

Harvesting Common Reed for bioenergy and to improve the condition of Northern Karelian waters

Reedbeds on the shoreline of Lake Heposelkä

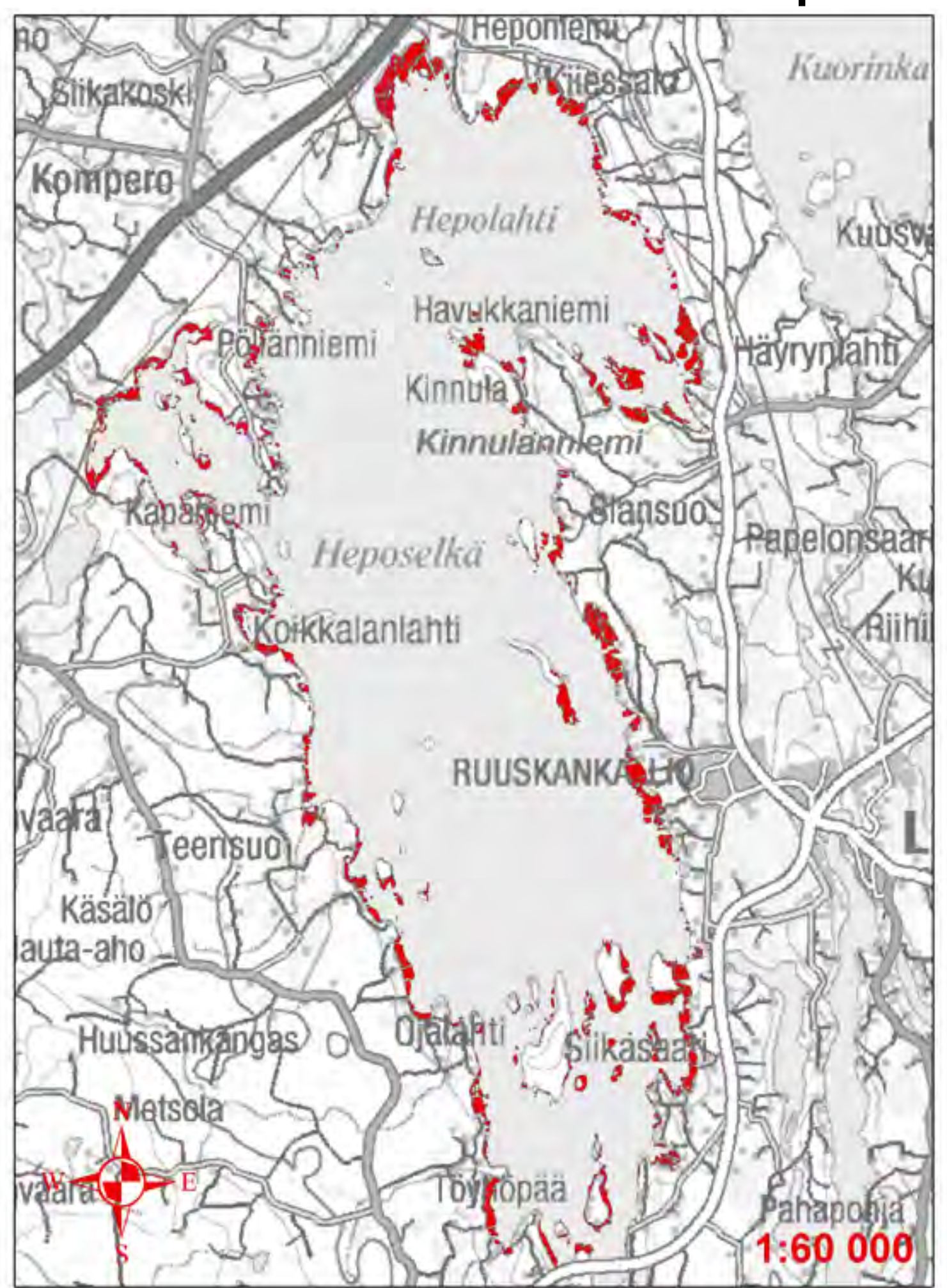


Figure 2. Reedbeds (marked with red) on the shoreline of Lake Heposelkä

Vast areas on the shorelines along the Lakes Heposelkä, Pyhäselkä and Ätäskö have been taken over by common reed (*Phragmites australis*).

Biodiversity and recreational use of the lakes has suffered due to these changes. There are not enough funds to restore even the protected areas on these lakes and estate owners can not afford to cut the reed or do dredging on their own. For example in Lake Heposelkä common reed is mainly seen as a nuisance by residents and cottage owners.

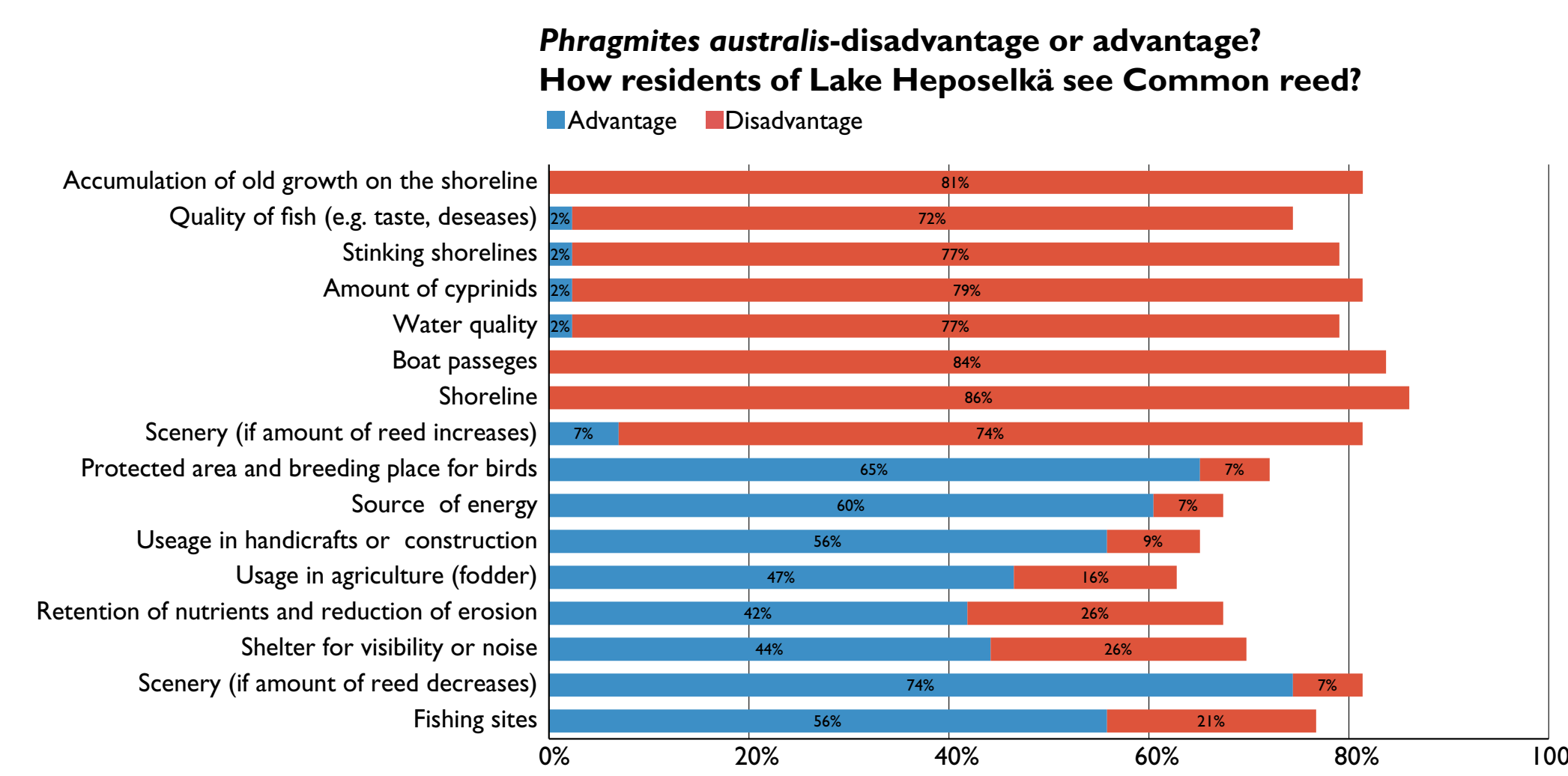


Figure 3. The residents of Lake Heposelkä experience common reed as disadvantage or advantage depending on the point of view



Figure 1. A view to Lake Heposelkä from the shoreline (Ilona Joensuu)

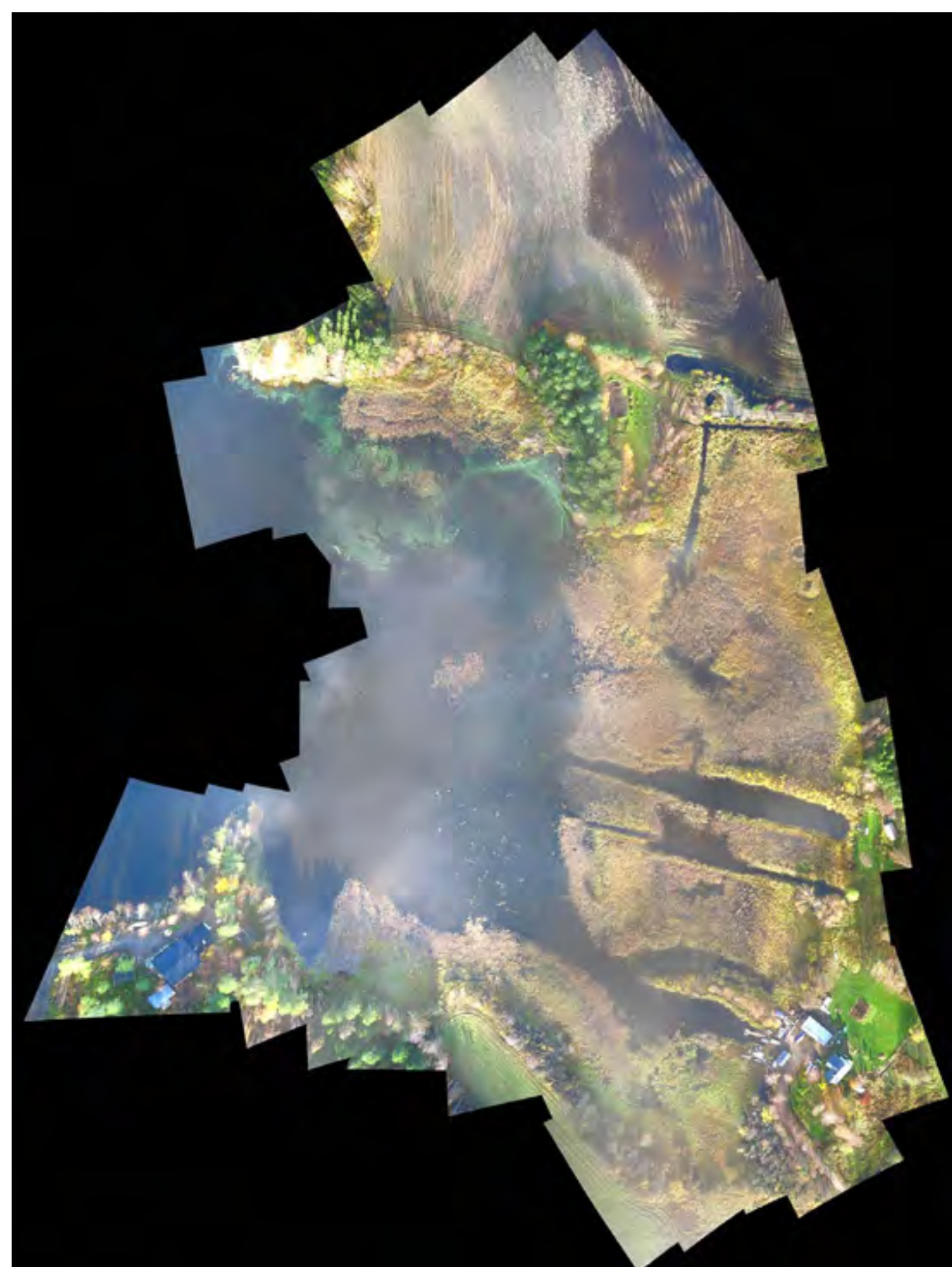


Figure 4. Aerial photographs and high resolution remote sensing data have been used to create 3-dimensional models of reedbeds. Models are used to estimate the amount of reedmasses. (Eugene Lopatin, Alpo Hassinen, Lauri Sikanen and Anna Lopatina)

We have developed new methods to survey the occurrence of Common reed and to estimate the amount of biomass in the reed beds. We have used satellite images, aerial photographs, high resolution remote sensing data and airborne Laser Scanning to do this.

Our aim is to create sustainable ways of restoring the shorelines to improve biodiversity and to encourage contractors to invest on

suitable technology and thus create jobs for the local people. In order to achieve these goals we need to have use for the biomasses gathered from the shores. In our project we try out different ways of using reed and sediment materials in order to find economically sound ways to restore the shorelines, and we use Life Cycle Assessment methods to do this.

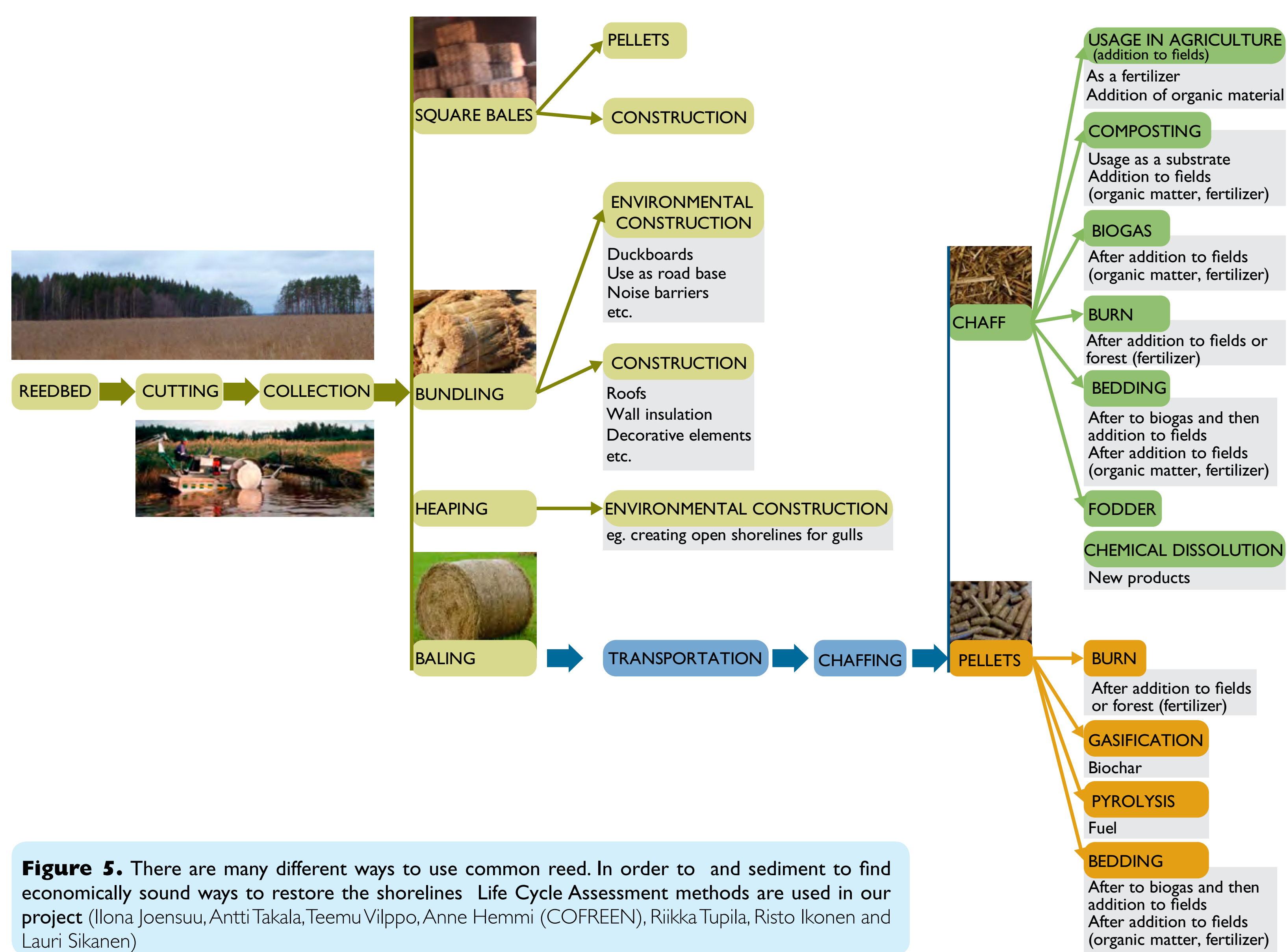


Figure 5. There are many different ways to use common reed. In order to and sediment to find economically sound ways to restore the shorelines Life Cycle Assessment methods are used in our project (Ilona Joensuu, Antti Takala, Teemu Vilppo, Anne Hemmi (COFREEN), Riikka Tupila, Risto Ikonen and Lauri Sikanen)

We also evaluate how the present environmental legislation allows these kinds of actions and develop methods to estimate the distribution and amount of reed on our study lakes. Due to our project we hope to improve biodiversity and environment as well as conditions for recreational use. As a result we hope to increase the value of estates on the shorelines, create new jobs in restoration and after use of the biomasses, as well as to maintain present jobs in tourism.



Figure 6. Common reed – There are many ways to look at it! (Eemil Tolvanen)