

# Environmental benefits and biomass production from riparian buffers and windbreaks in Europe

**SND-ID:** 2021-207-1. **Version:** 1. **DOI:** <https://doi.org/10.5878/yz9j-q902>

## Download data

riparian\_buffers.zip (11.69 MB)

windbreaks.zip (104.97 MB)

## Associated documentation

documentation\_buffers.pdf (23.92 KB)

documentation\_windbreaks.pdf (23.91 KB)

## Download all files

2021-207-1-1.zip (~116.71 MB)

## Citation

Englund, O. (2021) Environmental benefits and biomass production from riparian buffers and windbreaks in Europe (Version 1) [Data set]. Mid Sweden University. Available at: <https://doi.org/10.5878/yz9j-q902>

## Alternative title

Strategic deployment of riparian buffers and windbreaks in Europe can co-deliver biomass and multiple environmental benefits

## Creator/Principal investigator(s)

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## Research principal

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## Description

Three scenarios of large-scale deployment for riparian buffers and windbreaks, across over 81,000 landscapes in Europe, with quantified corresponding areas, biomass output, and environmental benefits.

Abstract:

Within the scope of the new Common Agricultural Policy of the European Union, in coherence with other EU policies, new incentives are developed for farmers to deploy practices that are beneficial for climate, water, soil, air, and biodiversity. Such practices include establishment of multifunctional biomass production systems, designed to reduce environmental impacts while providing biomass for food, feed, bioenergy, and other biobased products. Here, we model three scenarios of large-scale deployment for two such systems, riparian buffers and windbreaks, across over 81,000 landscapes in Europe, and quantify the corresponding areas, biomass output, and environmental benefits. The results show that these systems can effectively reduce nitrogen emissions to water and soil loss by

wind erosion, while simultaneously providing substantial environmental co-benefits, having limited negative effects on current agricultural production. This kind of beneficial land-use change using strategic perennialization is important for meeting environmental objectives while advancing towards a sustainable bioeconomy.

### **Data contains personal data**

No

### **Language**

[English](#)

### **Time period(s) investigated**

2000 - 2018

### **Data format / data structure**

[Geospatial](#)

### **Geographic spread**

Geographic location: [Europe](#)

Geographic description: EU27+UK

### **Responsible department/unit**

Dept. of Ecotechnology and sustainable building engineering

### **Research area**

[Environmental sciences](#) (Standard för svensk indelning av forskningsämnen 2011)

[Environmental management](#) (Standard för svensk indelning av forskningsämnen 2011)

[Agricultural science](#) (Standard för svensk indelning av forskningsämnen 2011)

[Renewable bioenergy research](#) (Standard för svensk indelning av forskningsämnen 2011)

[Environmental sciences related to agriculture and land-use](#) (Standard för svensk indelning av forskningsämnen 2011)

[Farming](#) (INSPIRE topic categories)

[Environment](#) (INSPIRE topic categories)

### **Keywords**

[Energy resources](#), [Hydrography](#), [Land cover](#), [Land use](#), [Soil](#), [Windbreaks](#), [Biomass](#), [Riparian buffers](#), [Land use](#), [Luc](#), [Soil carbon](#), [Erosion](#), [Nitrogen emissions](#), [Perennial crops](#), [Ecosystem services](#), [Environmental impacts](#), [Flooding](#)

### **Publications**

Englund, O., Börjesson, P., Mola-Yudego, B., Berndes, G., Dimitriou, I., Cederberg, C., & Scarlat, N. (n.d.). Beneficial land-use change in Europe: deployment scenarios for multifunctional riparian buffers and windbreaks. <https://doi.org/10.21203/rs.3.rs-128604/v1>

**DOI:** <https://doi.org/10.21203/rs.3.rs-128604/v1>

**URN:** <urn:nbn:se:miun:diva-42079>

If you have published anything based on these data, [please notify us](#) with a reference to your publication(s). If you are responsible for the catalogue entry, you can update the metadata/data description in DORIS.

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Access to data through SND  
Data are freely accessible

### **Use of data**

[Things to consider when using data shared through SND](#)

### **License**

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### **Versions**

Version 1. 2021-07-09

### **Contact for questions about the data**

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### **Related research data in SND's catalogue**

[Environmental impacts and mitigation effectiveness of strategic perennialization](#)

### **Download metadata**

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