

Density and species variety of propagules in the sediment of 3 types of differently vegetated Dutch ditches

Abstract

Recruitment from propagules in the sediment is an important survival strategy for macrophytes after harsh periods like cold winters and droughts. Therefore the propagule banks could also be an interesting source of species for re-vegetating after artificially caused disturbances that resulted in the loss of the original vegetation. While already quite some research has been performed on this subject, ditches in The Netherlands were never before examined. Dutch ditches though are often eutrophicated and subject to intense maintenance and therefore duckweed domination is very common nowadays. To investigate the value of the propagule banks for possibilities of restoration, sediment samples have been taken from a set of differently vegetated ditches. These samples were then cultivated in aquaria in a green house, and macrophytes grown in these aquaria were identified and counted. Significant differences were found in numbers of viable propagules and species density between duckweed dominated and other types of ditches (waterweed dominated and variedly vegetated ditches). Duckweed ditches turned out to be quite poor in both species and individuals of macrophytes other than the already commonly present duckweeds.

Next to the main experiment, an attempt was made to microscopically identify and count seeds directly from the sediment, to provide additional data about species of which the seeds remained dormant in the cultivation experiment. This appeared to be quite difficult, and results on this part are not very consistent. Presence of seeds of a few species have been confirmed though, and also a few species that were not found in the cultivation experiment but which were seen in the field, were also found under the microscope.