Conservation and management of the Rhine nature reserves in France

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With 2 figures and 2 tables in the text

Abstract

About 700 ha of the Rhine riverine landscape are today protected by four nature reserves. The study aim is to create a network of strictly protected areas alongside the French Rhine. The canalisation of the Rhine carried out during this century has isolated the river from its floodplain, so the ecosystem of the Rhine now needs management to perpetuate the biodiversity and specific functioning of alluvial zones. Specific research programmes are currently underway to improve our understanding of the Rhine ecocomplex. On the basis of research results we present some aspects of a large-scale restoration programme (i.e. management plan) which is in progress with two main goals: floods will be permitted to restore a variety of natural features in the alluvial strip, whilst preventing floods from occurring downstream of the canalised Rhine.

Introduction

Hydraulic management works, carried out on the Rhine over about 150 years, have suppressed a large part of the Rhine floodplains and thus drastically modified the environmental conditions of the alluvial ecosystems. The many principal consequences of the management works were a restriction of areas available for flooding, an increased speed of flood transit and a lowering of the water table (MAIRE & SANCHEZ-PEREZ 1992).

During the 20th century, in order to improve shipping, produce electricity and ensure flood protection, the Rhine was canalised in France on 87% of its 183 km length. Thus the floodplain functioning and its biocoenoses have been seriously damaged and the original pattern of the riverine forest has been fragmented. The elimination of flood areas modifies the features of alluvial ecosystems. Conservation and rehabilitation of these ecosystems depend largely on modifications of the hydrological and hydrochemical conditions (nutrient levels). The inherited present situation is now irreversible. However, in recent years efforts have been made to alleviate the damage done by historical human works on the floodplain plant communities. Nowadays a programme of management is in progress to restore the alluvial ecosystem to more natural conditions, despite the new hydrological constraints.

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