

Merlimont dunes, Pas de Calais

Côte d'Opale state-owned biological reserve



EUC - France

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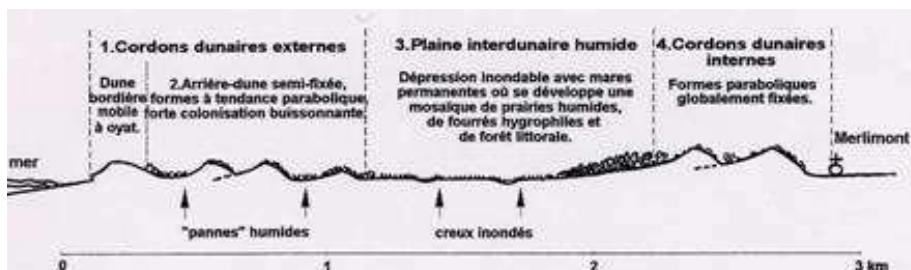
Jean Favennec, ONF Mission littoral

The first EUC-France field-workshop was organized by the "Office National des Forêts" (ONF) in Merlimont area, which is typical of northwest-Europe dune landscape.

Present state appraisal and chosen management

A detailed discussion was undertaken by ONF (LIFE-Environment program) in collaboration with the Universities, the "Conservatoire du Littoral" and the city council to specify the basis for integrated management. In the State-owned biological reserve (Réserve Biologique Domaniale or RBD) of the "côte d'Opale" (450 ha out 800 ha of the global site), the main choices of management are following:

- a non-wooded coastal dune recording natural dynamics
- priority given to the development of broad-leaved trees in the inland dune system
- preservation of rare and threatened habitats
- access limited to guided tours
- sensible and controlled shooting and hunting practice



An encouraging assessment (B. Dermaux): Flora monitoring by forest workers; a first map of remarkable species was carried out then regularly brought up to date. Ornithological, odonate and amphibian monitoring. A current advanced description of the Downy Birch population is the precondition to study the forest dynamics. The Laricio pine plantations were thinned out to promote the *Caprimulgus europaeus* European biotope. Restoration works first concern the low marshes: 40 hectares were regularly mowed (manual undergrowth clearing and export of the mowing produce).



Taar-up mowing of the low marshes



Monitoring: a key role for the field officers



The wet interdune plain

In the interdune plain, 5 hectares of glade and grass were maintained with mowing and scrub clearing. The frequency of maintenance operations will increase to contain Aspen invasion. The grey dune lawns (priority habitats of the European directive) are the most delicate to maintain. They need a careful manual intervention. The extraction of Sea buckthorn is hard and costly at the same time. Incidence and habits of the wild rabbit are currently studied. Mowing around the ponds and the low marshes maintenance are done simultaneously. Many bomb holes are found next to the ponds. They are inherited from the last war. A study highlighted their rich fauna (odonates and amphibians).

The Côte d'Opale RBD still strongly interests academics and scientists who belong to the scientific committee and give management advices and propose research projects. In addition, the Merlimont dune area was adopted by the "Conservatoire Botanique National" of Bailleul to carry out two flora studies concerning *Liparis loeselii* and *Teucrium scordium*. Finally, an awareness campaign about dune environment will start for the school children, in collaboration with teachers from the nearby villages.

Lesson and discussion for each topic.

Dune pedology (B. Dermaux). Professor Roger Langohr of the University of Gand clearly opened the soil “great book” from three different sections located within ten meters from one and other and highlighted the following points: All the RBD soils practically evolve to podzolisation. It is due to the very poor parent rock: pure sand with just 2 to 5% of CaCO_3 . If present, groundwater restricts the effect of leaching and slows down the podzolisation process. A horizon appears which roots are practically unable to cross over. Rabbits use to toss the upper horizons and slow down the loss of carbonate. They play an essential role for vegetation. Marram plays a similar role when opening new tracks through the soil. The water table fluctuates and affects vegetation: when it is very high at the end of winter and in springtime, it limits the root development. In a normal year, the excess water rapidly percolates and flows laterally in the soil, leading to a dry environment and vegetation wilt. Moreover, dune soils are typically hydrophobic. Finally Professor Langohr’s explanations can be summed up in one phrase “dune soils are not just sand”! Really it is a little more complex.

Protective management of wet environment in the interdune plain (C. Micheneau)

Slacks: The management plan schedules to “restore” pioneer stages on about 10 ha of slacks and fight against invasive dune willow and other scrub species. One’s does not call this choice into question, but points out that it treats symptoms, not the various causes. It would be necessary to treat not only the slack bottom but also the side slopes and to complete the vegetation monitoring with the survey of amphibians, reptiles, dragonflies... The wild boar population has to be regulated and rabbit shooting forbidden from now on in anticipation of its possible spread.

Forest : where the birch forest develops freely, it is necessary to organize a soft demonstration monitoring. There is an agreement to keep the pines: thanks to them one’s can observe the influence of forest on the soil

The coastal dune complex (Y. Battiau-Queney and J. Favennec). In view of its size, diversity and low level of human impact, it has been chosen to let the natural dynamics do. So the State-owned biological reserve of the côte d’Opale is actually an “observatory of natural dune landforms” at European level



Active dynamics and rich collection of aeolian landforms

Foredune, coastal dune and beach-dune exchanges: The coastal dune reaches 20m NGF. It is truncated by numerous troughs and blowouts, which nourish SW-NE oriented transgressive dunes. The foredune is nourished with the beach sand. During storm events a part of the coastal dune sand can move back to the beach.

Bush development at the rear of external dunes: Invasion by scrub species (principally *Hippophae rhamnoides*) impoverishes the environment, but is a Herculean task to fight against it. Current tests of digging out could be close to perfectionism. Professor Langohr thinks that after a stage of scrub fast-spreading, grass will come back.

Dynamics monitoring of the external system: Two transverse profiles (north and south) were carried out in 1994 and 2000 and a network of benchmarks was set up. The aim is to create a data base, allowing the study of landform evolution and beach-dune exchanges. Aerial photographs are also an important monitoring tool.



The case of the “one” parabolic dune.

An exceptional parabolic dune (500 m long) has formed near the north border of the RBD, immediately south of the urbanized area. Most part of it belongs to the town of Merlimont. A dialogue has been engaged with the city council to manage the whole dune on a permanent basis.