

Riparian Forest Buffer Protection



Riparian buffer zones are habitats along rivers and lakes. Riparian forest buffers or riparian woody buffers are treed corridors along water bodies. They are multifunctional natural measures that can 1) reduce flooding by storing water, infiltrating water, but also increasing evapotranspiration; 2) stabilize riverbanks with their rooting system; and 3) filter nutrients and sediments before entering water bodies. The official protection of habitats can be performed by setting up nature conservation areas. Selected habitats may be important and valuable (e.g., for flood risk reduction) for the region or endangered.

Overview

Type	Green
Approach	Protection
Hazard	They can be preserved to reduce the risk on Riverine Flooding .
Multi-hazard	The riparian zone also functions as a buffer between land and water and can filter out pollutants. Therefore, riparian buffers can attenuate Eutrophication . Treed landscapes provide protection and stabilisation for riverbanks to prevent Landslides .

SDGs



Direct Benefits

Runoff Storage

Treed riparian buffers have a greater capacity to store runoff water than other land cover types. Nonetheless, they do not reach capacities of other Nature-based Solutions such as ponds. Their retention and storage capacity depends on various factors, e.g., the soil, the climate region, and the tree density.

Slow Runoff

In general, the riparian forests have the ability to slow surface runoff and, during flooding, also river runoff.

Co-benefits	<p>Water Quality</p> <p>Riparian buffers are transitional zones between land and water. They filter pollutants such as phosphor or nitrates and preventing them from entering surface water bodies and the groundwater.</p> <p>Soil Conservation</p> <p>Forest covers can retain eroded sediments but also stabilise riverbanks with their rooting system. These functions can prevent sediments from entering the water.</p> <p>Biodiversity</p> <p>Protecting riparian buffers has several advantages for biodiversity of flora and fauna. Shade of the trees can regulate the water temperature which can be beneficial for fish populations. Furthermore, fish populations can increase due to natural woody shores which function as breeding places or organic food provision.</p> <p>Carbon Storage</p> <p>The protection of riparian forest areas will preserve existing carbon storage and sequestration in vegetation and soil.</p>
Costs	<p>Costs can be the reimbursement of landowners and maintenance costs (including salaries and management materials).</p>
NBS Related Policies	<p>EU Biodiversity Strategy for 2030 EU Birds and Habitats Directives International Convention on Biological Diversity Water Framework Directive Floods Directive European Green Deal EU Forest Strategy for 2030</p>
Funding Options	<p>Rural Development Programme LIFE+ Climate Action EU Green Deal</p>

NBS Suitability Mapping

(Below are the layers and specifications listed that were used for analysing the suitability of this Nature-based Solution for your area)

Land Cover	<p>Forest and semi-natural areas [LUISA Base Map 2018, Batista and Pigaiani, 2021]</p>
Canopy Cover	<p>80-100 % [Tree Cover Density 2018, Copernicus Land Monitoring Service]</p>
Protected areas	<p>Protected areas (areas that are not yet protected)</p>
Infrastructure	<p>Buildings (areas without buildings) [ESM, Corbane and Sabo, 2019]</p>

References

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