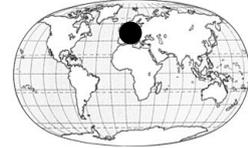


Michèle TRÉMOLIÈRES¹, Gisèle HAAN-ARCHIPOFF, Catherine PRÉVOST,
Aurélien BORNET

¹ CEVH Centre d'écologie végétale et d'hydrologie, UMR MA 101 University Louis Pasteur
/ENGES 28 rue Goethe, 67083 Strasbourg, France



SEASONAL DYNAMICS OF THE COLONIZATION OF *ELODEA* SPECIES IN RUNNING WATERS OF THE ALSACE RHINE FLOODPLAIN

Two examples of the American genus *Elodea*, *E. canadensis* L. C. Richard in Michaux Fil., and *E. nuttallii* St John, have spread into the European continent during the last 150 years. The most recent invader, *E. nuttallii*, often replaced the original invader, *E. canadensis*, especially in nutrient-rich sites. The aim of this paper is to analyse the rate of colonization and identify the ecological factors, which favour the development of the two *Elodea* species in running waters. Multivariate data analyses PCA and FCA are employed to show the progression of *Elodea* in the community during a vegetative season from March to October and to identify the discriminate ecological parameters of the development of these species. The colonization was compared over two years 2004-2005 in 11 sites with different degrees of connection to the river Rhine. Parameters tested are chemical ones such as trophic level, electrical conductivity, pH and physical parameters such as light, depth, sediment texture, current velocity and turbidity. The aquatic vegetation was surveyed using percentage of cover in three 2m wide plots per site, crossing the channel. *Elodea nuttallii* dominated in the more recently connected sites, which are fed by the eutrophic Rhine waters whereas *E. canadensis* is located more in mesotrophic watercourses still fed by groundwater. The most discriminating parameter is ammonia nitrogen. In some sites where *E. nuttallii* was abundant, the species grows without any control of the other species. However, in most sites there was no extended colonization over the study period 2004. The main parameter, which seems to control the colonization by *Elodea nuttallii*, is the connection to the river, but the fine substrate, a medium current velocity and a high light intensity seemed to favour the colonization of study sites.

keywords: *Elodea*, invasion, connexion, trophic level, colonization