



Geodiversity and biodiversity interactions in the sand landscapes of the Netherlands on 19th and early 20th century landscape paintings

Pieter Jungerius (1,2) and Hanneke van den Ancker (2)

(1) University of Amsterdam, Institute for Biodiversity and Ecosystem Dynamics (IBED), Amsterdam, Netherlands (jungerius@geomland.nl), (2) Geomorfologie & Landschap, Ede, The Netherlands

Sand landscapes occupy about half of the territory of the Netherlands. Apart from an insignificant amount of Tertiary deposits, these sands are of Pleistocene and Holocene age. They include Saalian push moraines, Weichselian cover sands and Holocene drift sands. To these geological landscapes, cultural variants should be added such as the *essen*, i.e. a landscape with plaggen soils, and reclaimed lands (e.g. former moors). Not included are the coastal sands, which we dealt with in an earlier EGU contribution (van den Ancker & Jungerius 2012).

Nature and man created a wide variety of sceneries that inspired painters in the 19th and early 20th century (Jungerius et al. 2012). Painter communities on the sandy soils flourished in Oosterbeek/Wolfheze, Laren/Blaricum, Nijkerk, Nunspeet/Elspeet, Hattem and Heeze. Many of the landscape paintings are found in the database of Simonis en Buunk that can be freely consulted on line (<http://www.simonis&buunk.com>). For this presentation we selected specimens that show geodiversity-biodiversity relationships, some of which have changed since.

Painters of push moraines were attracted by the rolling terrain, the dry valleys and occasionally the colourful podzol soil profiles. Popular themes in the cover sands were the undulating relief and heathlands with herds of sheep, sandy footpaths and country roads with erosion phenomena. The dynamics of erosion captivated the painters of Holocene drift sand scenery, as did the bare fields of cultivated lands.

Their paintings show the rural areas that since the beginning of the 20th century lost their traditional charm in large-scale re-allotment schemes and artificial nature-building project, that changed geodiversity-biodiversity relationships.

Changes in the sandy terrains that can be inferred from the paintings are on a landscape scale, the scale of the landform and vegetation type, and are illustrated by changes in colour, pattern, structure and texture. Examples are:

- active drift sands with erosional phenomena, most vanished as a result of afforestation and eutrophic precipitation;
- wetland heath habitats, that largely disappeared due to reclamation and regional lowering of the groundwater table;
- grazing of herded sheep of local breed on geo-structured heathlands, that is recently re-introduced for nature management purposes;
- smaller agricultural plots on undulating 'essen' with crops such as buckwheat and wheat, now replaced by level terrain and maize monocultures;
- monumental old trees on the oldest landscape paintings, often on river banks, are notably absent on later paintings.

References

Jungerius P, van den Ancker H, Wevers N 2012. The contribution of Dutch landscape painters to the conservation of geoheritage. *Geology Today* 28,3.

Hanneke van den Ancker & Pieter Dirk Jungerius, 2012. Landscape paintings, a tool for research, planning and management of the coastal zone. Presentation General Assembly European Geosciences Union EGU - SSS, Vienna.