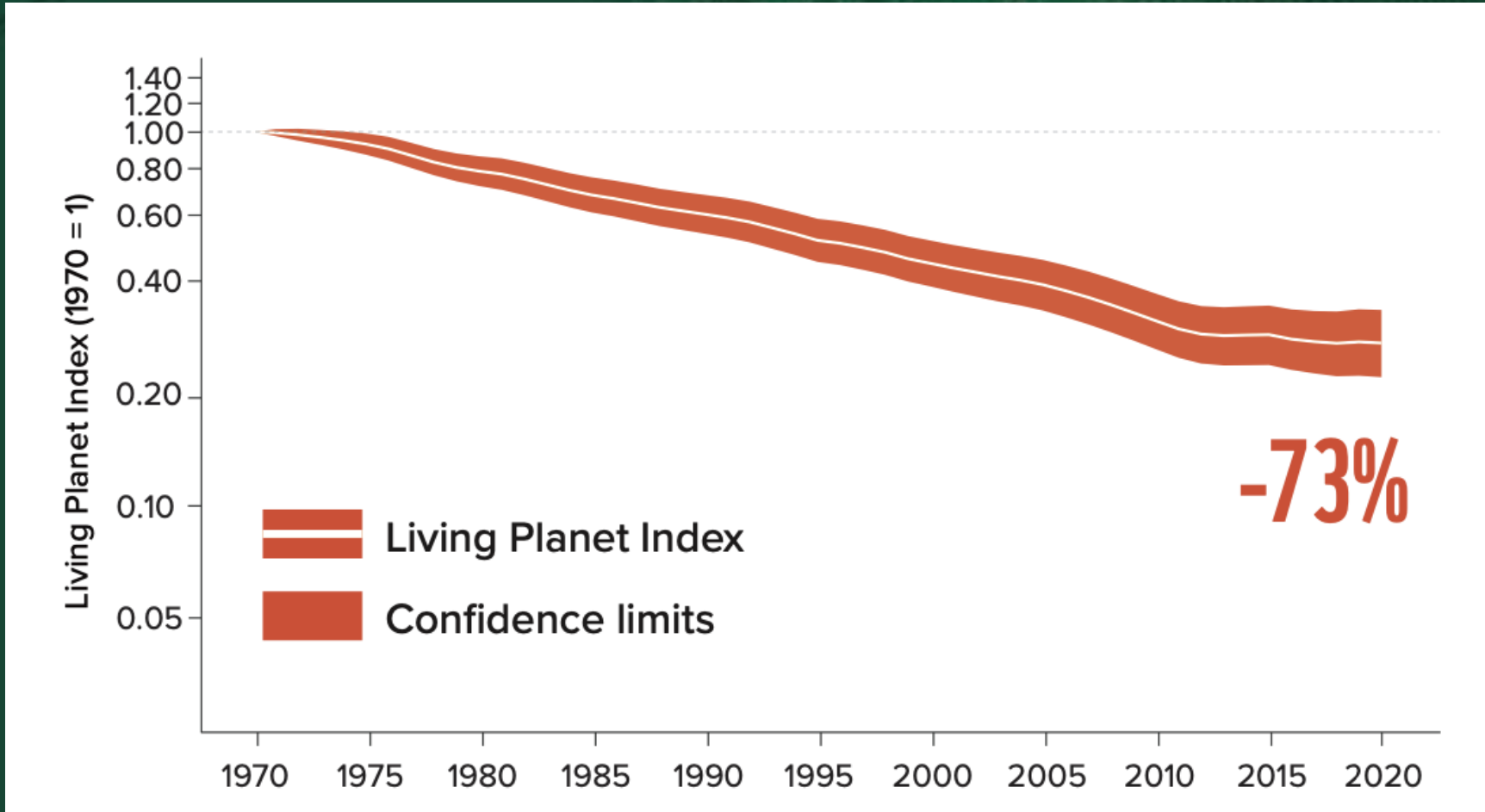
Geodatas avgörande roll inom landskapsekologi

Alistair Auffret, Sveriges lantbruksuniversitet

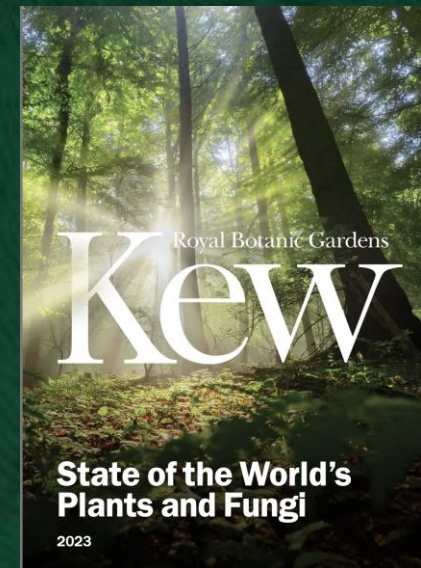


SCIENCE AND
EDUCATION **FOR**
SUSTAINABLE
LIFE

Biologisk mångfaldskris



Biologisk mångfaldskris



Biologisk mångfaldskris



18%

Hem





Habitat

Habitat



A landscape photograph showing a green field, a ditch, and a tree under a cloudy sky. The text 'Habitatförlust' is overlaid in the center.

Habitatförlust

A photograph of a dense forest with many trees and sunlight filtering through the canopy. The ground is covered in fallen leaves and ferns. The text "Habitatförlust" is overlaid on the bottom center of the image.

Habitatförlust



Habitatförlust

Global temperature change (1850-2021)

Klimatförändringar

1860

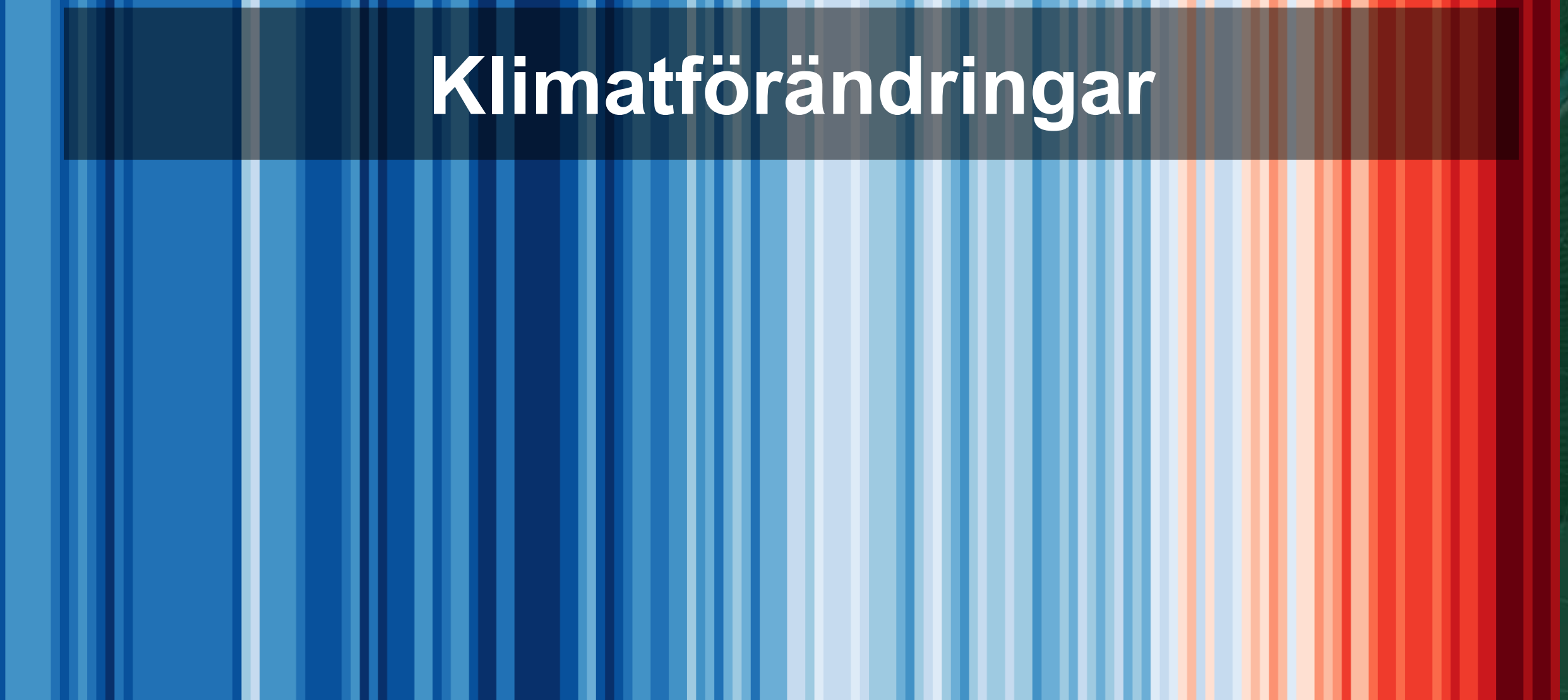
1890

1920

1950

1980

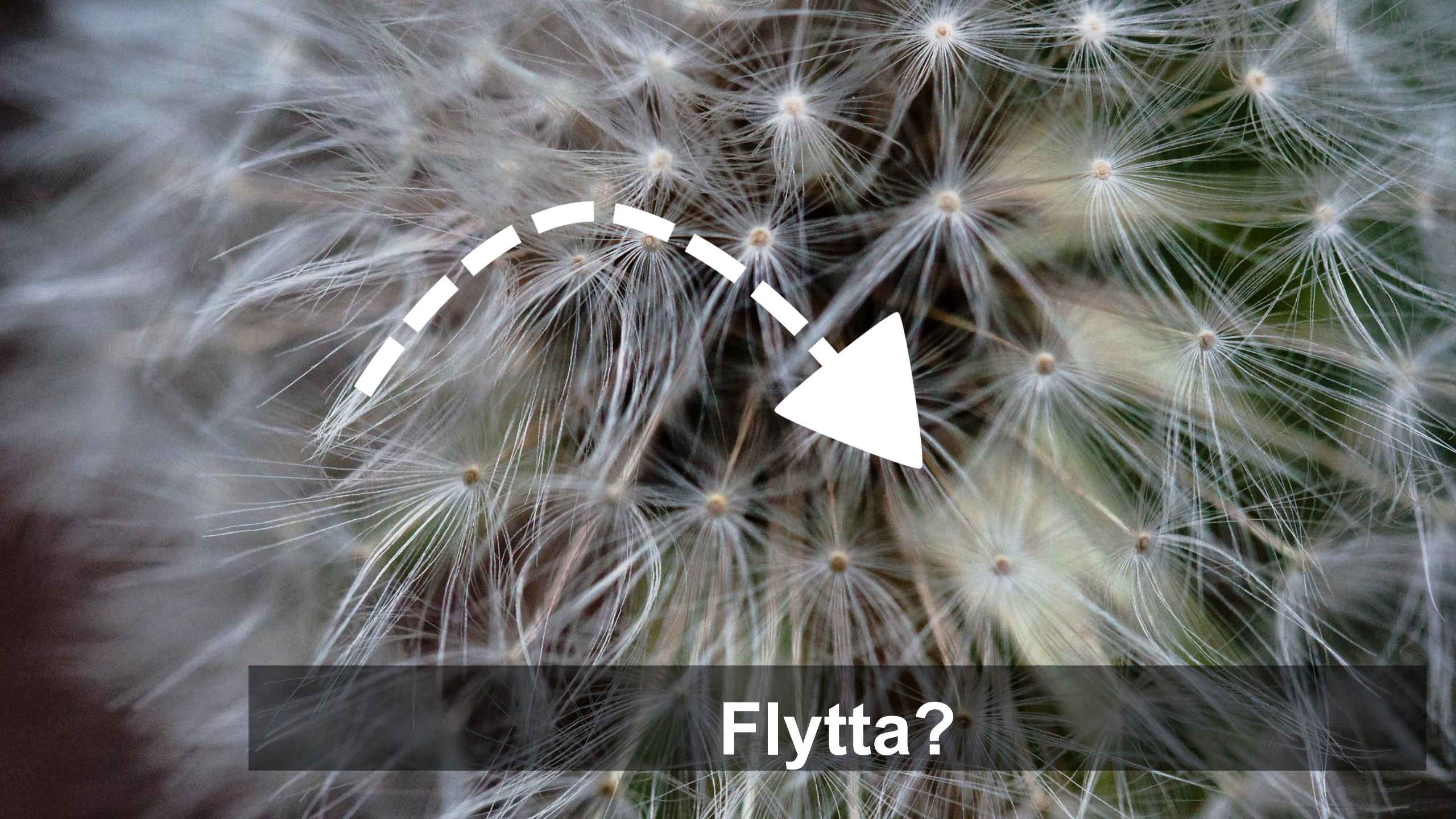
2010



Vad kan en art göra?

Stanna kvar?





Flytta?

Försvinna?



Vad kan en art göra?



Hur kan vi studera detta?

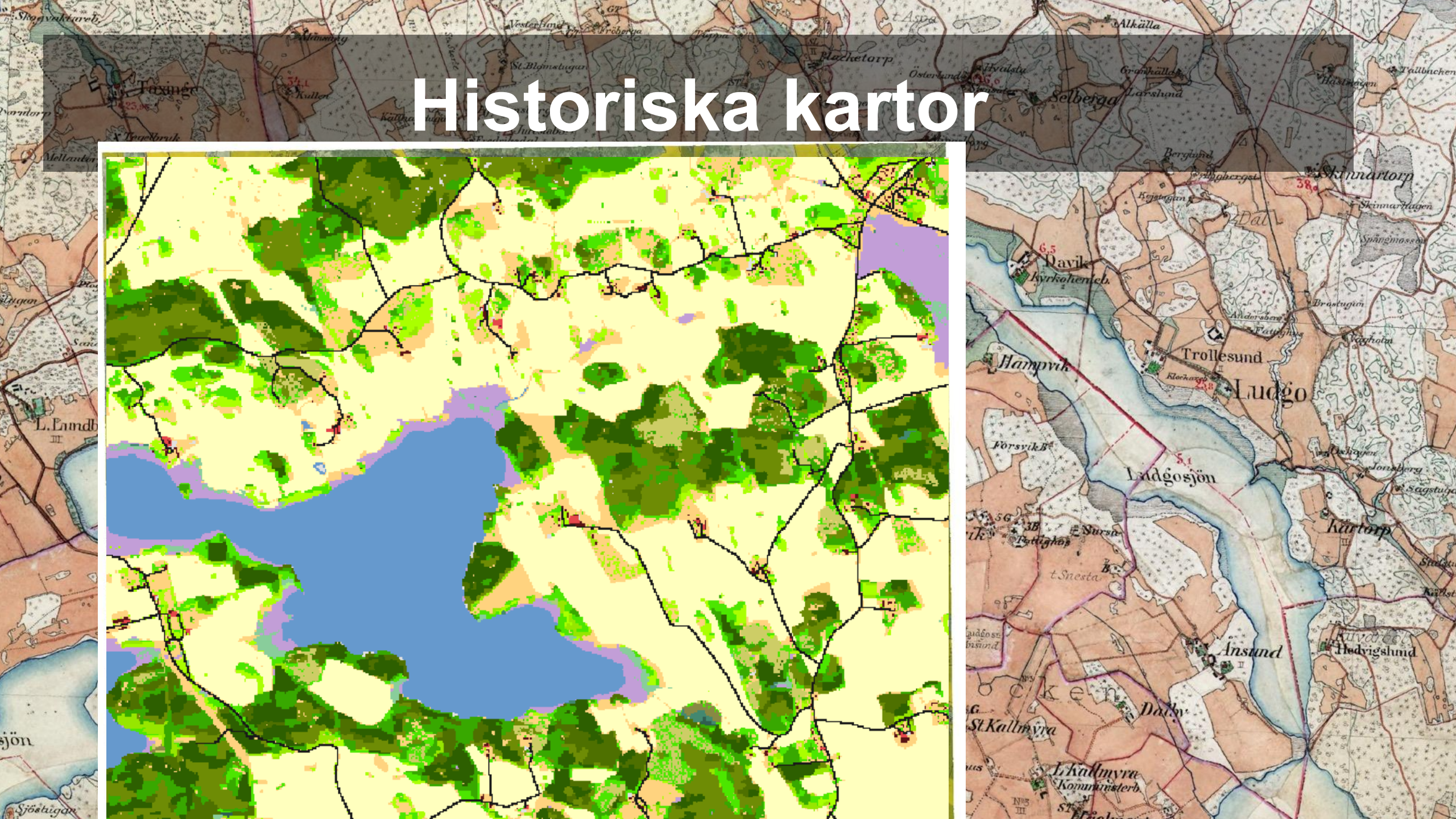
- **Markanvändningsdata**
- **Klimatdata**
- **Artdata**



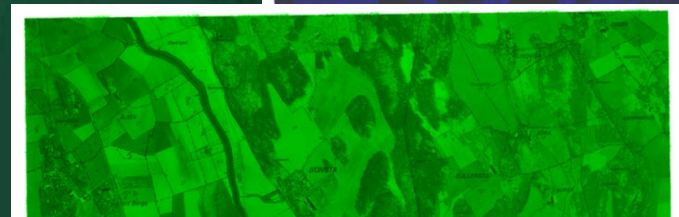
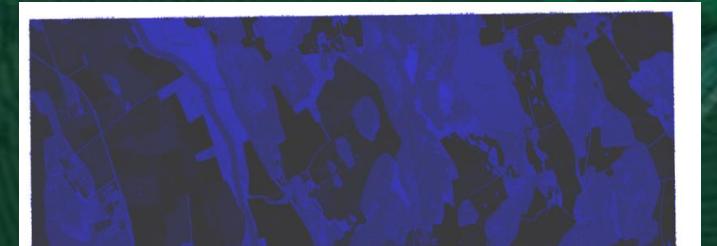
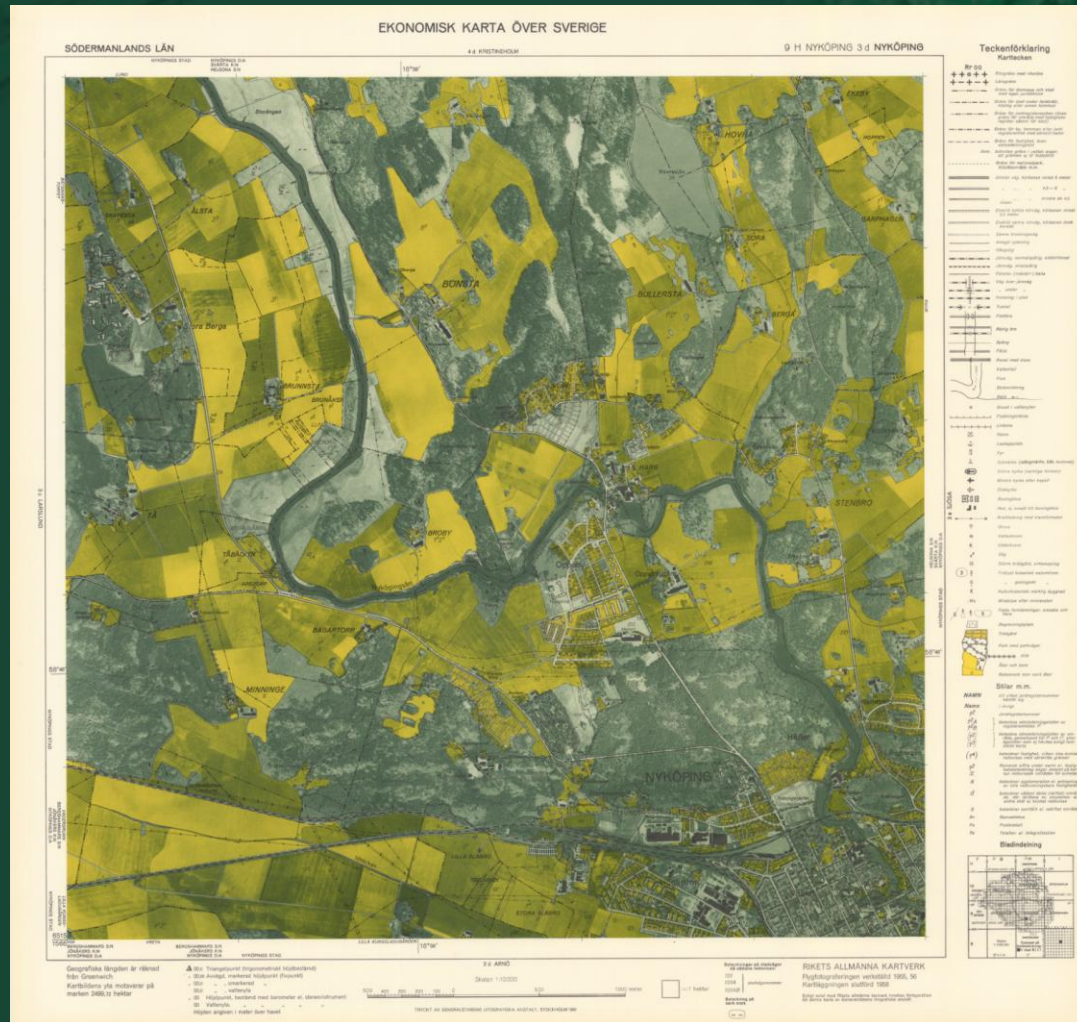
A detailed historical cadastral map of Spelviks socken in Sweden. The map shows a complex network of land parcels, many of which are shaded in light brown or orange. Blue areas represent water bodies, including several lakes and streams. Numerous place names are scattered across the map, such as Torsinge, Jurestad, Värnlundsqvärn, and Spelvik. The map also features various symbols and numbers, likely representing different types of land use or ownership. A semi-transparent dark grey banner is overlaid across the center of the map, containing the text 'Markanvändningsdata' in white.

Markanvändningsdata

Historiska kartor



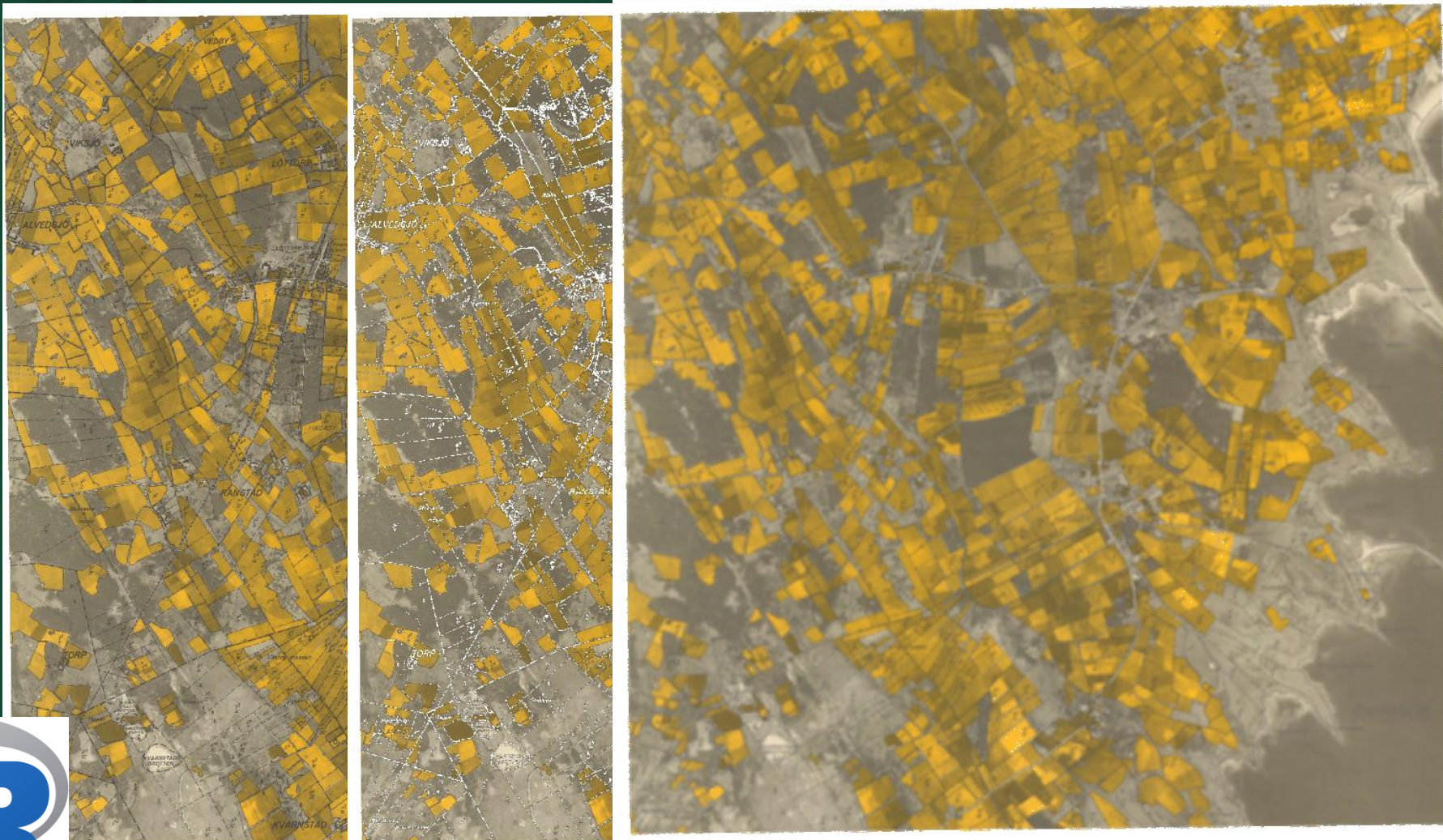
Digitalisering av historiska kartor



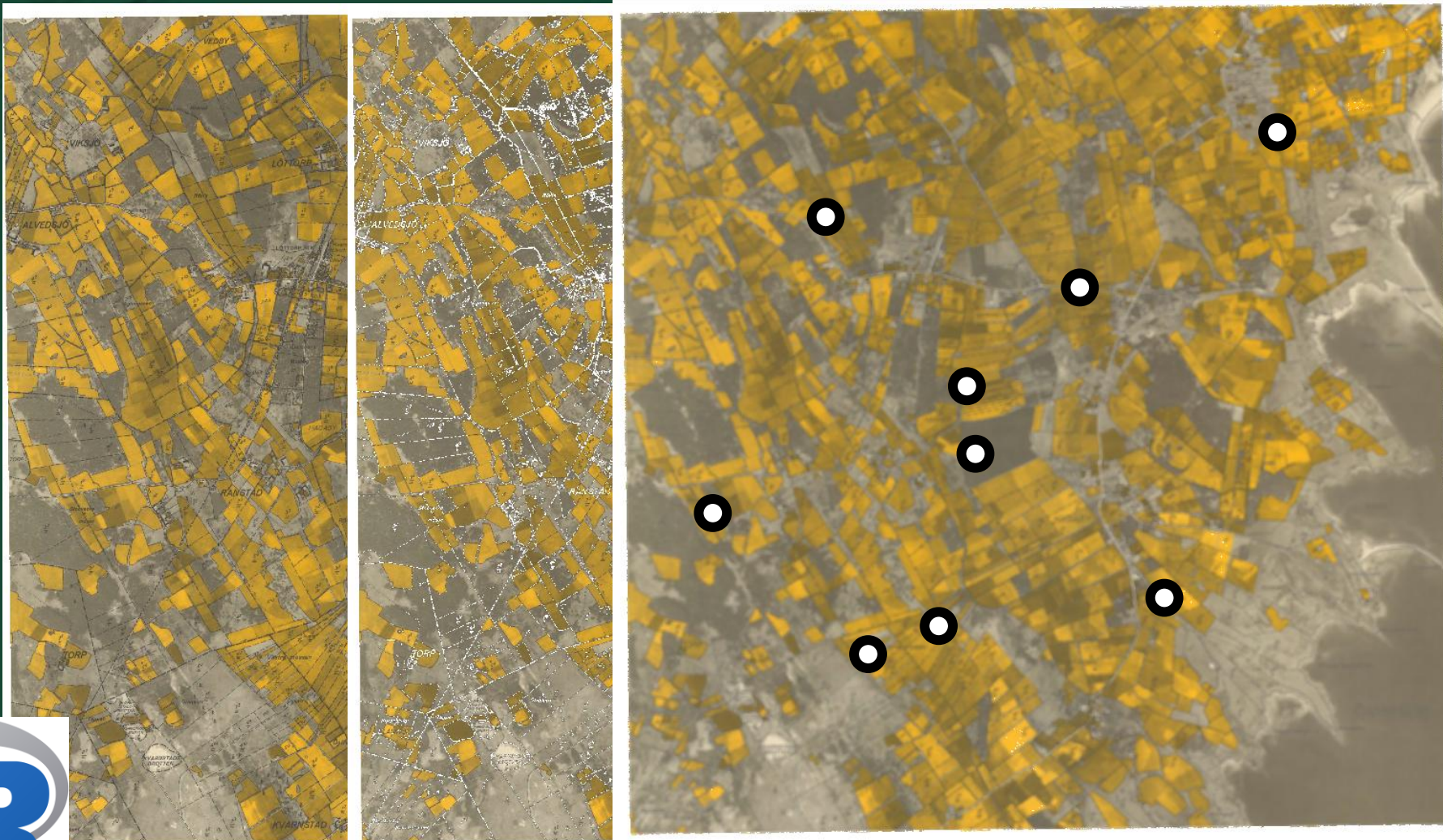
Digitalisering av historiska kartor



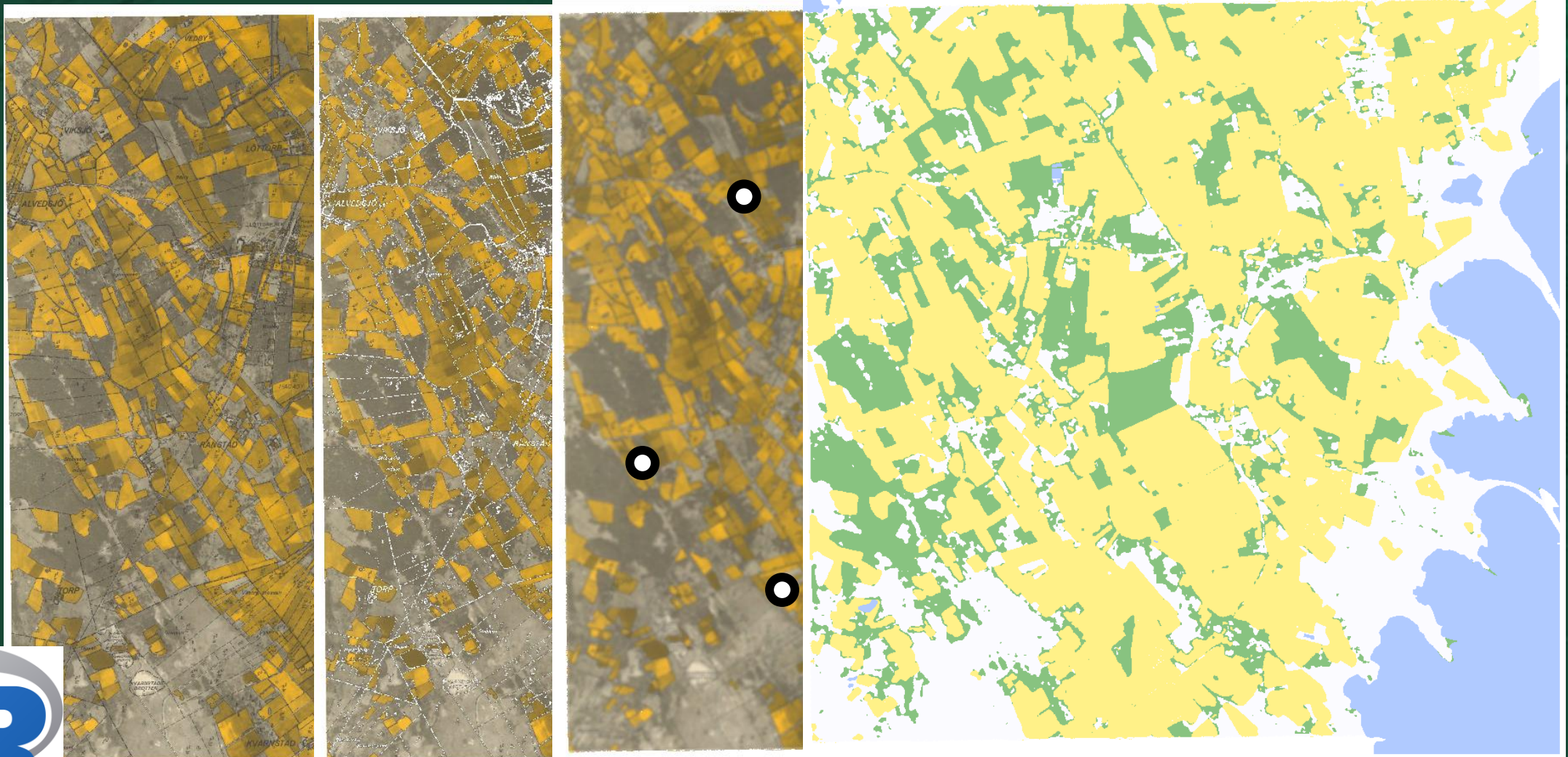
Digitalisering av historiska kartor



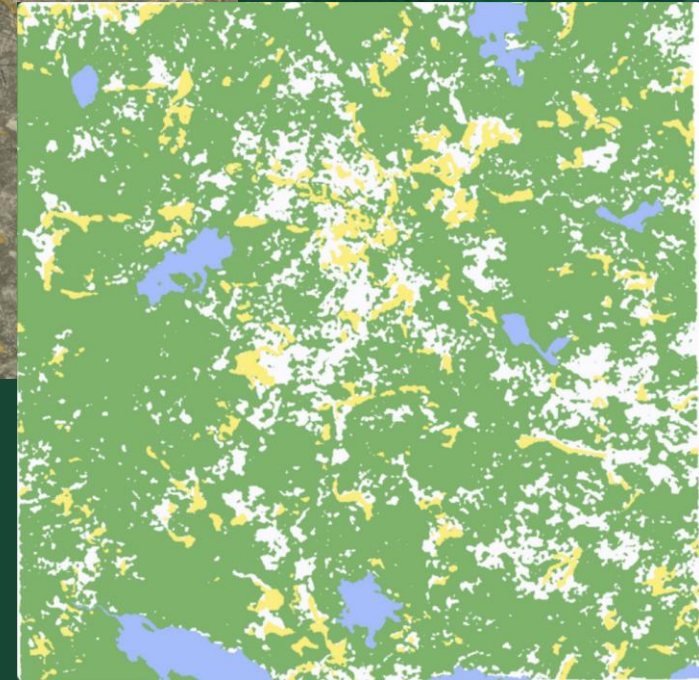
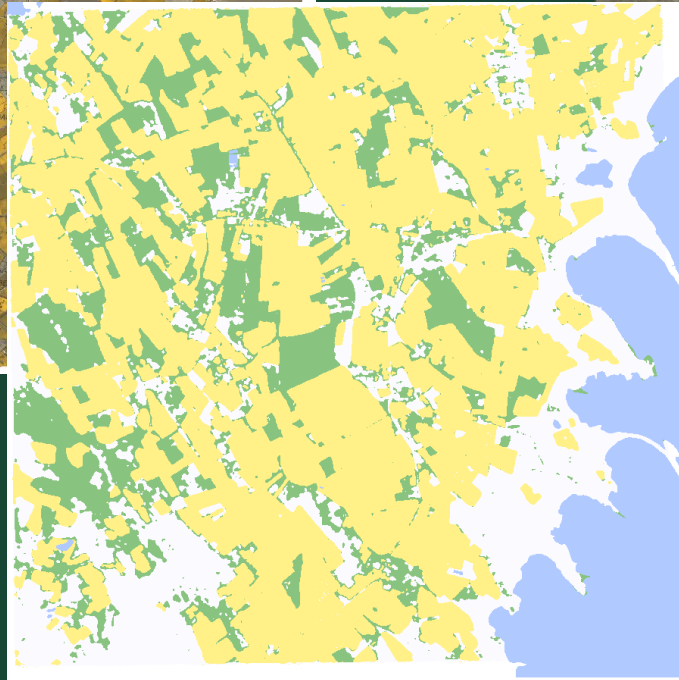
Digitalisering av historiska kartor

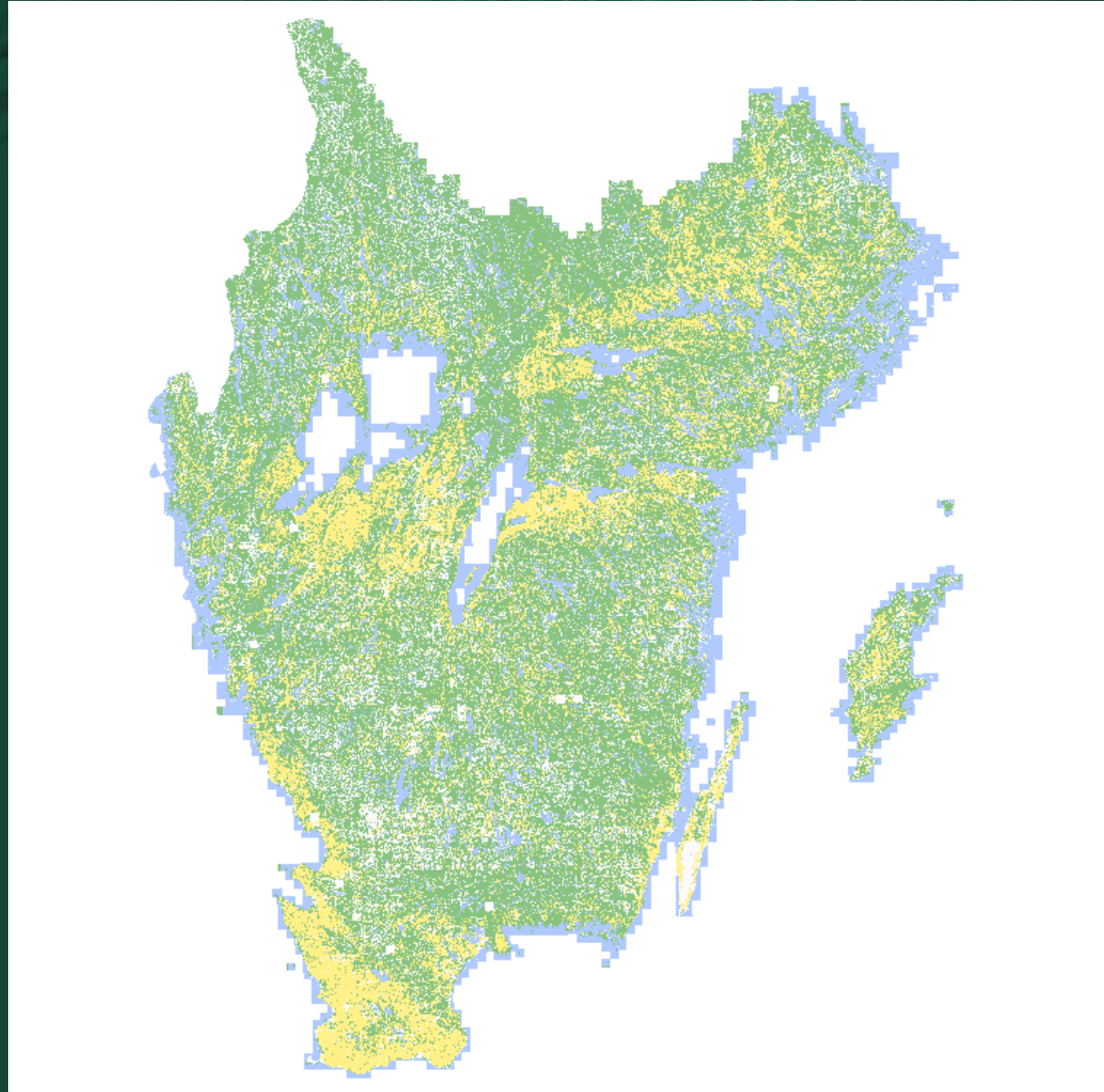


Digitalisering av historiska kartor



Digitalisering av historiska kartor

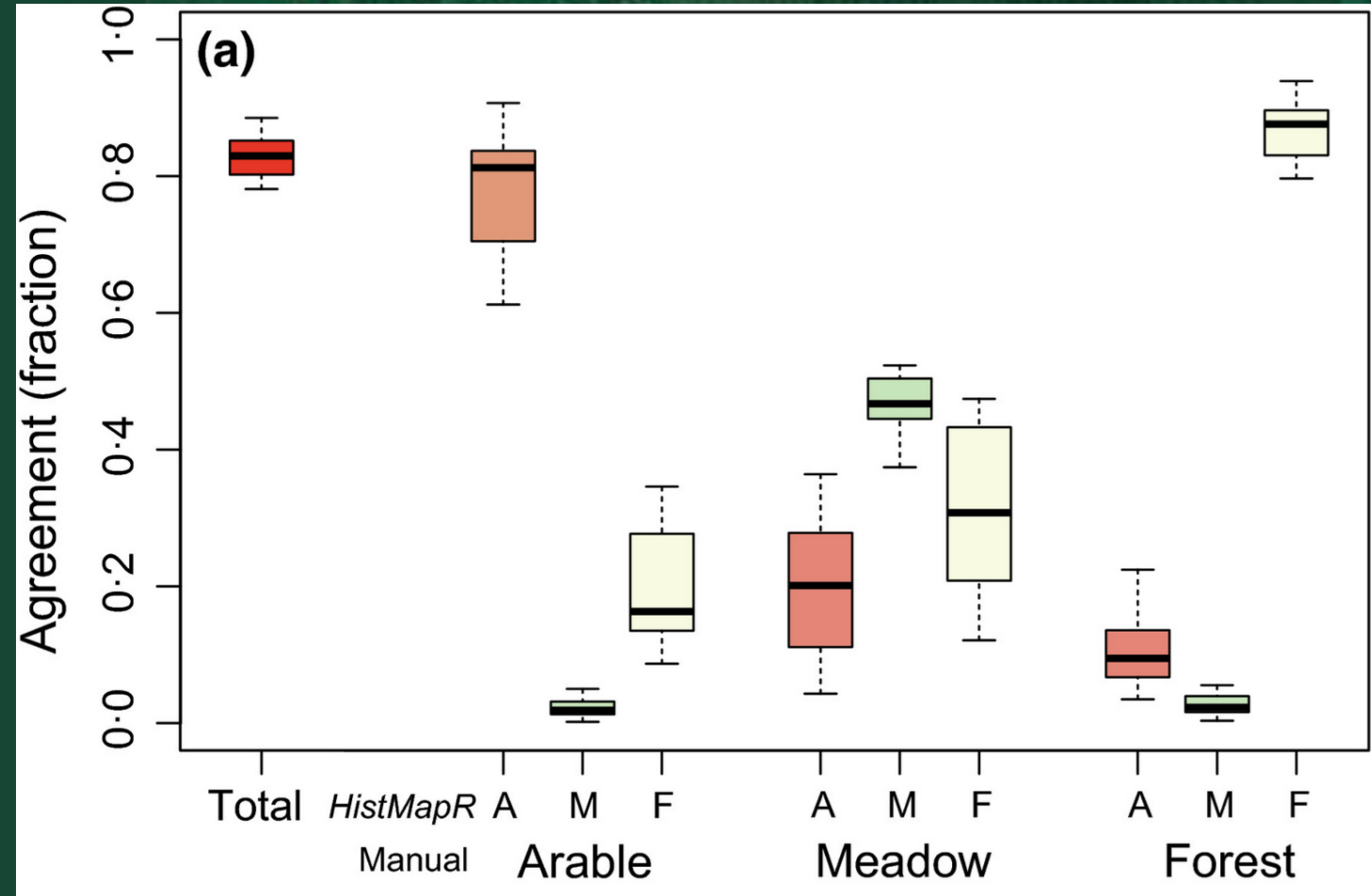
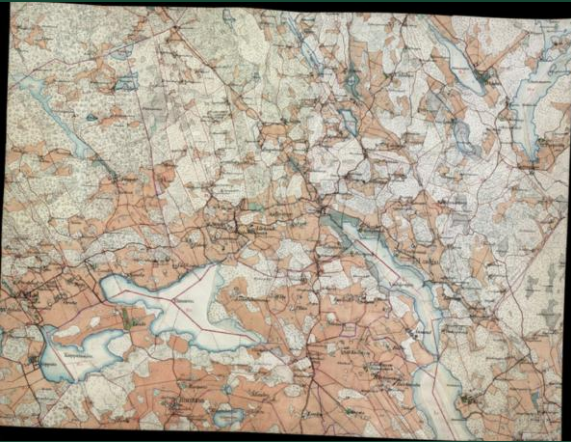




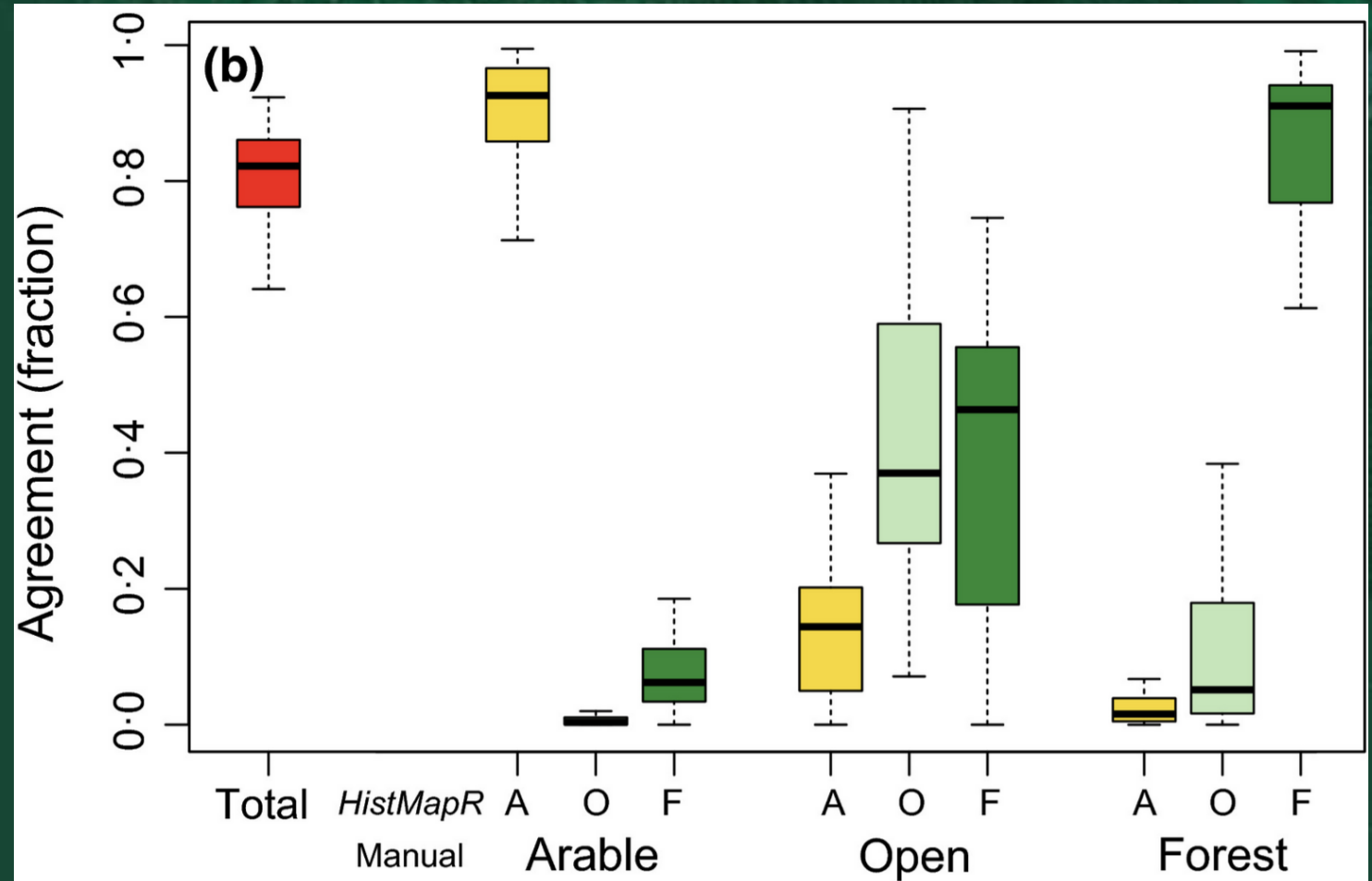
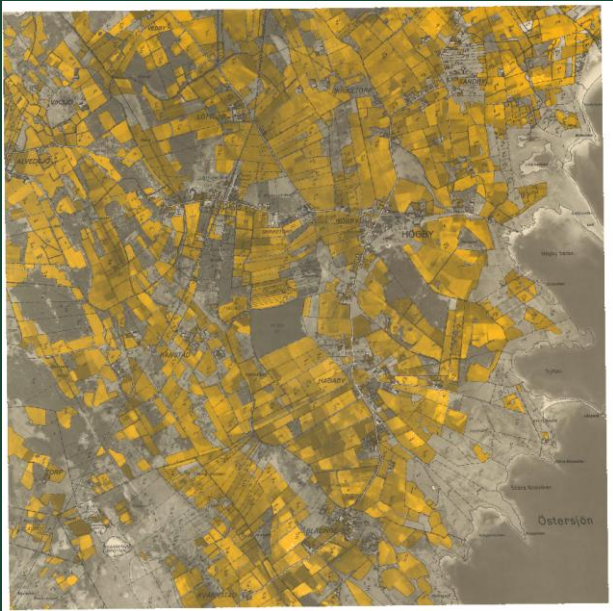
Digitalisering av historiska kartor



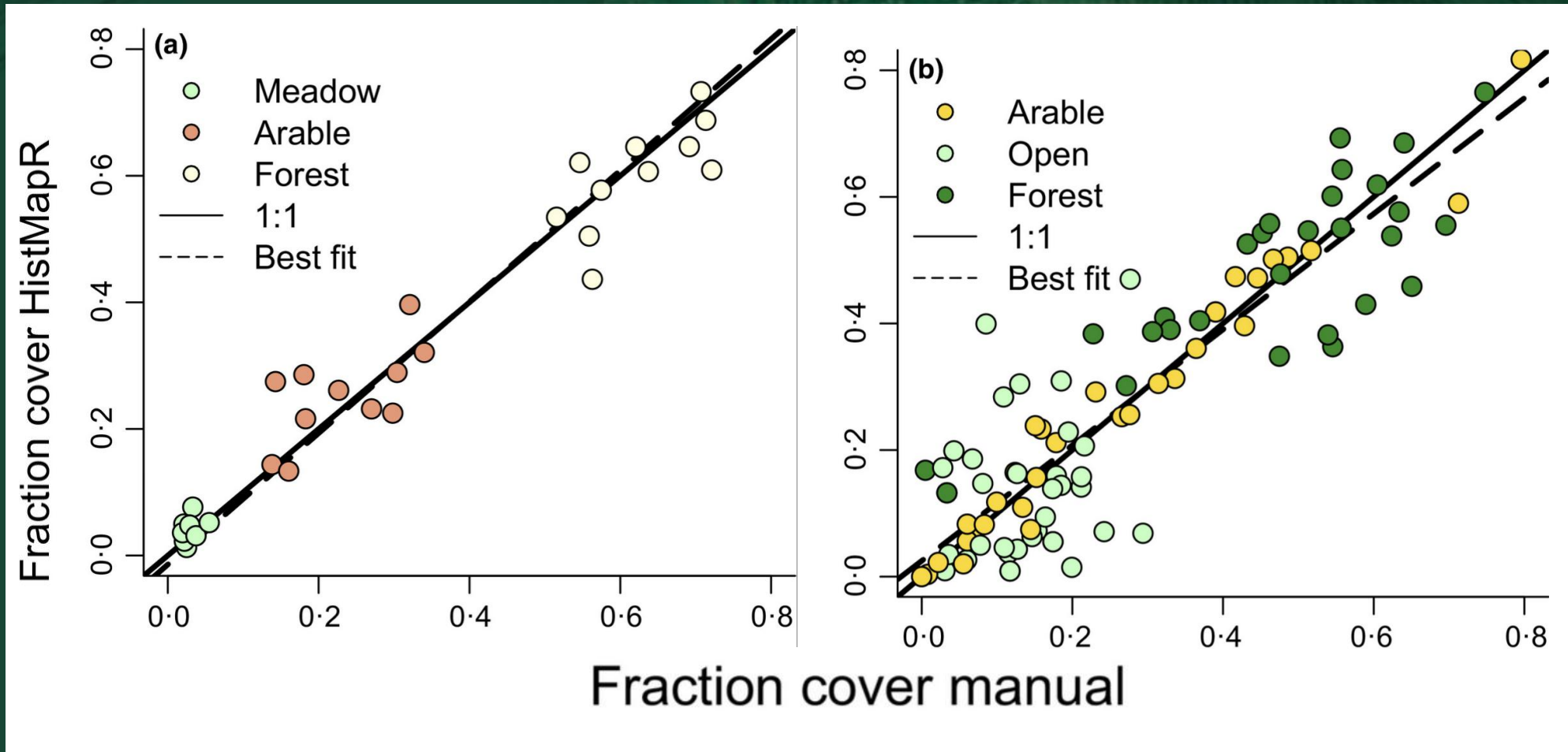
Utvärdering av digitaliseringar



Utvärdering av digitaliseringar



Utvärdering av digitaliseringar



Modern markanvändning

Nationella Marktäckedata
(NMD)



Hur kan vi studera detta?

- **Markanvändningsdata** 
- **Klimatdata**
- **Artdata**

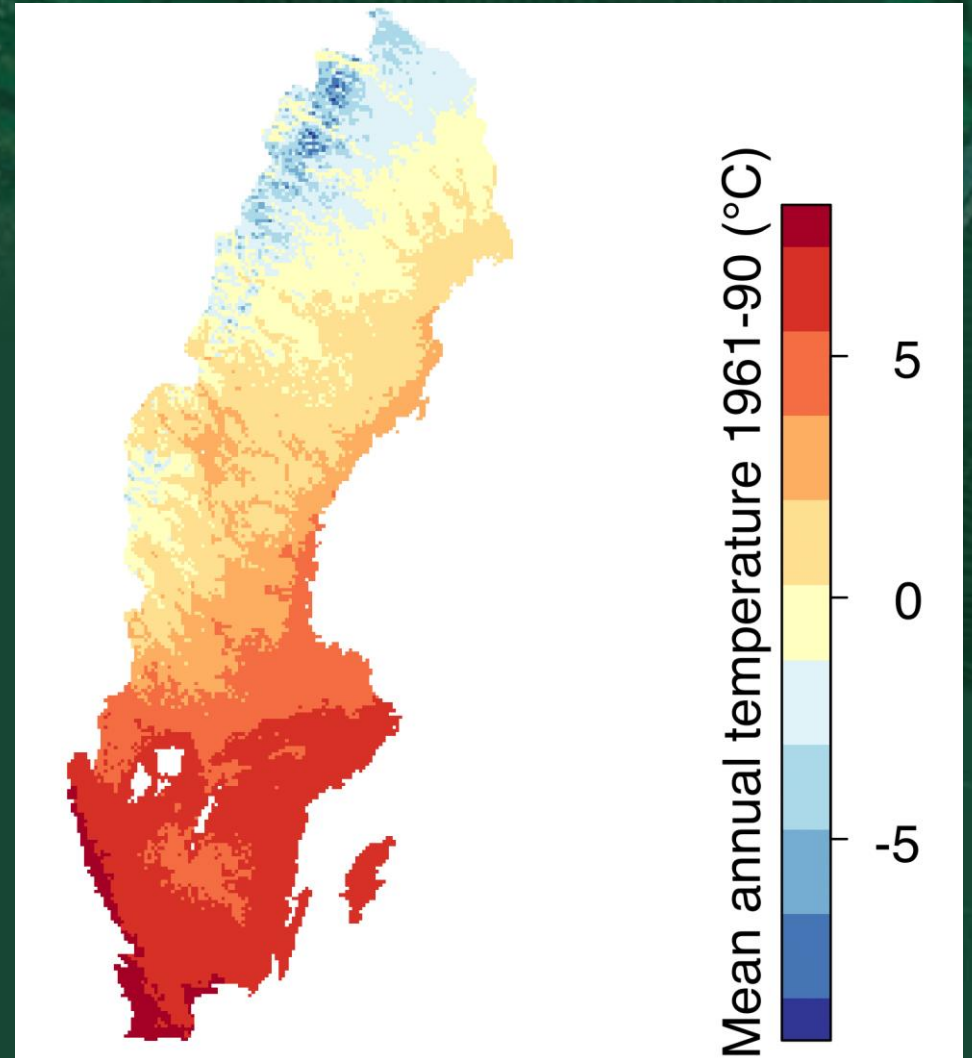
Klimatdata

Klimatdata

Daglig temp och
nederbörd 1961-



SMHI



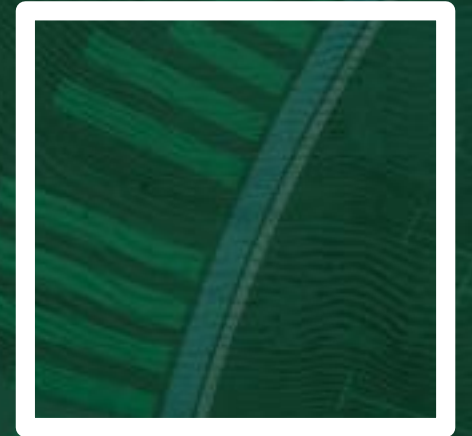
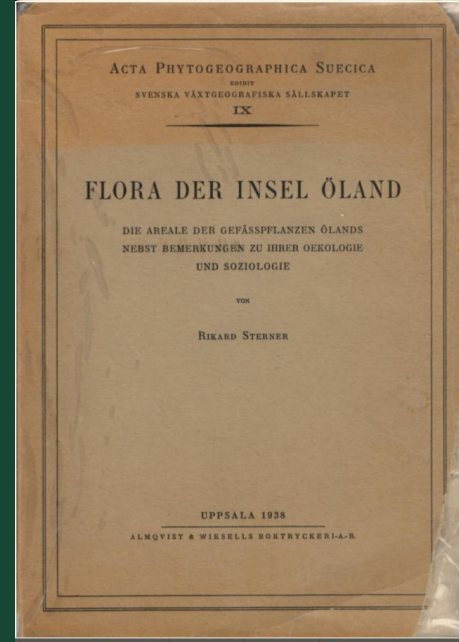
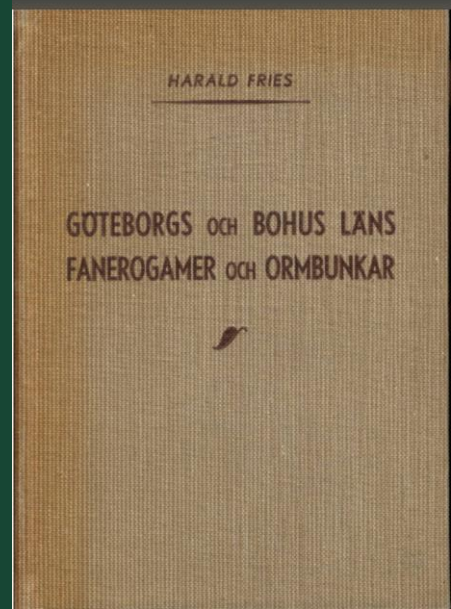
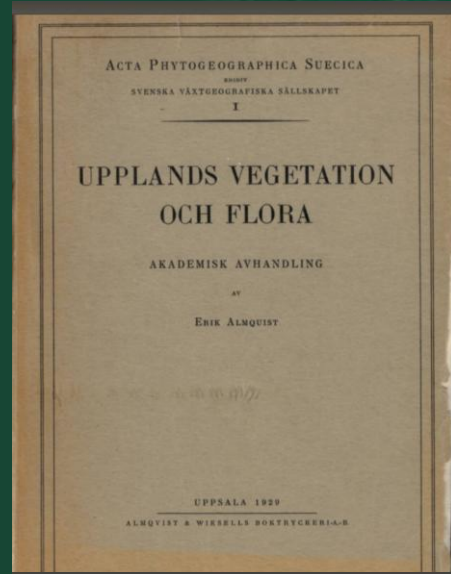
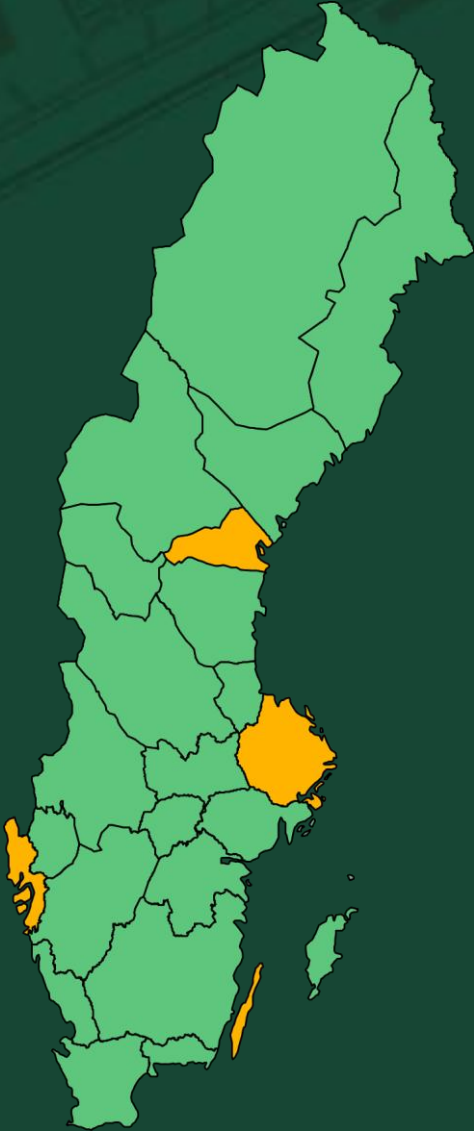
Hur kan vi studera detta?

- Markanvändningsdata
- Klimatdata
- Artdata



Artdata

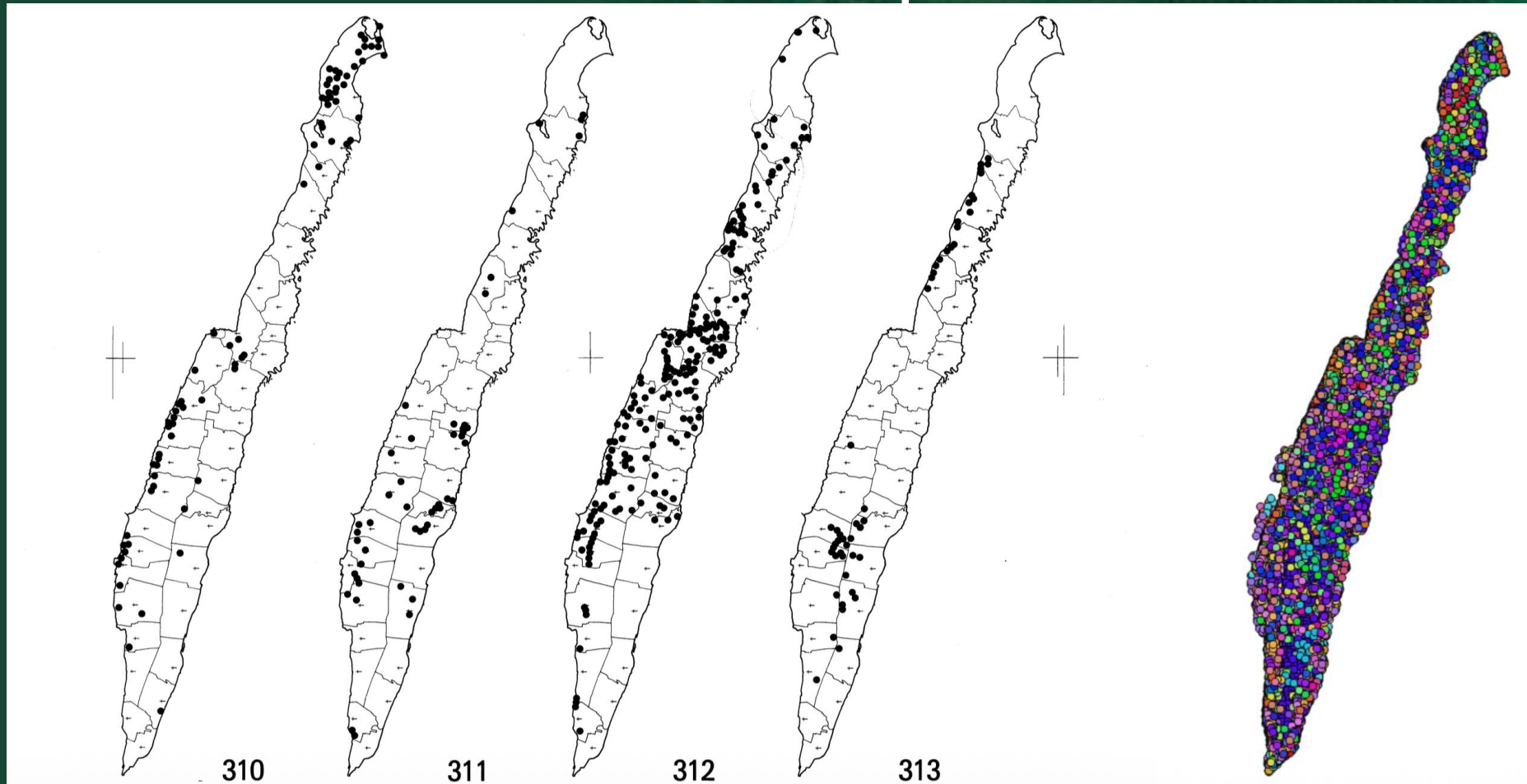
Historiska observationer



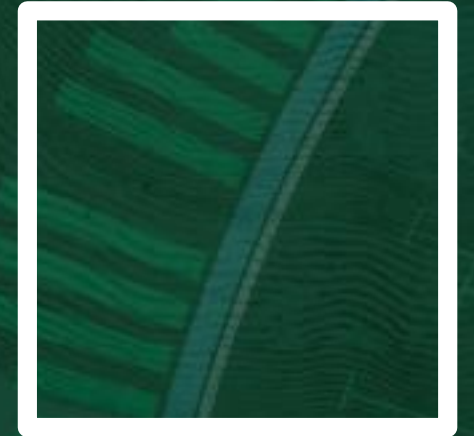
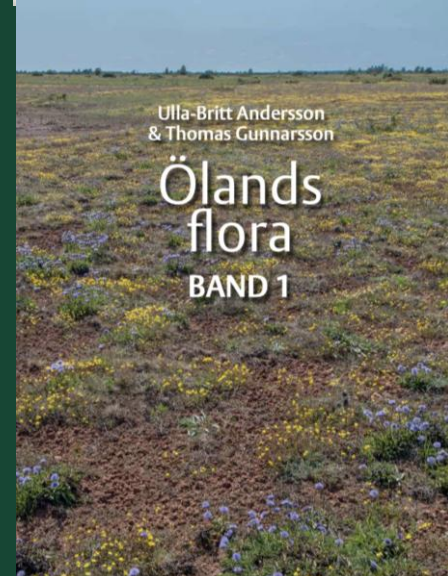
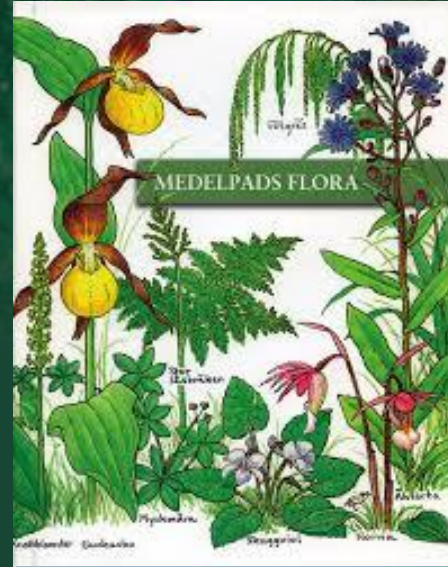
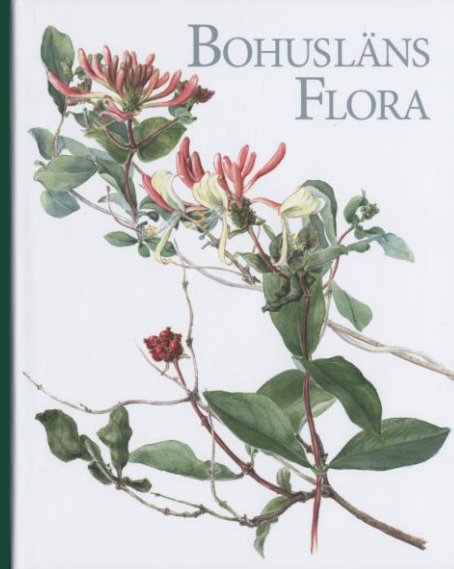
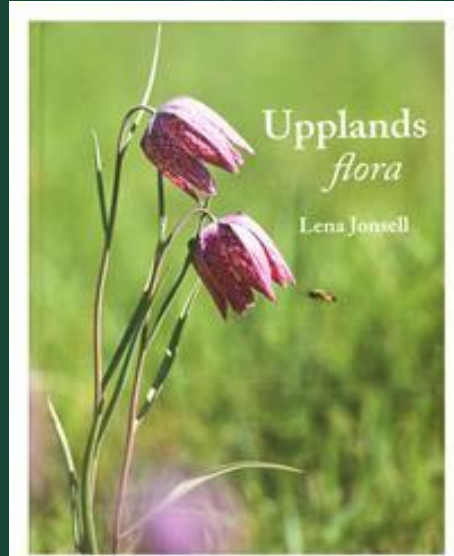
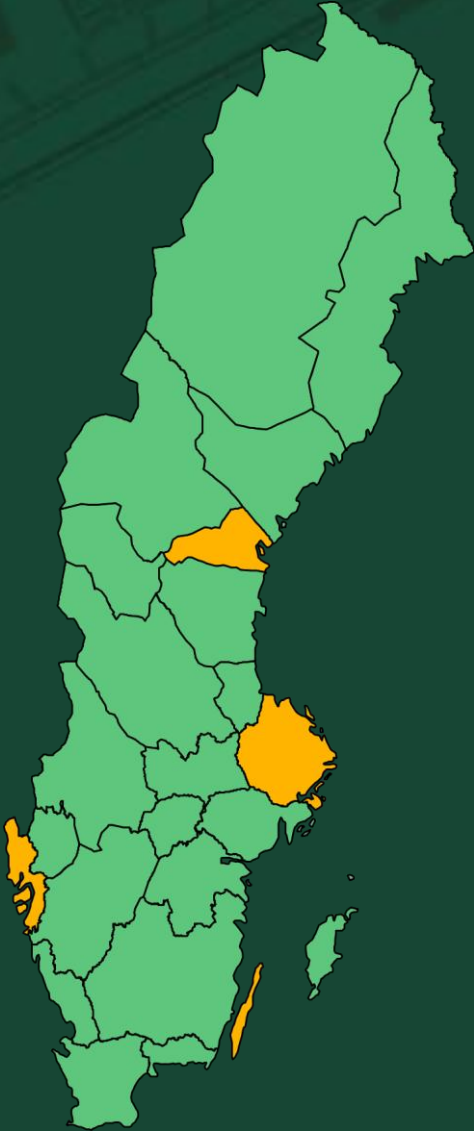
5 km

Historiska observationer

- Öland 1938 & 1986: 27 672 punkter

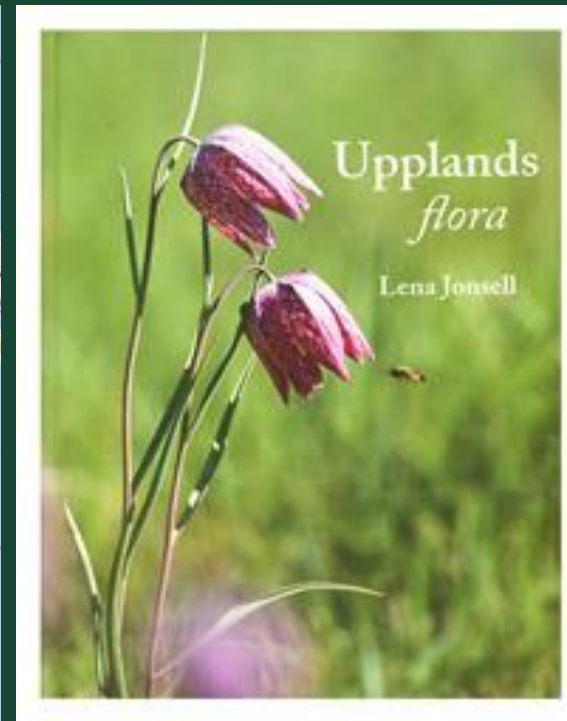
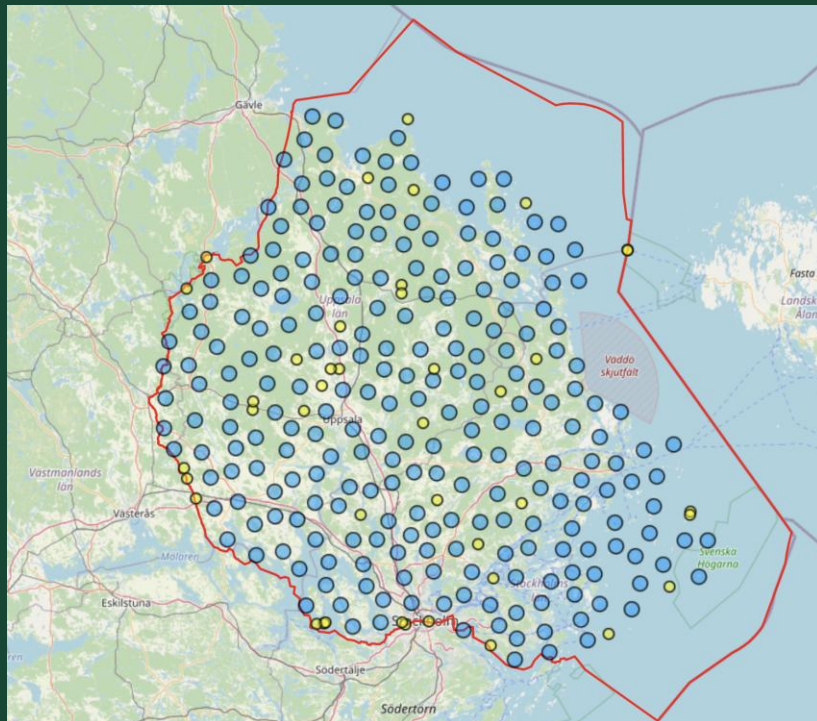


Moderna observationer



5 km

Moderna observationer



Hur kan vi studera detta?

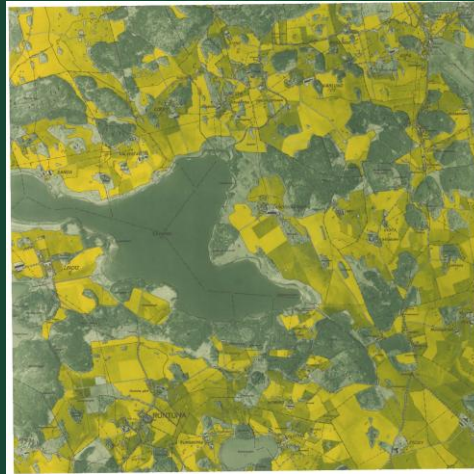
- Markanvändningsdata
- Klimatdata
- Artdata

Förändringar i landskapet

- Markanvändning



T1



- Markanvändning

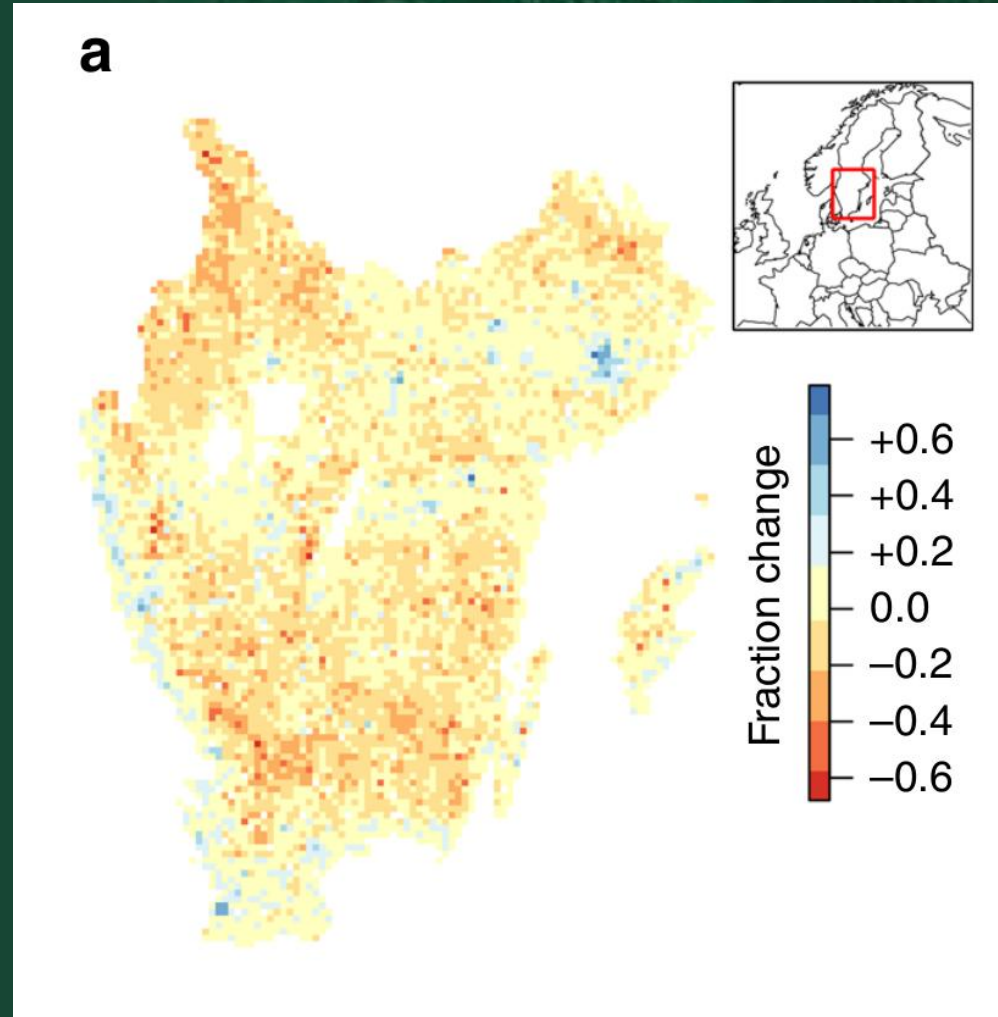


- Artdata



T2

Gräsmarksförlust



Historiska landskapet påverkar dagens artrikedom



Auffret et al. 2018, Nature Communications

Vad har hänt arterna



Utbredningsförändringar

Många arter minskar



Auffret & Svenning 2022, Nature Communications

A close-up photograph of several purple flowers with yellow centers, likely Verbena, set against a blurred green background. The flowers are in various stages of bloom, with some showing more detail than others.

Gräsmarksarter minskar

Auffret & Svenning 2022, Nature Communications

Nordliga arter minskar



Auffret & Svenning 2022, Nature Communications

Vad har hänt arterna

- Markanvändning



- Klimatdata



- Artdata



T1



- Markanvändning



- Klimatdata



- Artdata



T2

Omsättning på landskapsnivån

The background of the slide is split into two main sections. The left section consists of vertical stripes in various shades of blue, light blue, and red. The right section is a satellite-style map of Europe, with landmasses in green and yellow, and water bodies in blue. A dark grey horizontal band is overlaid across the center of the image, containing the title text.

Samverkande hot mot den biologiska mångfalden

Auffret & Svenning 2022, Nature Communications



Att behålla gräsmarker dämpar utdöende

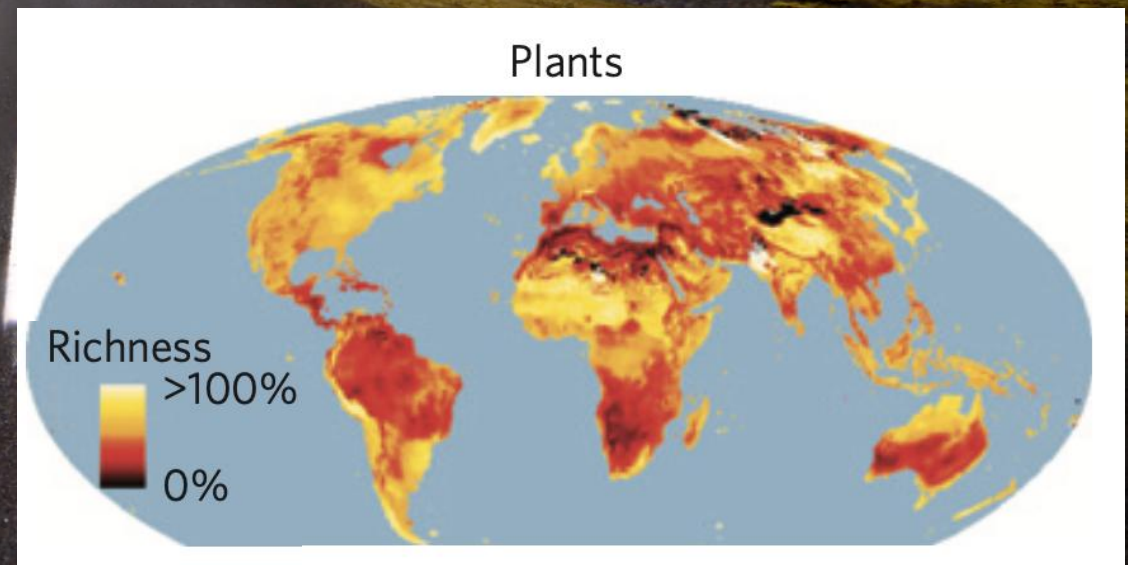
... förutom där det är varmast

A photograph of a dense forest with sunlight filtering through the trees. The text is overlaid on a semi-transparent dark band across the middle of the image.

Koloniseringar följer igenväxningen

**... speciellt där uppvärmningen
varit störst**

Framtiden?



Warren et al. 2013, Nature Climate Change

Vad kan hända arterna?

- Markanvändning



- Klimatdata



- Artdata



T1



- Markanvändning



- Klimatdata



- Artdata



T2

Test av modeller

Är modellerna för konservativa?

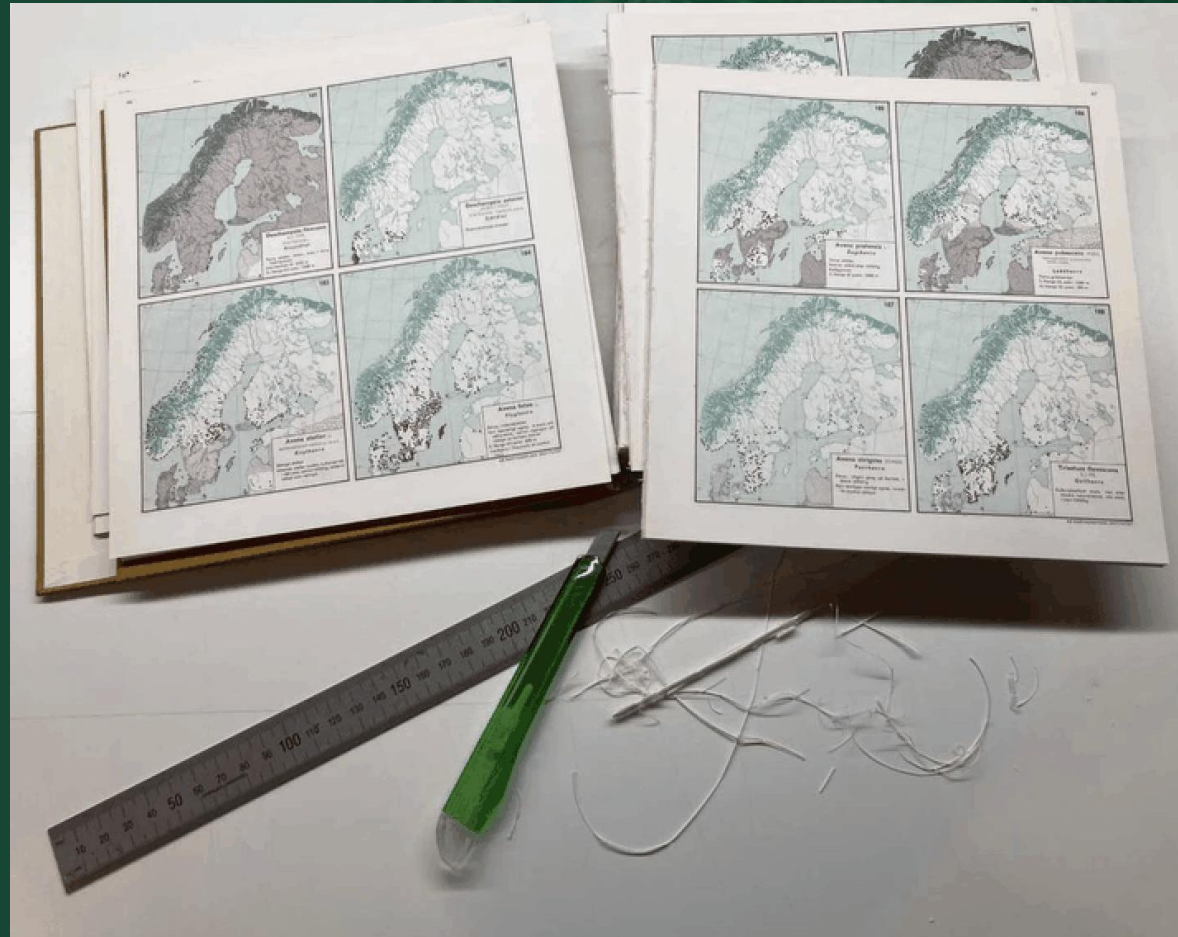
27% av varje arts lokalutdöenden förutsågs enligt modellerna

A close-up photograph of a purple flower, likely a species of Asteraceae, with a small bee on it. The background is a soft, out-of-focus green. A semi-transparent black rectangular box is overlaid on the center of the image, containing white text.

**Historiska och moderna geodata avgörande för
att förstå vad händer i naturen!**

Mer biologisk mångfald!

- Onsdag 15:30
- Lokal: K4



Matilda Arnell

STORT TACK!

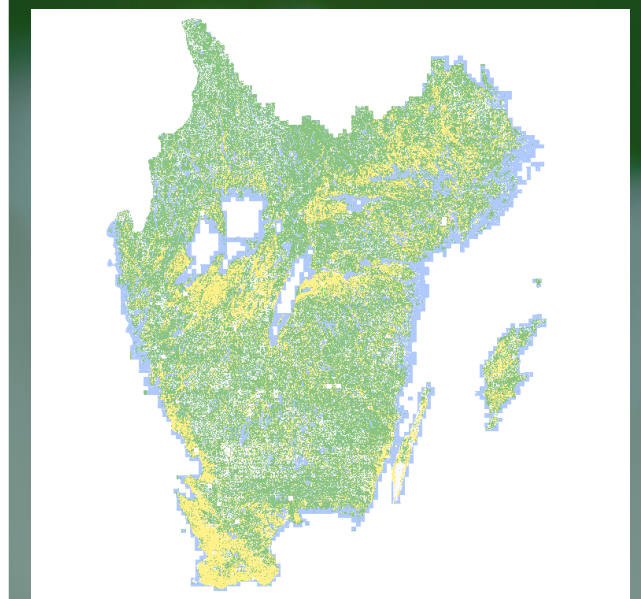
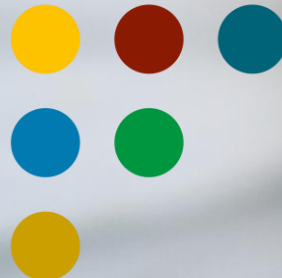
- Artobservatörer
- Medarbetare
- Finansiärer



Vetenskapsrådet

FORMAS

ETT FORSKNINGSRÅD FÖR
HÅLLBAR UTVECKLING
A SWEDISH RESEARCH COUNCIL FOR
SUSTAINABLE DEVELOPMENT



Historiskt kartdata