BIOLOGICAL AND PHYSIO-CHEMICAL IMPACTS

VEGETATION AND ECOSYSTEM

Environment
Engineering
Energy
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BIOLOGICAL AND PHYSIO-CHEMICAL IMPACTS

Vegetation and ecosystem

The target of the analysis of this environmental component is the individuation of the characteristics natural plants association of the area, to point out either the presence of great value elements or direct and indirect interferences produced by the construction of the work.

The vegetable cover of a land can be considered under a lot of points of view: if we study single species we remain into the floristic study and we study Flora; on the other hand, if we study the association of different species, relating to the surrounding environment, we study vegetation.

The word “ecosystem” means the whole of biotic and abiotic components of a land and their evolutionary and dynamic interaction. The analysis of vegetable, floristic, faunistic, land use, morfological and anthropic aspects able us to characterize homogeneous ecological units.

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Vegetation and ecosystem

In relation to the impacts on vegetation and ecosystem we can have direct and indirect interferences on vegetation around the construction site and around the work for a short radius while we have a greater area of influence (impact) for fauna and ecosystem.

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Vegetation and ecosysytem

The ecosystems present in mountain areas can be assemble in different typology on the basis of their sensibility, decreasing with human relationship.
Here we have a list of ecosystems classified on the basis of their level of sensibility in relation to eventual interferences:

- **Forest ecosystem _____HIGH sensibility**
- **Fluvial ecosystem _____HIGH sensibility**
- **Pond ecosystem _____HIGH sensibility**
- **Shrubs ecosystem _____ MEDIUM sensibility**
- **High mountain grass-land ecosystem__ MEDIUM sensibility;**
- **Semi-natural areas ecosystem _____ LOW sensibility;**
- **Rural ecosystem_____ LOW sensibilty;**
- **Urban and antropic ecosystem _____LOW sensibility**

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Vegetation and ecosysytem

Here we have a list of some of the potential impacts for the Vegetation and ecosystem environmental component during construction:

- **Alteration and evolution of vegetable communities;**
- **Removal of vegetation (felling);**
- **To cause inconvenience to terrestrial fauna and birds;**
- **Direct interference with habitat.**

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Vegetation and ecosysytem

Here we have a checklist of the potential impacts for the Vegetation and ecosystem environmental component during operation:

- **To cause inconvenience to terrestrial fauna and birds;**
- **Interruption of faunal moving corridors;**
- **Interference with migratory route;**
- **Direct interference with habitat.**

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Vegetation and ecosystem

- **Alteration and evolution of vegetable communities**

Inconvenience and alteration on vegetable communities, together the felling of portion of vegetation, can induce a progressive regression in the direction of less complex dynamic stage, until the complete elimination of the vegetable association.

- **Removal of vegetation (felling);**

We can have direct interference with vegetation during construction when we build a construction site or a track , and during the operation with the felling of vegetation in correspondence of the trace of the work.

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Vegetation and ecosystem

- **To cause inconvenience to terrestrial fauna and birds**

An important interference with fauna is noise farther nocturnal lights (either during construction or during operastion). During construction some refuges can be destroyed and the noise of truck and excavator can trouble coupling and the quest of food. These troubles are greater during spring and autumn. The impacts during the construction phase are always reversible and it stops when the construction site stops.

- **Direct interference with habitat**

In case of new works in a territory one of the most frequent interference with ecosystem is the fragmentation of habitat with relapses on biodiversity of that territory. The fragmentation of habitat crates patches with consequent alteration processes, especially in forest, where boundary areas will be liable to the invasion of other non-autochthonous vegetal species. We can have relapses also on fauna, that will be more exposed to predation (for example the nests of birds).

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- **Interruption of faunal moving corridors**

This kind of impacts originate from the construction of high road or railway earth embankments, running on half-slope or in alluvial valley.

- **Interference with migratory route**

This kind of impacts originate from the construction of high vertical growth works, like wind farm, with towers 100 meters high and rotors 50 meters of radius (total 150 meters).

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Vegetation and ecosystem – Critical areas

- **Forest**

High biodiversity;

Hydrogeologic protection;

Ecological network

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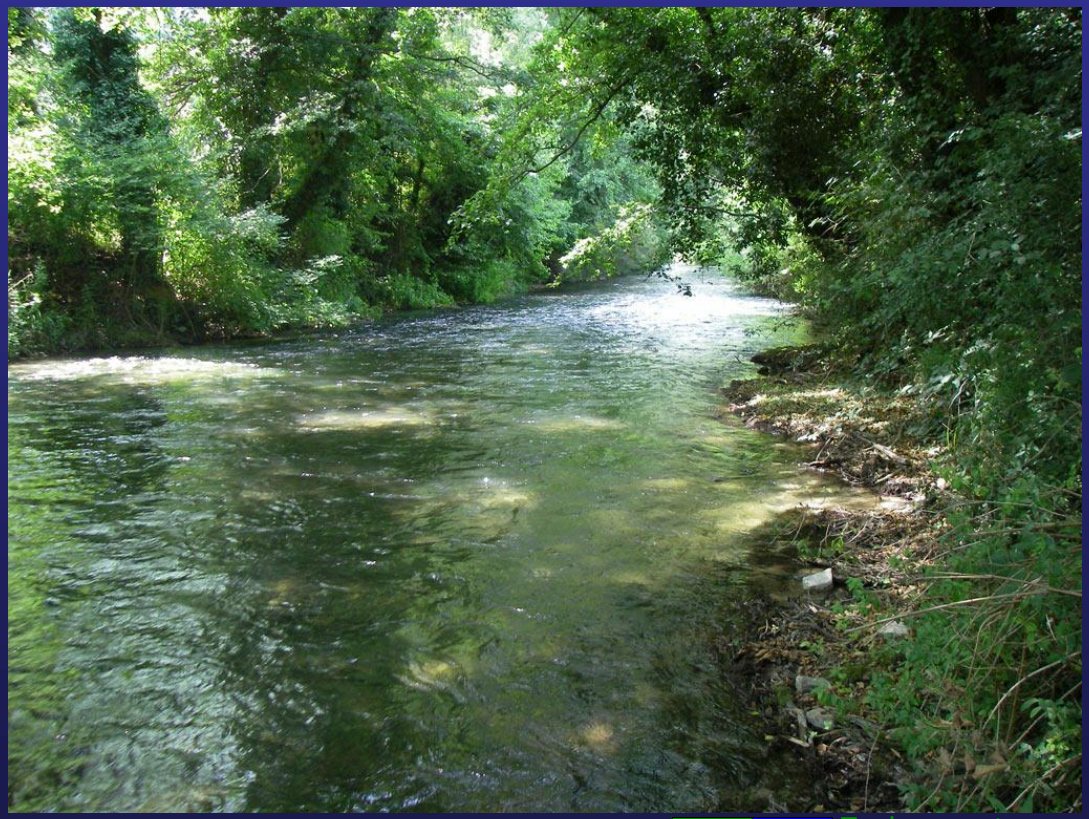
Vegetation and ecosystem – Critical areas

- **Rivers and adjacent plants**

High biodiversity;

Hydrogeologic protection;

Ecological network



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Vegetation and ecosystem – Critical areas

- **Hedge**

Ecological network

BIOLOGICAL AND PHYSIO-CHEMICAL IMPACTS

Vegetation and ecosystem – Critical areas

- **Great value Habitat**

High biodiversity

Environmental protection

BIOLOGICAL AND PHYSIO-CHEMICAL IMPACTS

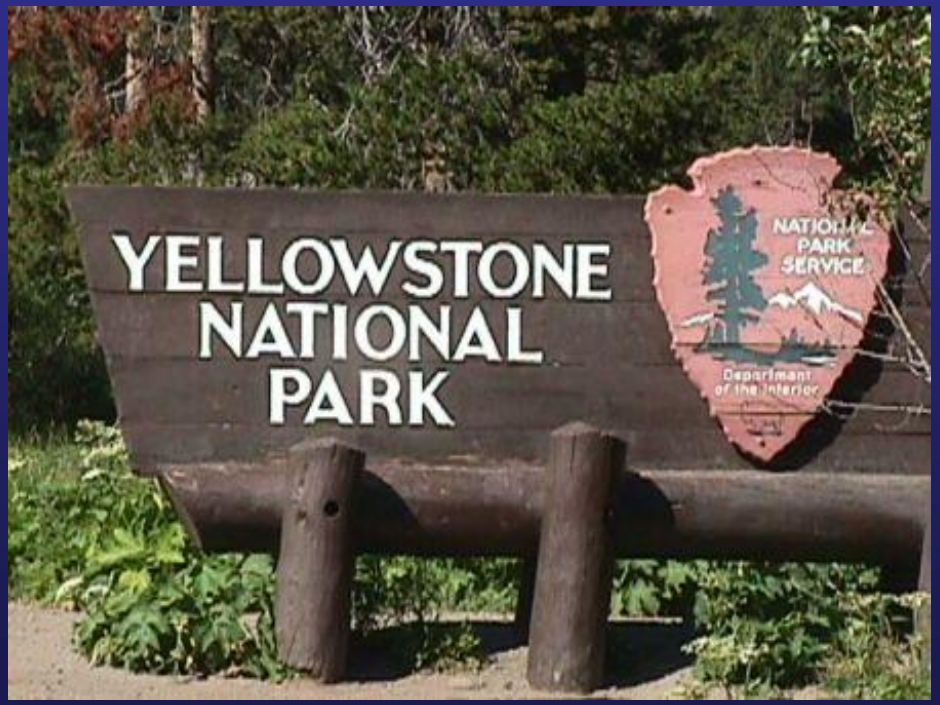
Vegetation and ecosystem – Critical areas

- **National, regional and local parks**

High biodiversity

Environmental protection;

Ecological network



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Vegetation and ecosystem – Critical areas

- **Monumental trees**

Environmental protection

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Vegetation and ecosystem – Mitigation measures

Here we have some examples of mitigation measures for environmental component "Vegetation and ecosystem" and some examples of environmental restoration for critical and sensible areas :

- **shrubs hedge;**
- **ecological net;**
- **fauna underpass.**

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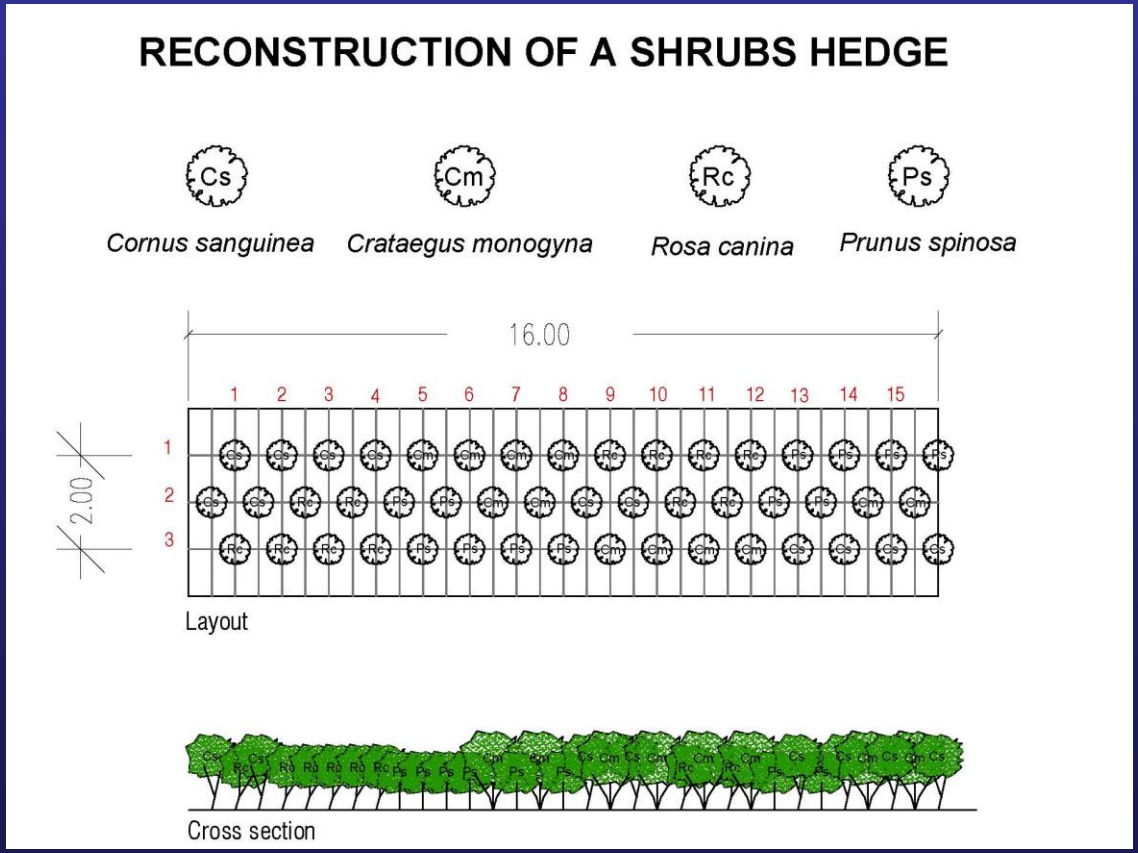
Vegetation and ecosystem – Mitigation measures

- <u>srhubs hedge</u>

IMPORTANT:

- **All the species must be autochthonous**
- **More species means more biodiversity and more taking root**



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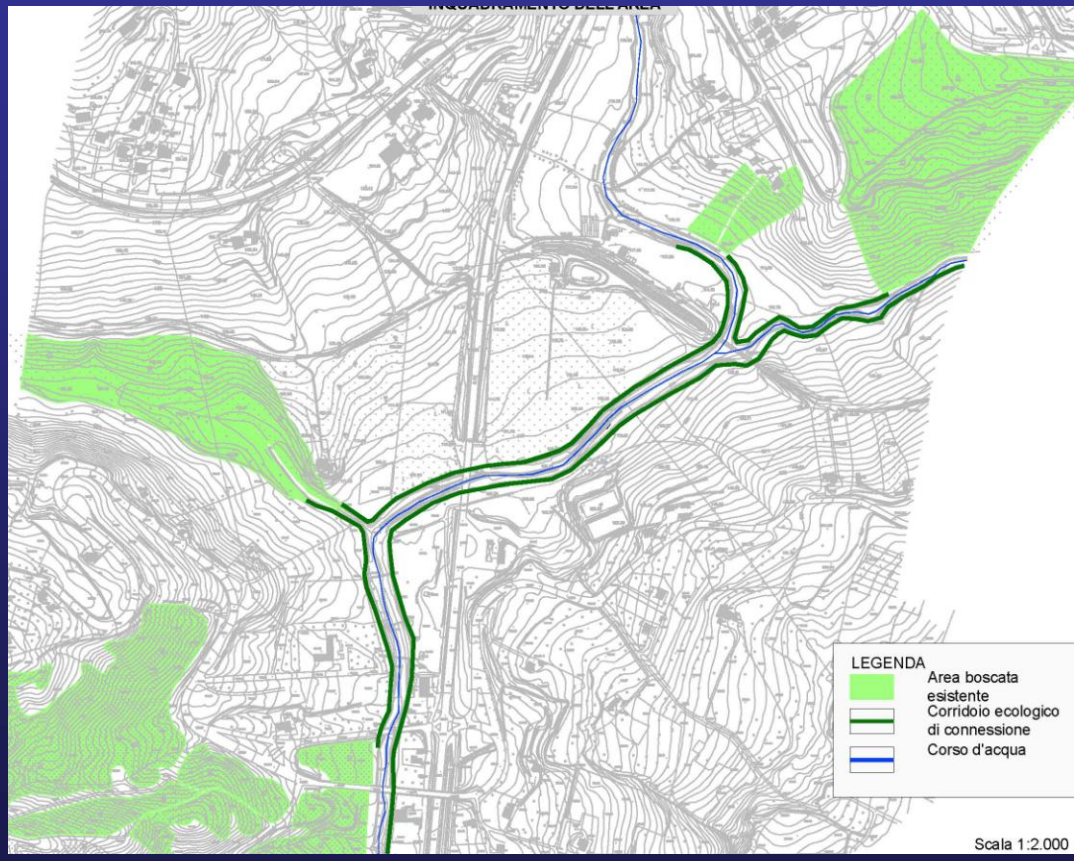
Vegetation and ecosystem – Mitigation measures

- ecological net

IMPORTANT:

- **All the species must be autochthonous**
- **The ecological net is much important as much more areas are connected**



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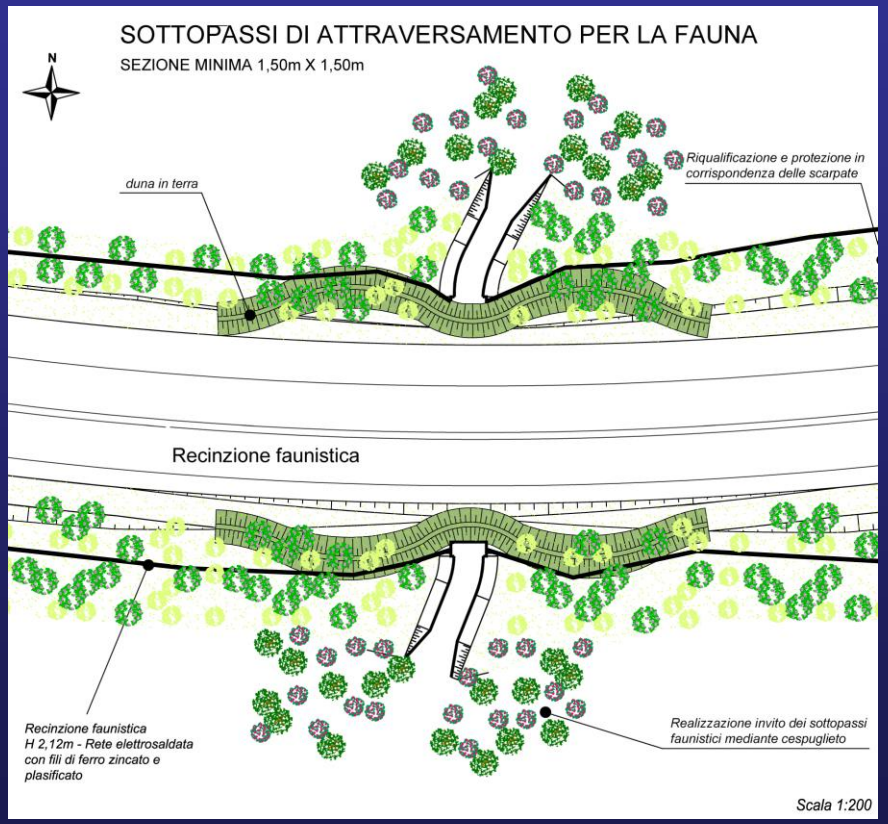
Vegetation and ecosystem – Mitigation measures

- **fauna underpass (plan)**



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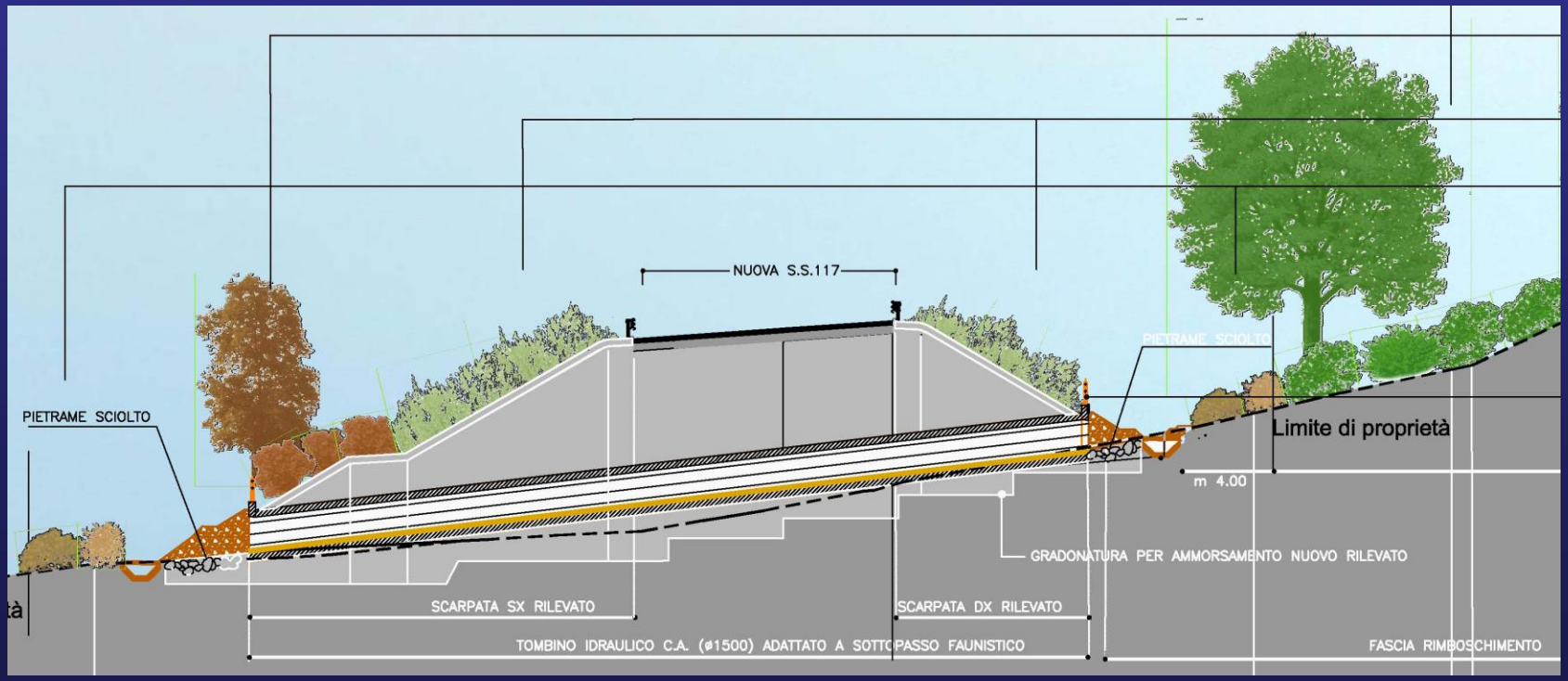
Vegetation and ecosystem – Mitigation measures

- **fauna underpass (cross section)**



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Vegetation and ecosystem – Mitigation measures

- **fauna underpass**