

ANC Fine-Tuning The Swedish Example



Photo: Urban Wigert



Photo: Mats Pettersson



Photo: Urban Wigert

After defining natural constraints by bio-physical criteria...

Fine-tuning:

- Evidence of economic loss
- Proof that investments have not overcome natural constraints
- Use an indicator linked to the natural constraint



Background – Sweden

Institutions:

Ministry of Enterprise and
Innovation – Decision

Board of Agriculture – Basic
data and Analysis

Delimitation: bio-physical
criteria (temperature sum)

Administrative unit: parish
(approximately 2 400 in
Sweden)

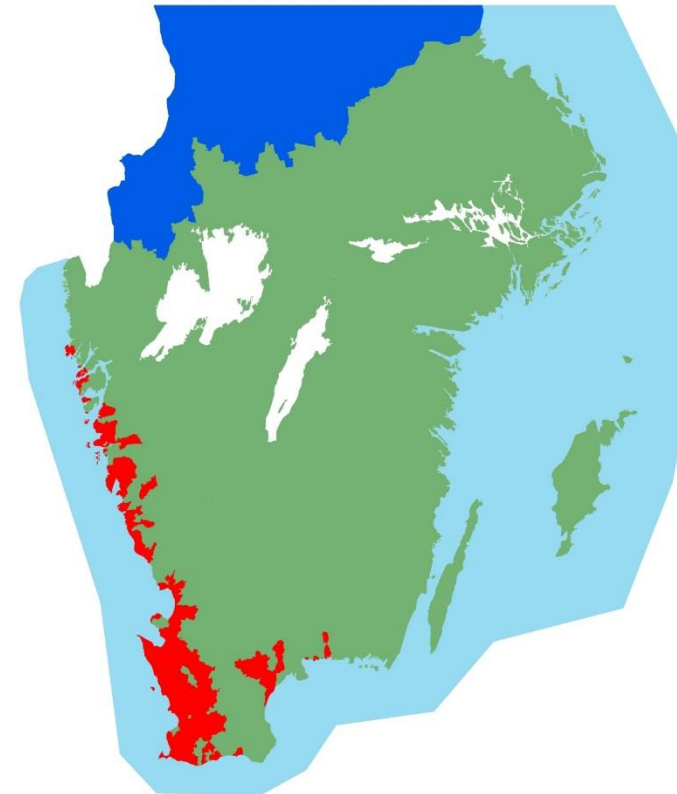
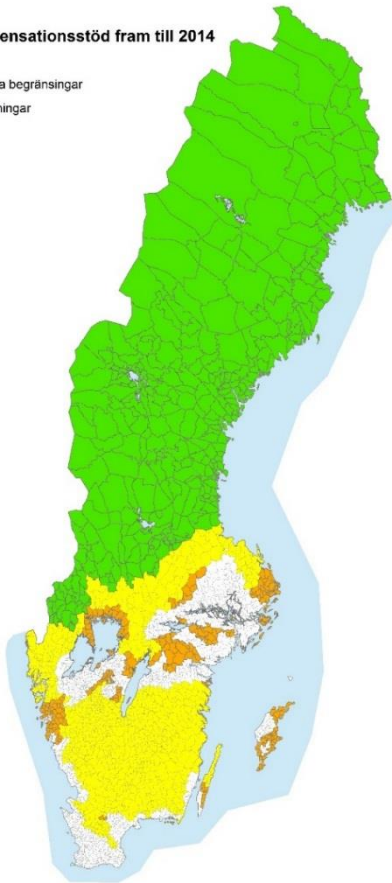
Land area: 450 000 km²

Agricultural land: 3 M hectare
(6,7% of total land)

Teckenförklaring

Områden för kompensationsstöd fram till 2014

- Bergsområde
- Väsentliga naturliga begränsningar
- Särskilda begränsningar



Legend

- Mountain areas
- >=1 500 degree days
- Delimited as areas with significant natural constraints (< 1 500 degree days)

Alternatives for fine-tuning

Criteria:

Low temperature

Fine-tuning approach

Standard output

Tree density

Livestock density

Green houses

Average yield

Normal land productivity

Farming system

Production method



Photo: Calle Bredberg/Scandinav bildbyrå

Average yield

Each parish and crop:

- standard yield per hectare x crop area
- Total yield by total crop area → a mean yield level for the parish
- < 80% of average yield for areas outside mountain areas = Areas with Natural Constraints

| 13 arable crops | Yield weight |
|-----------------------|--------------|
| – Winter wheat | 1 |
| – Spring wheat | 1 |
| – Winter rye | 1 |
| – Spring barley | 1 |
| – Oats | 1 |
| – Mixed grain (=oats) | 1 |
| – Winter rape | 2 |
| – Spring rape | 2 |
| – Winter turnip rape | 2 |
| – Spring turnip rape | 2 |
| – Sugar beet | 0.14 |
| – Starch potatoes | 0.17 |
| – Ware potatoes | 0.15 |



Result, fine-tuning natural constraints

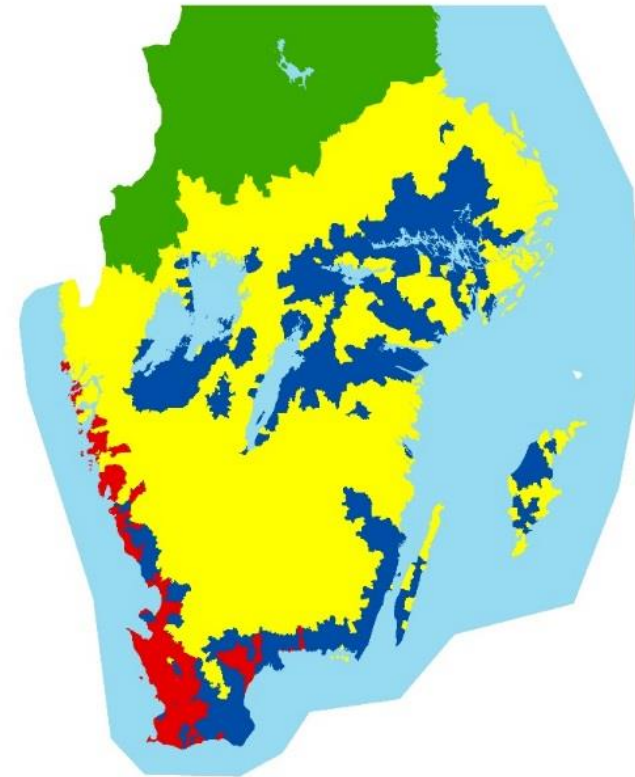
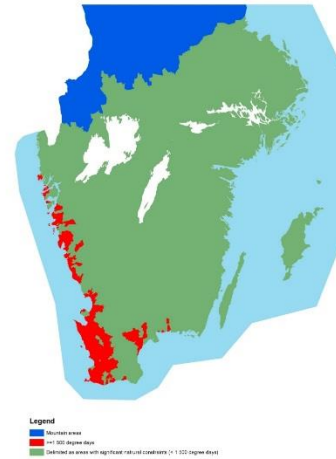
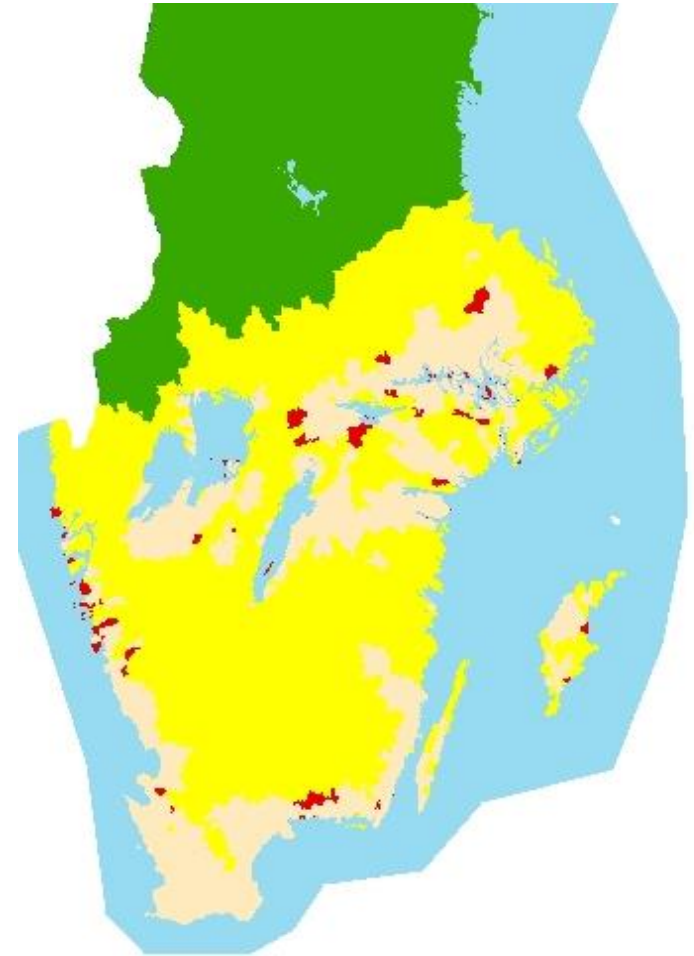


Photo: Urban Wigert

Results, fine-tuning specific constraints

- Coastal areas
- Islands without permanent bridge
- High proportion of grazing land

and an average yield less than 80%
of the area outside mountain area



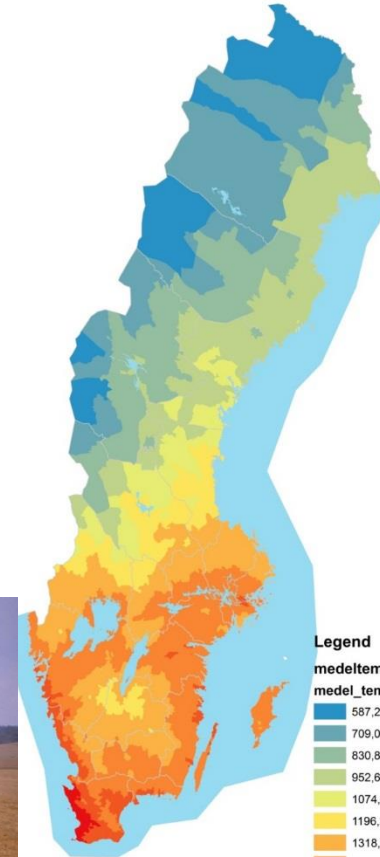
Results, ANC areas

| | Agricultural land, hectare | Proportion of agricultural land |
|---------------------------------|----------------------------|---------------------------------|
| Mountain area | 337 000 | 11% |
| Areas with natural constraints | 1 165 000 | 37% |
| Areas with specific constraints | 41 000 | 1% |
| Areas outside ANC | 1 593 000 | 51% |
| Total | 3 135 000 | 100% |



Zoning

Average temperature sum 1961 -2010



Legend

| medeltemp_likat intervall | medel_tempsum_joint / none |
|---------------------------|----------------------------|
| Blue | 587,226928 - 709,027235 |
| Light Blue | 709,027236 - 830,827543 |
| Light Green | 830,827544 - 952,627850 |
| Green | 952,627851 - 1074,42816 |
| Yellow-Green | 1074,42817 - 1196,22846 |
| Yellow | 1196,22847 - 1318,02877 |
| Orange | 1318,02878 - 1439,82908 |
| Dark Orange | 1439,82909 - 1561,62939 |
| Red-Orange | 1561,62940 - 1683,42969 |
| Red | 1683,42970 - 1805,23000 |

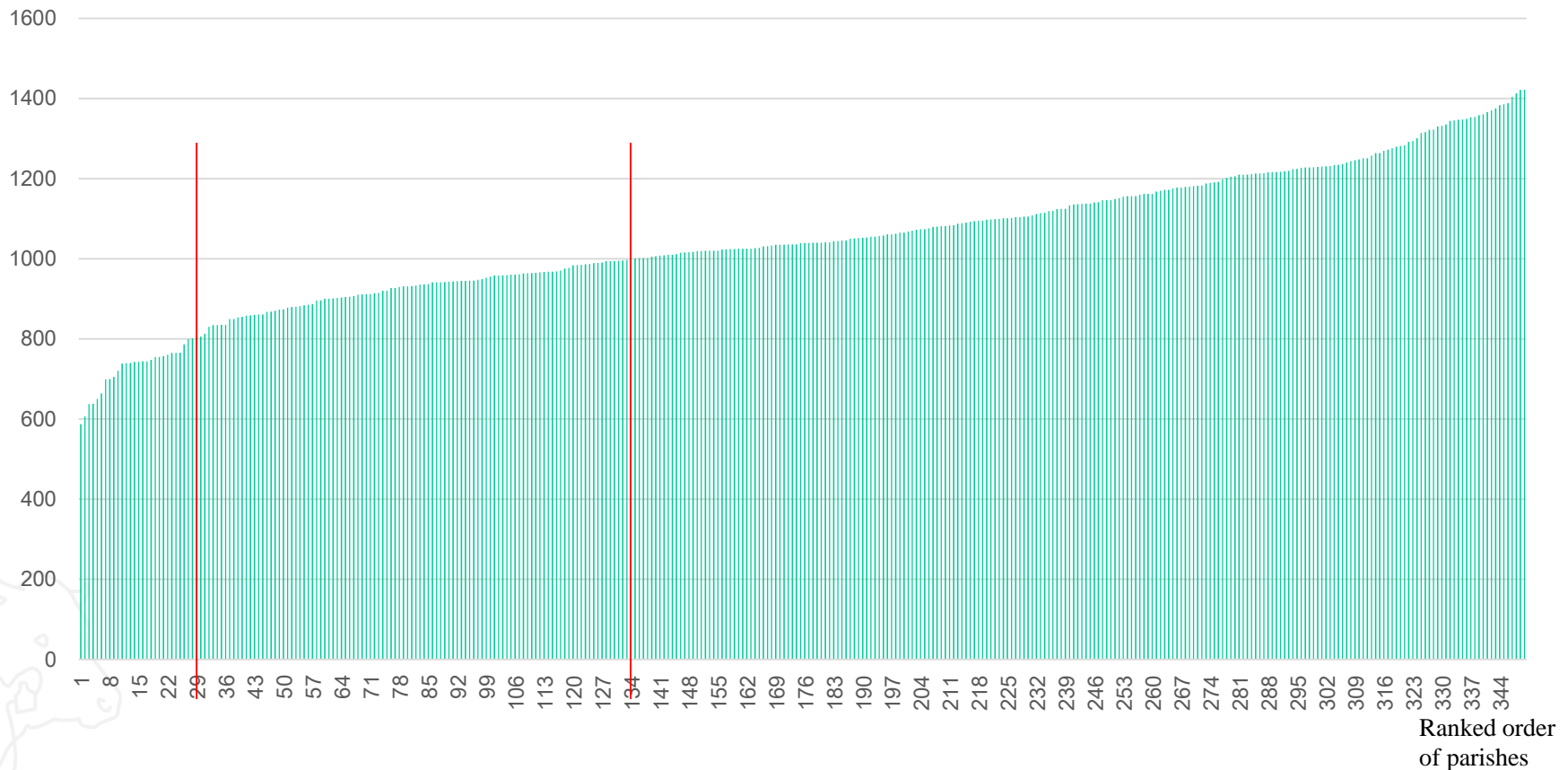
Photo: Urban Wigert

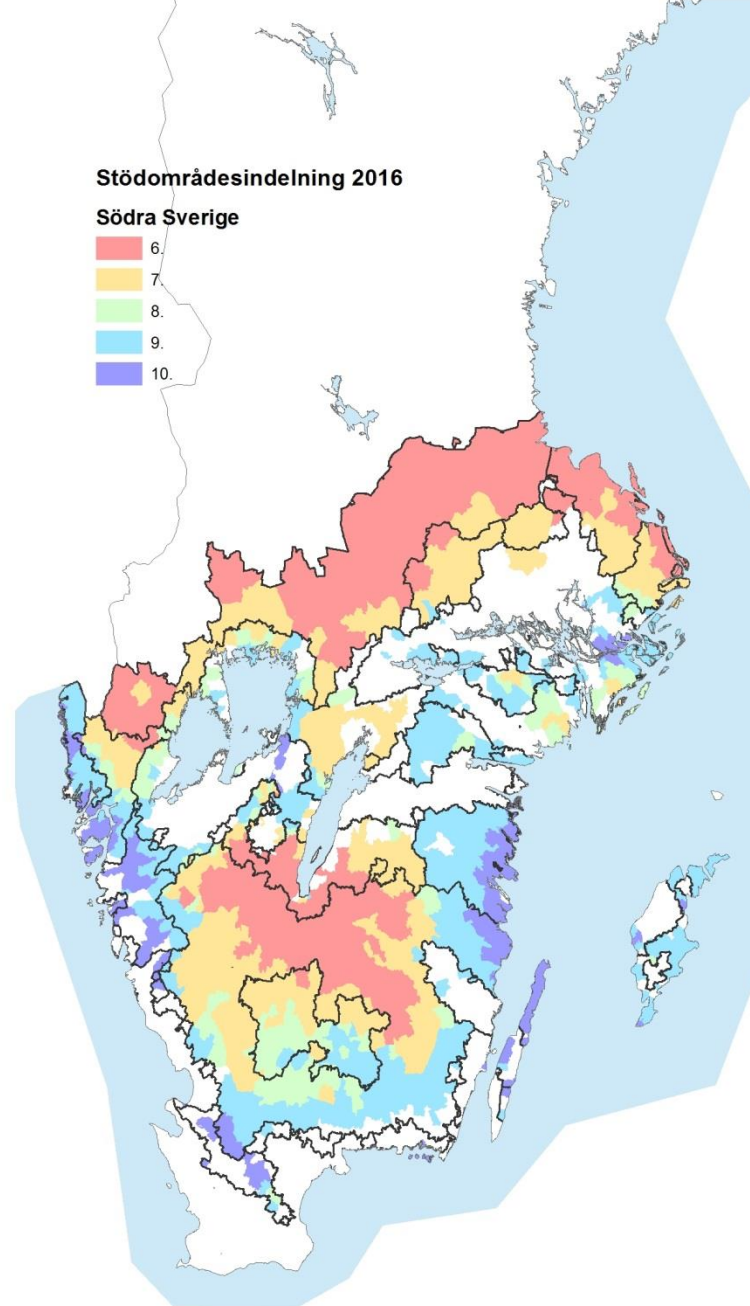


A continuous temperature span, no clear breaking points

Temperature sum
(degree C)

Temperature sums for parishes in mountain areas





Non-contiguous support zones

Support zones
in areas with
natural constraints

I. The process

1. Bio-physical criteria: Temperature sums
2. Fine-tuning: Yield
3. Zoning: temperature sums

Which criteria can be combined in the delimitation/finetuning/zoning process?

Not only temperature affect regional differences in outcome. Structure (small and scattered fields is another important factor.

If fine-tuning by using standard output/gross margin, is it then possible to use yield per hectare for zoning?

Standard output/gross margin for both steps?



II. Administrative unit

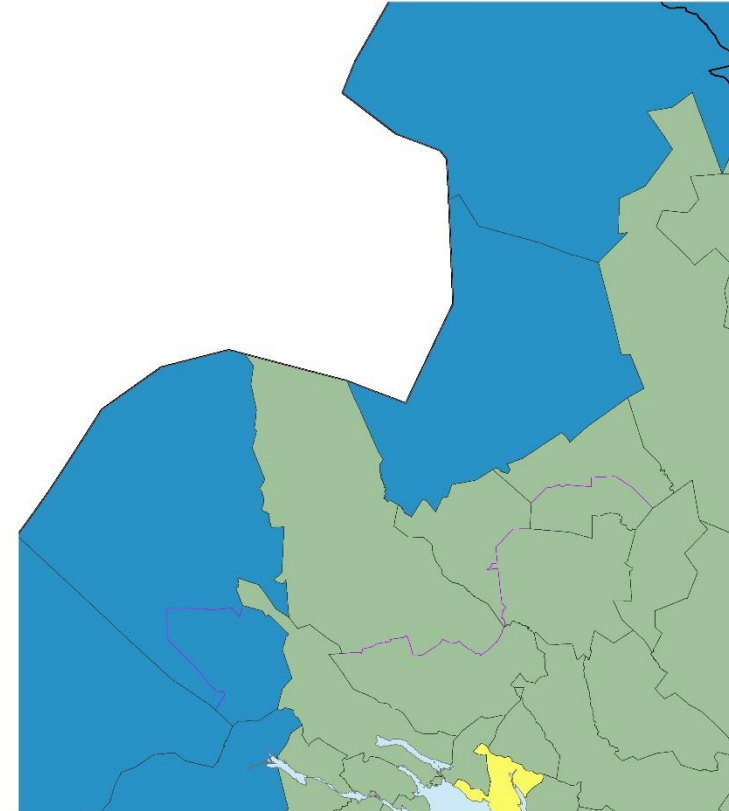
Smallest unit is parish

Before part of parish

Many parishes used to be divided into

- valley – mountain
- plain – forested areas.

Removing partial parishes results in less accuracy for the support.



Thank you!