

PDF hosted at the Radboud Repository of the Radboud University Nijmegen

The following full text is a publisher's version.

For additional information about this publication click this link.

<http://hdl.handle.net/2066/92471>

Please be advised that this information was generated on 2020-10-28 and may be subject to change.

THE INFLUENCE OF NATURAL AND ANTHROPOGENIC PROCESSES ON A REGULATED RIVERINE LANDSCAPE

Geerling, G.W.^{1,2}, Princen, K.C.G.J.^{2,3}, Lenders, H.J.R.³, Leuven, R.S.E.W.³

¹ *Deltares, DELFT, the Netherlands*

² *Department of Sustainable Management of Resources, Faculty of Science, Radboud University Nijmegen, The Netherlands*

³ *Department of Environmental Science, Faculty of Science, Radboud University Nijmegen, The Netherlands*

In natural river systems, landscape diversity is a consequence of continuous disturbance by past and present hydro-morphological processes. The disturbance results in a mosaic of landscape patches that differ in land cover and succession stage. However, along regulated river systems, these processes are altered and landscape diversity in time and space is caused by a mix of anthropogenic interferences, hydro-morphological processes and ecological succession. To understand the present day landscape composition in time and space, a study was conducted to reconstruct the origin, age, successional stage and land cover type of every landscape patch (or ecotope) along a stretch of the river Waal (NL, a Rhine branch). The data sources used were supplied by a large variety of agencies, and were mostly old topographical maps, administrative data on floodplain activities, forest inventories, historical aerial images,. The study was conducted on a historical time scale. The oldest ecotopes were formed about 300 to 400 years ago, which revealed distinct periods of human activities that shaped the present day landscape and distribution of ecological succession sequences. We consider such knowledge on floodplain genesis and succession along regulated rivers essential to manage and restore floodplain landscapes to achieve a diversity in cover, age and succession.