

June 10, 2022



**Contaminated land and our global  
environmental challenge -  
Biodiversity**  
*Exemplified by a Swedish project*

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## How does old industry affect?



- Contaminants → Direct negative effects on flora and fauna or on the animal reproduction
- Occupied space and nature → local natural values and green infrastructure were affected



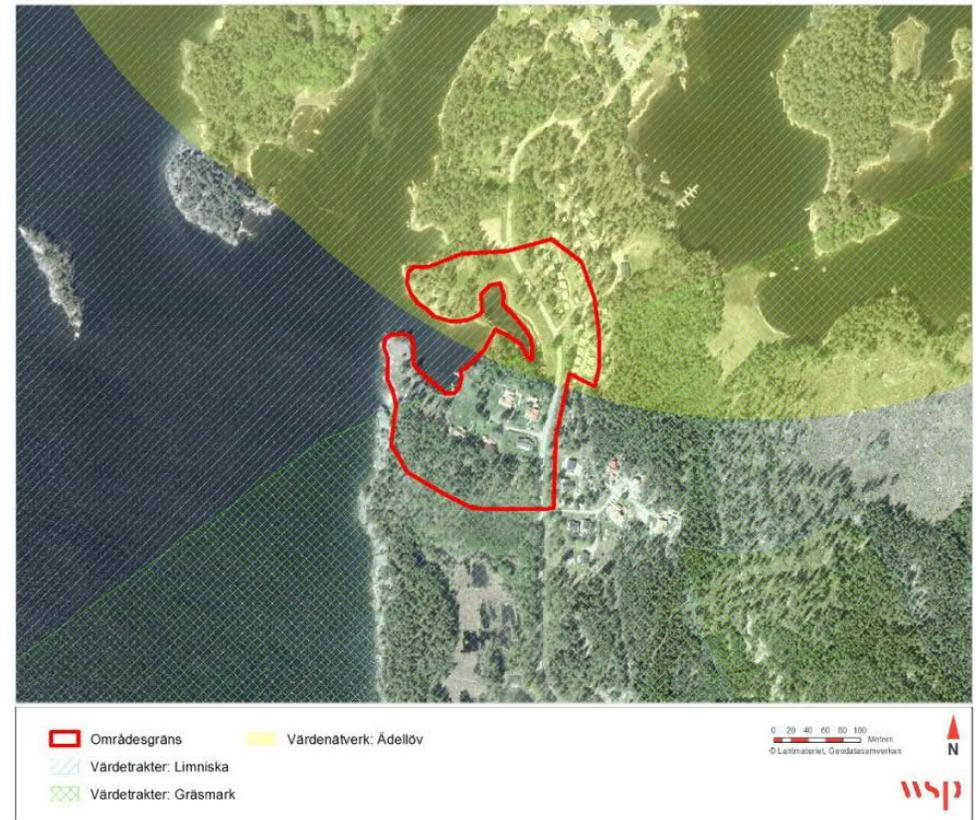
Aerial photo 1954 over Brandsnäs saw mill area (Torpöns hembygdsförening)



Cleared ground at Brandsnäs saw mill on orthophoto 1960 (Lantmäteriet)

## Value network for deciduous trees in northern part of Brandnäs former sawmill area

- High natural values in proximity throughout the landscape, with an ecological exchange
- Important link in the green infrastructure
- Vulnerability to exploitation
- Great potential to develop towards higher natural values

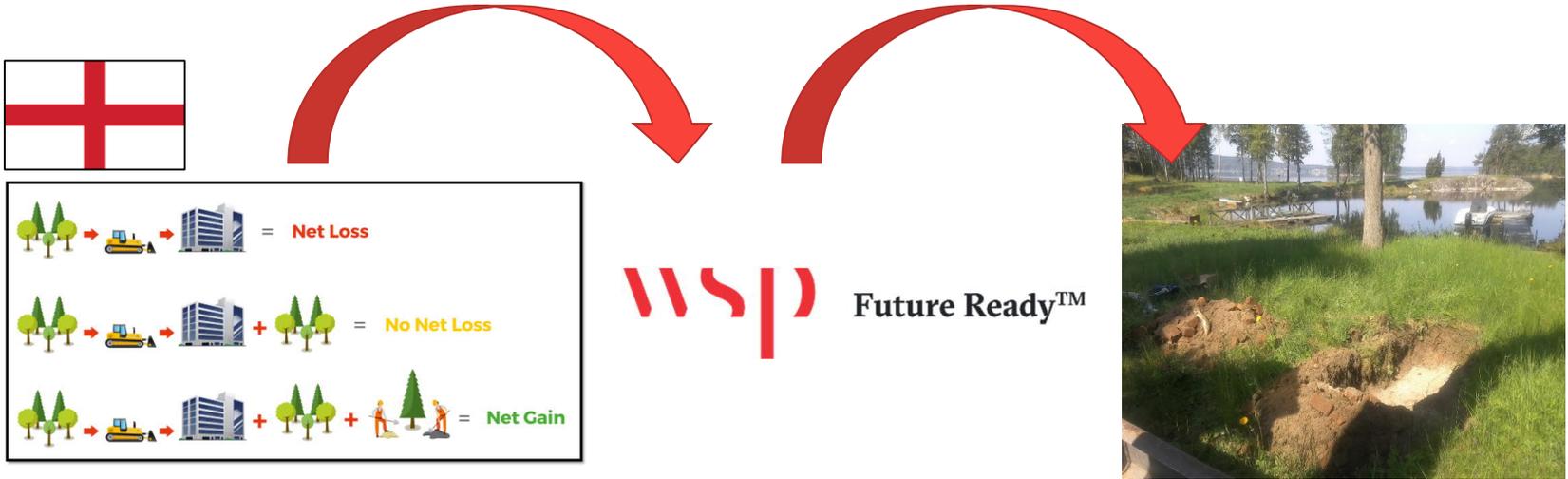


## Brandsnäs historical sawmill

- A state funded remediation project
- Heavily dioxine contaminated soil in a recreational house area, former sawmill with wood preservation 1918-1958



# Inspired from WSP UK

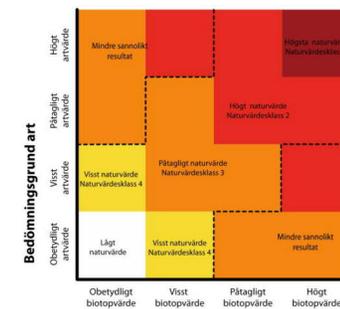


Inspired us to suggest the client (SGU) to take biodiversity into account in the remediation project and order an inventory of natural values, as a start. (SGU = the Swedish Geological Survey, project lead state funded remediations)

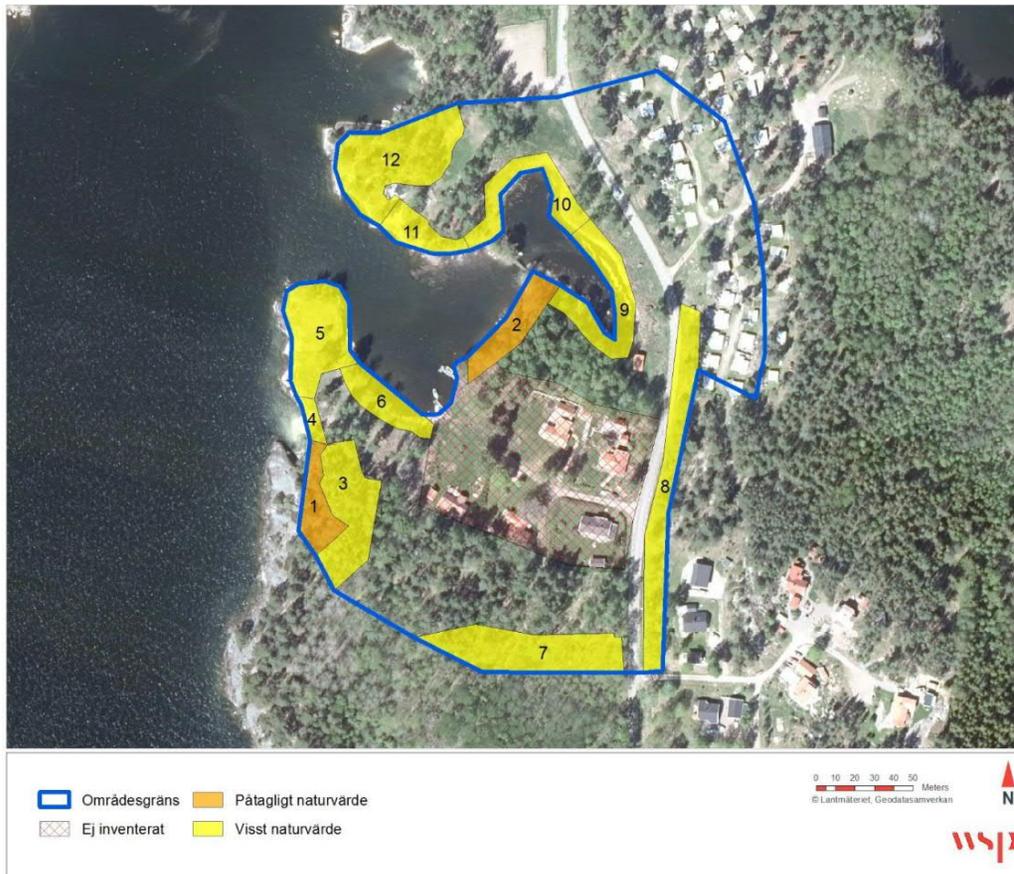
## Natural values and future potential at the site

We

- Combined expertise in contaminated soil and ecology
- Did an inventory of natural values and potentials to enhance the natural environment
- Brought in natural (and recreational) values in the evaluation criteria's when choosing remedial measure
- Took biodiversity into account in the restoration plan



## Natural values before the remediation

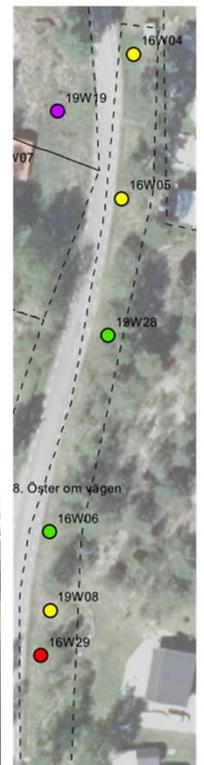


## Potential to enhance the natural values within the remediation project

- Conservation of coarser trees
- Promote the development of tree crowns (pine, oak) and younger oaks through careful thinning
- Management of the oak environment strengthens the value network for deciduous trees

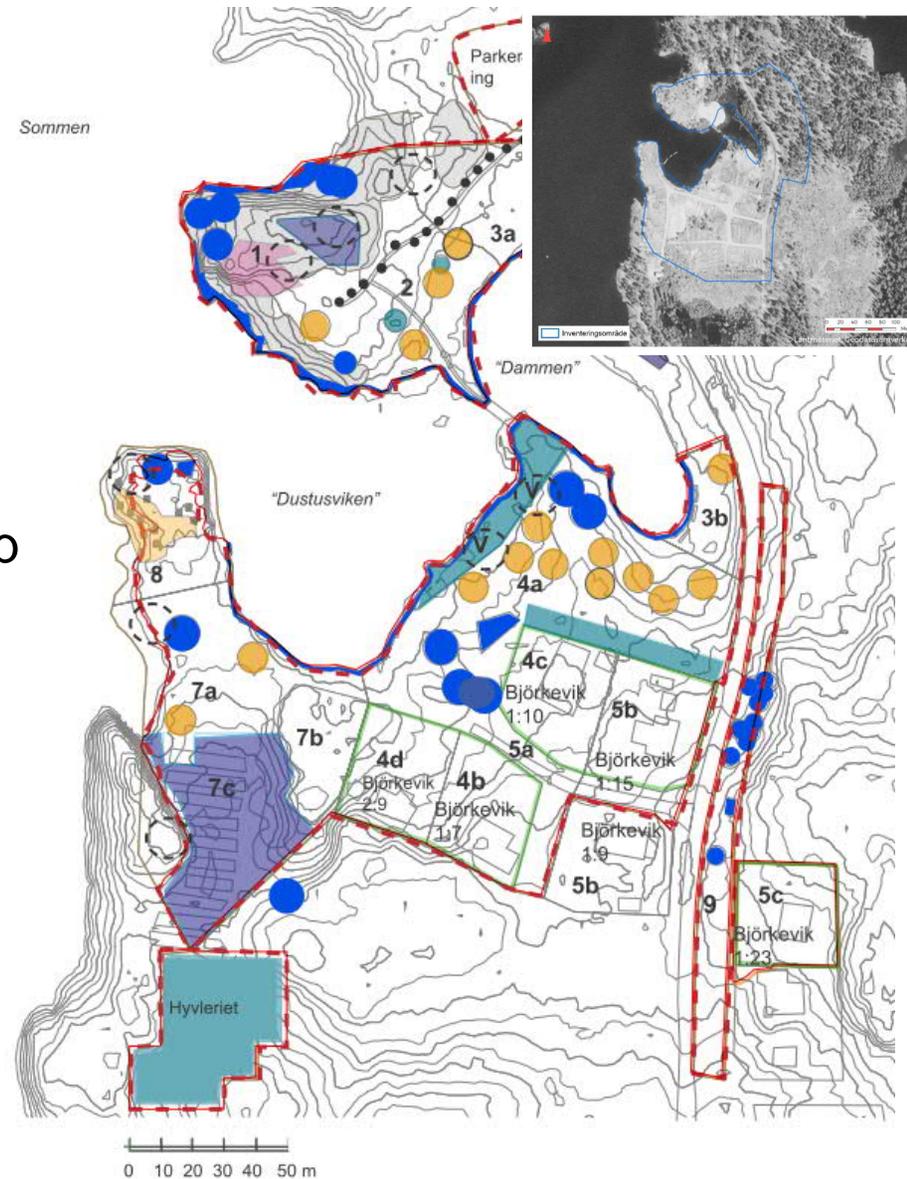


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## Restoration plan

- Biotope structures
  - dead wood, boulders, pine trunks in sunny spots
- Meadow seed in dry and damp parts
- Preservation of valuable trees and groups of trees
  - E.g. smaller oaks that can restore the former structure of deciduous trees in the future



## What is the possibility of preservation?

- Unacceptable risk / great need for action **and** a significant natural value in the shore environment in the central sawmill area
- How can the preservation be done?



## Approach during the remediation

- Dioxine contamination led to vast excavation
- Risk calculations made it possible to leave some amount of contaminated soil (below a maximum dioxine concentration) and save natural and recreational values
- Followed up during the remediation by sampling and estimating remaining volumes of soil



## The added ecological values

- Seed to create dry and wet medows (supporting insects)
- Preserved young oaks (enhance the green infrastructure)
- Some biotope structures (supporting insects)

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A scenic view of a lake with reeds, rocks, and trees. The water is calm, reflecting the sky. In the foreground, there are large rocks, some covered in moss, and tall reeds. The background shows a shoreline with trees and a small building.

**Thank you for listening!**

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