



Grand Parc de Miribel Jonage

Location

Grand Parc de Miribel Jonage is mainly based in Rhône-Alpes area, and more precisely on the upper Rhône of Lyon (45° 48' 39" Nord 4° 56' 18" Est), in the Northwest of Lyon, France, covering the landscapes between the confluence of the Ain river with the Rhône and its entry into Lyon city. Besides a regional approach, for demonstration activities the studies will focus on 2-3 ha plots within this area.

Basic environmental characteristics

Topography

The study landscape's is at about 200 m asl, with a relatively flat topography except for adjustments related to dikes and some elevated points on riverside hills.

Climate

Lyon lies in the broad transition zone between the temperate oceanic climates of northern France, and the Mediterranean climates to the south (Köppen classification Cfb, maritime temperate climate). Although Lyon does not share the drier summers typical of Mediterranean climates, it has summer temperatures that are warmer than typical temperate oceanic climates. In contrast, Lyon does not exhibit the higher winter rainfall and cool summer temperatures typical of oceanic climates. Thus, Lyon appears to be located in the broad transition zone between these two climate types. The mean temperature in Lyon in the coldest month (January) is 3.2 °C and in the warmest month (July) 22 °C. The winter months are the driest, but in general precipitation is relatively evenly distributed over the year, with an average of 830 mm.

Soils

The site is based on the aquifer of East Lyon, an alluvial groundwater accompanying the Rhone and on the deep aquifer of Miocene molasses. Molasse is actually Miocene formations whose facies may be favorable to form an underground aquifer. The sandstone aquifer is in a heterogeneous sand facies (siliceous and calcareous), more or less fired flintware that can enrich coarser elements.



Landscape history

Unfolding extensive meanders, up to the Middle Ages the Rhône was very different from now. It was not until the 14th century that the river became rapid and dangerous, a gravel carrier and a destroyer of villages, due to climate change known as the Little Ice Age.

In the 19th century, the bad passage Miribel was feared by sailors who failed on gravel banks. People on both sides of the river disputed over uncertain property rights for the land, most notably connected to the use of firewood and grazing.

The development of engineering techniques during the Industrial Revolution helped to stabilize the river for navigation purposes and the channel Miribel was built in the years 1848-1857. The principle of natural capping of flood flows by spreading water in floodplains has been recognized through law in 1858, which meant that the protection of farmland and villages upstream of Lyon had to be abandoned. The realization of the most important by-pass hydraulic structure in Europe, Jonage-Cusset (built 1892-1899), also had these positive and negative effects.

However, the river reacted to the implementation of the Miribel channel and deposited gravels at the entrance of Lyon. Moreover, the upstream areas faced droughts, while some settlements were affected by increasingly severe floods. This motivated the construction of Jons' dam for a better distribution of water: A power canal with a very high flow rate was added to the Miribel channel, which from now on served only for reserved flow and was abandoned for navigation.

In the early 1960s, while industrial development concentrated in the areas Rhône downstream, upstream infrastructure had to accommodate the new tertiary centre of Lyon without retaining its hydraulic functions. The area served as backfill for transport infrastructure and was used to produce construction material and accommodate flood flows.

A second wave of hydraulic impacts came in the late 1980s, when urban development increasingly threatened the area's drinking water resources. It became clear that the Rhône upstream could not accommodate mutually incompatible economic functions and the proliferation of devices like the motorway A 46, TGV route, and hotel and camping projects. Choices had to be made and in 1991 the Grand Lyon community set aside 1340 ha as "unalterable natural site" to protect a part of upstream Rhône from development projects.

Current demographic and socioeconomic characteristics

The Grand Parc of Miribel Jonage includes 11 local communities including 5 in the Rhône department (Vaulx-en-Velin, Décines-Charpieu, Meyzieu, Jonage, Jons), and 6 in the Ain département (Beynost, Neyron, Miribel, Saint-Maurice-de-Beynost, Thil, Niévroz), with a population over 100 000 habitants. Medium density in the departments stands from 104 hb/km² (Ain) to 536 hab/km² (Rhône), and still



increases locally up to 1500 hab/km² in the local communities around the Park. Population is growing and the average age in the different communities ranges from 34 to 40 years. Average income is 20'000 €/family, half of the employed people are in tertiary activity, 22% craftsmen and tradesmen, 20% are workers, and 8% farmers. The unemployment rate is around 10%.

Landscape character

From the junction of the Rhône with the Ain river to the entry of the city, the study landscape encompasses one of the last natural, unaltered confluences of Europe with a dense riparian vegetation. The delta offers a variety of remarkable environments of running or standing water, willow gravel bars, alluvial forests, dry steppes, and "lônes" (back water). Although some areas with a largely natural character still exist today, other parts of the study landscape are heavily altered by human influence, including several drinking water catchments (Charmy-Crépieu, Jonage, Décines, Meyzieu) that are exploited.

The dynamics of water flow and sedimentation is complex, and since a long time humans tried to find a good balance that complies with their needs. Today, climate change and changes undergone by the river system in the upper basin, such as infrastructure development in the area near Lyon for 150 years, are at the centre of "readjustement" processes that aim to reduce the trend of urban expansion and acknowledge Lyon's tradition for protection of the upstream to benefit the city.

The Grand Parc de Miribel Jonage is settled between a suburban economical sector and a more rural landscape towards the Ain river, more and more turning into a residential area. The Park itself is a natural park (2200 ha) and includes large water areas (350 ha) as well as farmland (400 ha) and forest. It has a very rich biodiversity and attracts four million visitors per year. The islands of Miribel-Jonage and the banks Rhone upstream of Jons are considered one of the jewels of Lyon landscape. The vast space combining features of transport, water production and recreation amazes by its size and relatively wild character at the gates of the second largest city of France and claims to be the largest park in suburban Europe.

Heritage features include :

- 13 natural areas (Natura 2000 areas)
- 4 artworks (Horizon Bank, Fountain of love, more scenery, Ugo Rondinone)
- 3 landscapes associated with historic heritage (Bac à Traille, Mulberry Alley, Borne)
- Industrial Heritage (hydroelectric)
- 5 landscapes associated with agricultural heritage (agro-forêt/fruits + Black poplar nursery, beer, bee / honey + honey crop, buckwheat / wheat flour, pastoralism).



Figure 1: Orthophoto of the study landscape Grand Parc de Miribel Jonage, Rhône-Alpes area (France)

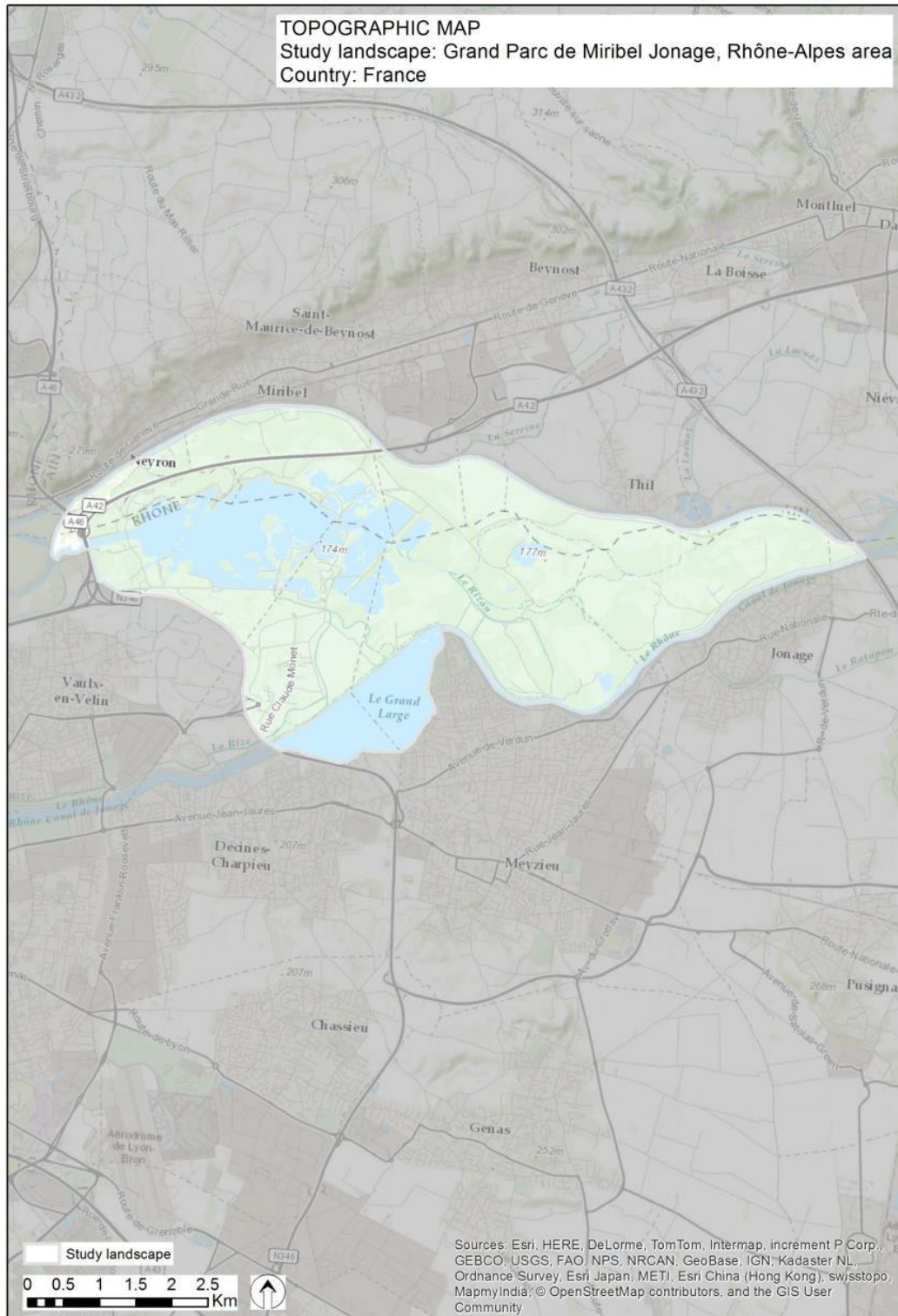


Figure 2: Topographic map of the study landscape Grand Parc de Miribel Jonage, Rhône-Alpes area (France)

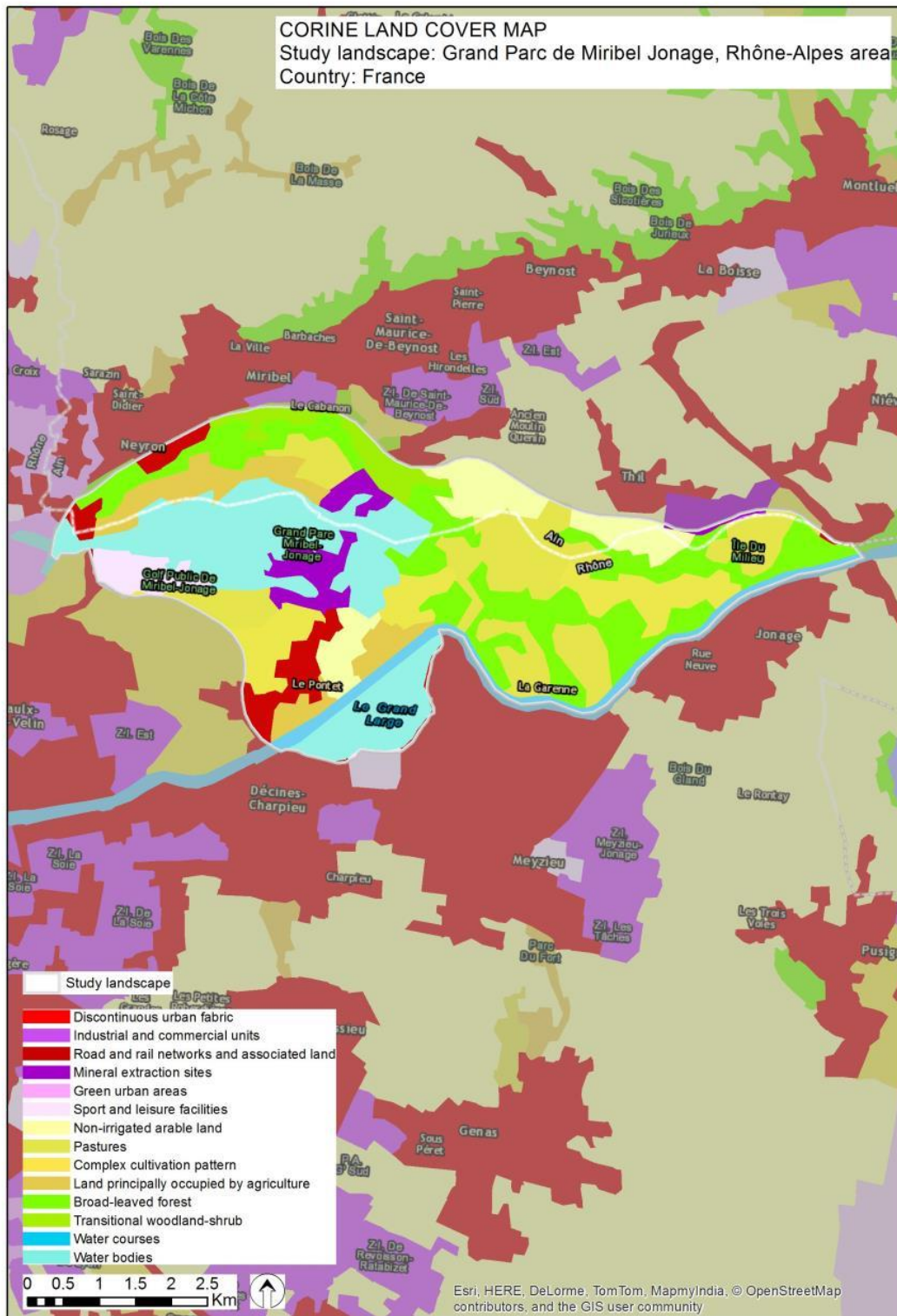


Figure 3: Land cover map of the study landscape Grand Parc de Miribel Jonage, Rhône-Alpes area (France)