

Wetland creation and restoration near the Bothnia Line railroad – a pioneer project in ecological compensation for northern migrant birds.

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The Natura 2000 site Ume River Delta and Plains (SE0810475) is a major staging site for wetland birds along the Bothnian flyway. It is regularly hosting at least 41 species of birds included in the EU Birds Directive, annex 1. To compensate for possible negative effects of the Bothnia Line railroad passage through the Natura 2000 site, large-scale restoration and construction of wetlands has been undertaken in adjacent areas. The aim is to create new habitats for resting wetland birds during spring migration, mostly Whooper Swan *Cygnus cygnus*, Common Crane *Grus grus* and various geese and duck species. The compensation measures include pumping of freshwater onto arable fields to create temporary spring floods, restoration of moist estuarine meadows, creation of shallow freshwater wetlands and growing of crops favoured by the birds. In all, the compensation areas cover an area of 500 hectares, all of which will be included in the Natura 2000 network and protected as nature reserves. An extensive, long-term monitoring programme will follow the compensation areas to control their ecological function. Although the compensation areas were not yet fully functional in spring 2009, they were already used by thousands of wetland birds.

The project is the first large-scale example in northern Sweden of wetland restoration specifically aimed at migrant wetland birds. The conclusions from the project will probably prove very useful when planning ecological compensation in future infrastructure projects.