



## **Landscape paintings of the 17th and 19th century as a tool for coastal zone management**

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For more than fifty years many Dutch landscapes suffered severe damage. For their management, it is valuable to know what they looked like in the past. Historic maps give inadequate information, and landscape and aerial photographs are scarcely available until the 1940s. Before then landscapes have been documented chiefly by landscape painters. Interpreted with care, Dutch landscape paintings of the 17th and 19th century are an invaluable geoheritage archive and also hold information that is relevant for present-day landscape management. We present paintings of the Dutch coastal zone as an example.

The coastal zone of the Netherlands is geomorphologically well developed, with beaches, foredunes, medieval 'Young dunes', and 5000 year old beach ridges with several anthropic modifications. Each of these terrains attracted landscape painters. Representative paintings can be found in museums and art galleries. We evaluated hundreds of paintings of the collection of Simonis & Buunk, an art gallery in Ede specialised in 19th and early 20th century landscape paintings, for the geoheritage information they contain. The collection, which is the largest on the subject on-line available in Europe, can be freely consulted ([www.simonis-buunk.com](http://www.simonis-buunk.com)).

The freedom taken by the painters to adjust reality for compositional or stylistic reasons is still subject of discussion. The paintings became more realistic in the middle of the 19th century when paints became available in tubes and the painters could leave their studio to work in the field. We selected paintings that are sufficiently realistic to be translated in real landscape features, including geomorphological processes and elements.

Some insights:

- Because of the overriding control of marine and eolian processes, the appearance of the beaches has not changed since the 16th century.
- The difference between the flat beaches of the Netherlands and the steeper beaches is accurately registered by the painters.
- On a coast without harbours, the level beaches induced the development of the flat-bottomed Dutch fishing vessels, a practice surviving in Denmark.
- Over time, the morphology of the foredunes changed considerably. In the early 16th century foredunes appear to have been absent. Public access to the foredune which was allowed in the 19th century maintained the vitality of the sand-catching marram grass. Management measures changed the foredune in a barbed wire protected sand-dike with planted marram grass in the course of the 20th century.
- Already 17th century paintings show blowouts in stabilized parabolic dunes. Present-day ecologists re-activate these dunes presuming they were stabilized by man as late as the beginning of the 20th century.
- Disappeared landscapes include beach ridges levelled to provide sand for building purposes and to obtain land for the bulb-growing industry.