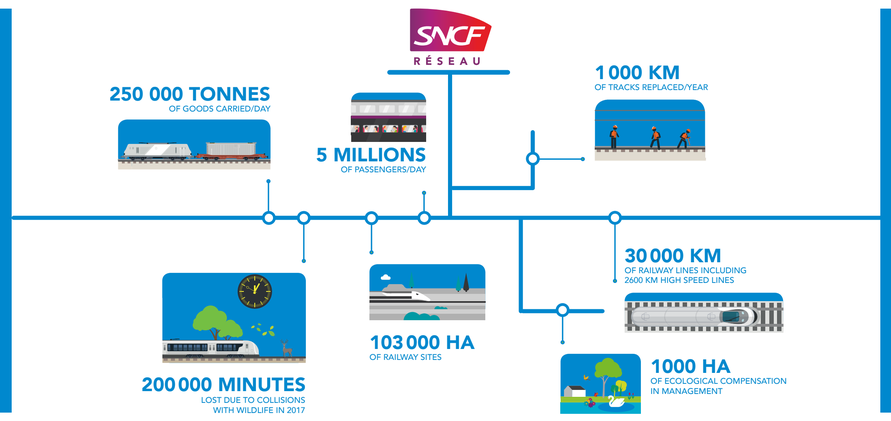
DETERMINATION OF THE ECOLOGICAL POTENTIAL OF SNCF RESEAU'S «NON RAIL» LAND

SNCF RÉSEAU IS THE MANAGER OF THE FRENCH NATIONAL RAIL NETWORK.

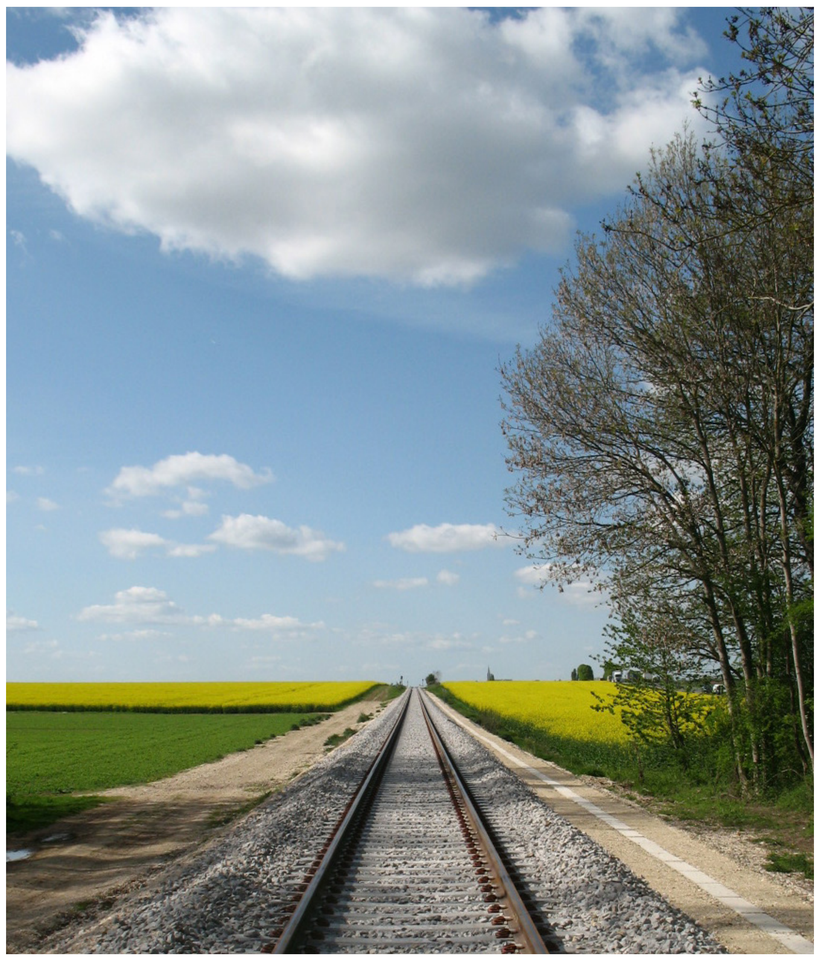
SNCF Réseau's missions concern the operation, maintenance and modernisation of the network, with a view to sustainable development. SNCF Réseau ensures the optimum use of the network by passengers and freight transport services, in accordance with the objectives of safety, quality of service and cost control, and by guaranteeing the conditions for free and fair competition to railway undertakings.

To offer a quality public service and in order to promote rail transport in France, SNCF thus ensures :
· The access to the national network to the railway undertakings,
· The operational traffic management,
· The upkeep and maintenance of network,
· The network modernisation and development.



SNCF RÉSEAU, 2nd LAND OWNER IN FRANCE.

SNCF Réseau owns 100,000 hectares of land.
40% are technical and active railway installations and are necessary for the operation of the network : tracks, equipment, buildings, yards.
60% have no technical vocation and are composed of «non-rail» tracks and rights-of-way: disused tracks, equipment and buildings, green outbuildings, historical land stock, surplus linked to acquisitions.
SNCF Immo manages all the real estate assets and has two missions : on the one hand, it manages disposals, particularly in urban areas for development projects, and on the other hand it manages temporary leases or occupations via agreements. The uses can be diverse: temporary activities, greenways or bicycle-rail on closed but not sold lines, precarious installations such as photovoltaic panels, beekeeping, etc.
SNCF Réseau also manages around 1000 ha of land supporting ecological compensation prescribed as part of network modernisation and development projects. On rare occasions, some of these compensations could take place on SNCF Réseau land.



ASSESSMENT OF SNCF RÉSEAU'S ECOLOGICAL LAND SERVICES

Ecological services, or ecosystem services, are defined as the services provided by nature and ecosystems to regulate the cycles governing the functioning of the planet (water, climate, carbon, etc.), the production of organic or mineral resources, and the well-being associated with nature and landscapes. Ecosystem services refer to the value of nature and ecosystems because they provide goods and services necessary for human well-being and development. They may be assigned a monetary value.
To complete the discussions on the ecological potential of SNCF Réseau's non-technical land, a study on the evaluation of ecological services in the same area was launched in 2018, to inform the development of SNCF Réseau's land development strategy. It was entrusted to Icare & consult.
It consisted in evaluating the monetary value in €/ha of the different land use modes identified on SNCF Réseau's land as part of the study on ecological potential. This assessment at this stage is based solely on the existing literature on the ranges of values for different land uses. Bibliographic values indicate that aquatic and wetlands display the most important values because of their primary role in the water cycle, resource production, biodiversity or landscape. In contrast to the scale of values, we find dense urban fabrics that leave little room for nature and its services.
Thus, this evaluation estimates the overall value of «non-rail» land in its current state:
· LOT 1 (734 ha), between €1.8 M and €4.4 M
· LOT 2 (650 ha), between €2 M and €6.1 M

In addition to monetary value, a biophysical assessment of ecological services was conducted. It has shown that these areas, because of their dominant plant character, contribute significantly to biomass production, carbon sequestration, regulation of the water cycle or local climate (cool islets), biodiversity or landscape, and wetlands and/or woodlands more significantly than other environments.

BACKGROUND AND OBJECTIVES OF THE STUDY

SNCF Réseau wishes to identify the ecological potential of its land heritage, which has no or no longer any railway vocation, in order to envisage possibilities for managing this land in favour of biodiversity or the environment.

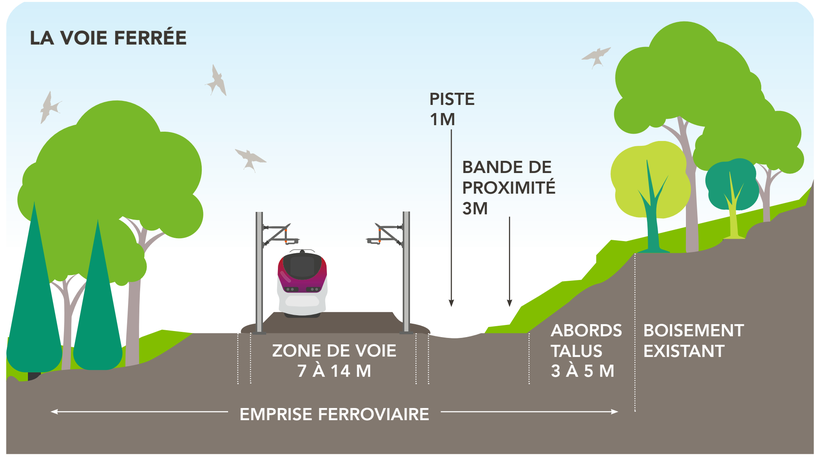
What are the land management issues for SNCF Réseau ?
· A maintenance issue for SNCF Réseau's properties :
The railway rights-of-way used as part of the commercial service are regularly maintained, with a high level of requirement to meet the safety objectives of traffic and agents. This maintenance pressure is greatly reduced on rights-of-way where there is little or no need for service, but the owner's obligations and responsibilities in terms of public health and safety remain.
· A valuation issue : All of this land is intrinsically valuable. At a time when land is becoming scarcer, and in a concern for sustainable development, properly managing the various possible developments of these areas becomes a strategic challenge for the company.
· A biodiversity issue : Better management of the railways' surroundings, improving land ecological continuity and reducing spatial fragmentation are all actions that serve both the regularity of rail services and biodiversity.
SNCF Réseau would also like to use its available land to meet the requirements of compensatory measures for biodiversity as part of its modernisation and development projects, or to offer land to other project owners with this type of need.

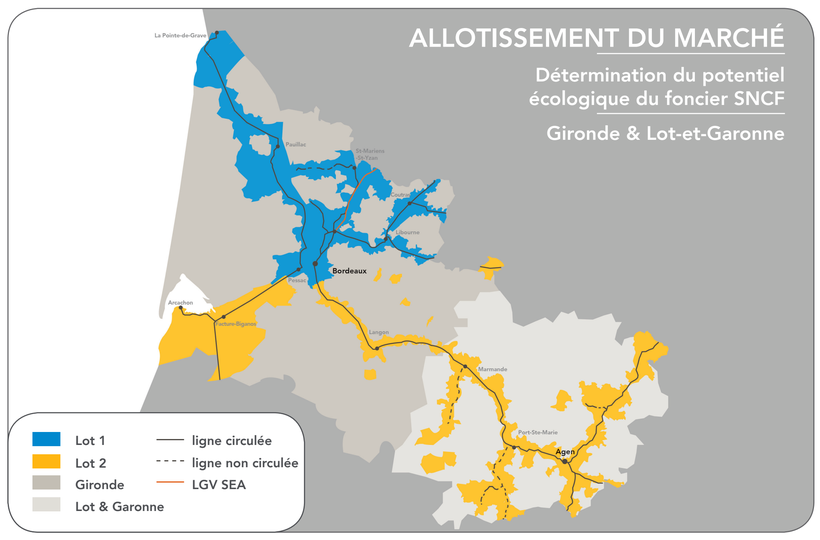
An exploratory study to lay the foundations for ecological and sustainable land management
In the autumn of 2017, SNCF Réseau launched a study on two departments in south-west France to identify the ecological potential of this land and to consider the possible uses: the need for compensatory measures or other possible uses in favour of biodiversity or the environment.
The study is exploratory in nature and seeks to develop an evaluation methodology:
· scientifically acceptable;
· shareable with our stakeholders;
· reproducible on the national territory.

The overall approach includes the following steps:
STEP 1: sorting of the plots to be used for the evaluation of SNCF Réseau's property holdings as a whole
STEP 2 :
· determination of the ecological potential of the selected plots on the basis of bibliographic data, available naturalist inventory data, aerial photographs and a few days in the field;
· prioritisation of identified potentials by level of ecological interest ;
STEP 3 :
· identification of ecological recovery actions: for land identified as having the most interesting ecological potential, guidelines are proposed to maintain the identified potential pending a specific ecological recovery, or to amplify the identified potential with a view to compensatory measures;
· identification of other environmental recovery actions: for land with no or low ecological potential, other possible environmental or sustainable recovery methods are proposed.
Two different methodological approaches have been developed to compare the advantages and limitations of each.

COMPARISON OF METHODS AND MAIN LESSONS LEARNED

	LOT 1 – NORTH GIRONDE 1 560 ha / 3 433 cadastral parcels	LOT 2 – SOUTH GIRONDE AND LOT-ET-GARONNE 975 ha / 1 552 cadastral parcels
	Urban and suburban areas of the Bordeaux conurbation and surrounding areas Rural, predominantly agricultural/viticultural and forestry	Dominant agricultural and forest areas Some urbanized sectors around the Arcachon basin and the cities of the Bordeaux-Agen axis
STEP 1	· Removal of all plots identified as potential-free or non-recoverable (technical use, waterproofed, etc.) · Sorting of remaining land according to three criteria: land use + presence/absence of wetlands + presence/absence of a watercourse · Application of a reliability criterion to the data used **=> 734 ha conserved**	· Exclusion of artificial parts (railways, roads, car parks, buildings) but not the surrounding area or associated gardens, to create a homogeneous lot of «non-mineralized surfaces». · Exclusion of isolated parcels in the heart of mineralized zones by application of criteria related to the size of the parcels and their vicinity **=> 650 ha conserved**
STEP 2	· Photo-interpretation of areas of low reliability + consideration of known fauna-flora data + occasional field visits · Evaluation of the ecological potential by a GIS calculation taking into account the land cover, the reliability of the data used and the proximity of remarkable fauna or flora species · Hierarchy into three categories : **=> Area with high potential = 217 ha** **=> Area with medium potential = 322 ha** **=> Area with low potential = 225 ha**	· Qualification of the vegetation cover of «non-mineralized areas» using public databases + known fauna-flora data a+ photo-interpretation + specific field visits · Taking into account the neighbourhood in terms of biodiversity (zoning + species) · Evaluation of the ecological potential by a GIS calculation taking into account these parameters and weighting criteria to highlight the strongest potential in terms of biodiversity **=> Area with high potential = 174 ha**
STEP 3	· Proposal of a catalogue of creation, restoration or conservation measures for each homogeneous sector identified, according to the identified potential · Evaluation of the expected ecological benefit according to the invested euros · Proposal, for the areas eliminated by the sorting process or those with the lowest ecological potential, of three other environmental recovery axes: photovoltaic or forestry or agriculture land use	· Drawing up descriptive sheets for each identified unit, proposing the ecological management to be implemented, the management costs, the expected ecological gains, and the partnerships to be set up · The proposed measures are adapted to the identified potential and to the eco-landscape framework of the neighbourhood => they include the dimension of ecological continuity and the creation of biodiversity. · Many proposals for other environmental valuation methods are detailed, specifying the gains, risks and possible partners.
BALANCE SHEET	· The product model is an agile decision-making tool. It allows a quick reading of the potentials present, providing easy access results for non-experts to guide first-line choices. · The process is generally well automated. It is based on bibliographic data and applies on a large scale. It is easily reproducible in other territories. · It excludes few plots compared to the initial volume, and makes it possible to classify a large part of the «non-rail» land according to criteria of ecological potential, from the weakest to the strongest. · The valuation axes are especially envisaged for biodiversity and from the only angle of a response to an ecological compensation prescription. · The model does not make it possible to dispense with a detailed diagnosis of the land, prior to a choice of valuation, and even more so for the implementation of ecological compensation.	· The product model is a decision-making tool. It is oriented towards the goal of environmental recovery, more than just ecological potential. · Even if it involves GIS routines and bibliographic data, it requires substantial expert intervention, limiting its possibilities for easy reproduction on a large scale or in other territories. · The level of reliability and precision of the analyses allows decisions to be made without the need for prior verification in the field. · The methodology used highlights the strongest ecological potential. · The biodiversity enhancement proposals, because they are envisaged in connection with the surrounding landscape, respond to several orientations: compensation, biodiversity creation, ecological continuity, with a real concern to create or improve ecological functionalities on a wider scale than just the SNCF land available. · There are numerous and precise proposals for other valorisation axes, allowing multiple responses to the specificities of a territory.





CONCLUSIONS

The vast majority of SNCF Réseau's «non-rail» land is characterised by:
· a specific geometry of the plots with mainly narrow and long lots along the railway tracks;
· land use difficult to determine, wastelands difficult to describe in terms of ecological habitats.
Large, contiguous plots of land, which a priori offer greater potential for development, are rarer. They correspond to the rights-of-way of closed lines, abandoned areas, yards and active station areas including still free land reserves or yards and disused station areas, and larger rights-of-way sometimes along tracksides, under viaducts, etc. An equivalent volume of land with high ecological potential, of the order of less than 30% of the volume of land selected for the study, is identified.

Nevertheless:
· the presence of significant areas with high ecological potential makes it possible to envisage the creation or restoration of quality environments in terms of biodiversity => creation or maintenance of biodiversity, possibilities for implementing ecological compensation
· the linearity of the spaces, makes it possible to envisage a real contribution of this land to the green fabric and to ecological continuities => creation or maintenance of biodiversity, reinforcement of ecological continuities, contribution to the fight against collisions with wild fauna
· subject to compliance with the safety conditions for rail operation, the linearity of this land crossing the territories also makes it possible to envisage a stronger interweaving of the transitions between the rural space and the rail right-of-way => development and maintenance in connection with agriculture
· it is also possible to develop part of this land to contribute to the production of renewable energy (mainly photovoltaic and biomass), to create landscaped areas in urban areas or develop urban agriculture punctually => contribution to the sustainable development of territories

The next steps will be used to:
· specify the methodological framework for land valuation and the conditions for its deployment in France,
· test the implementation of some possible actions, identify the necessary partnerships and evaluate the expected effects.
Ultimately, these databases will help guide valuation choices in full knowledge of the issues at stake and the expected benefits, as part of a coherent and ambitious strategy to enhance SNCF Réseau's land value.