

Poplars and willows

Why poplars and willows? Because they are so versatile. These members of the family Salicaceae provide wood, fibre, biofuel and other forest products and have a positive role in rehabilitation of degraded lands, forest landscape restoration, climate change mitigation and livelihood generation in temperate and boreal regions of the world.

The twenty-second session of the International Poplar Commission (IPC), held in Santiago, Chile from 28 November to 2 December 2004, focused on enhancing the contribution of poplars (*Populus* spp.) and willows (*Salix* spp.) to sustainable forestry and rural development, particularly in developing countries and those with economies in transition. The articles in this issue are adapted from presentations to the IPC meeting, which was organized by FAO and jointly hosted by the Governments of Chile and Argentina.

The first article, by J. Ball, J. Carle and A. Del Lungo, provides an overview of the environmental and socio-economic contributions of poplars and willows and of status and trends in their cultivation, management and use, based on reports from IPC member countries.

Little has been known about the actual extent of poplar and willow ecosystems in the Russian Federation, which has among the world's largest areas of natural stands of Salicaceae. A.P. Tsarev summarizes the available data.

Next, J. Ulloa and L. Villacura demonstrate how a private poplar industry in Chile contributes to sustainable rural development through support to forest conservation and community activities. The company, which integrates the production and processing of poplar wood with agriculture and livestock raising, is a major social and economic player in the community where it is located.

Poplar plantations need not be limited in biodiversity, either. A. Berthelot and co-authors summarize the results of an inventory of poplar plantations in the Picardie region of France, which revealed a surprising diversity of ground beetles, birds and vegetation.

The native poplar resources of Canada are the largest of any country, but the area planted with poplars is just beginning to grow. Since experience with this culture under Canadian conditions is limited, a group of experts has recently designed a framework for assessing risks to poplar plantations posed by weather, fire and pests. W.J.A. Volney *et al.* show how this tool can be used to adapt management and optimize benefits from plantations.

In Turkey, native stands of black poplar (*Populus nigra*) are threatened. F. Toplu describes efforts to conserve the country's valuable poplar genetic resources.

Within China's extensive programme to fight desertification in the Three North Region, a project that assisted afforestation, mainly with poplars, was carried out in the Korqin Sandy Lands from 1991 to 2002. J. Carle and Q. Ma review the comprehensive technical knowledge and tools brought together under the project, and enumerate the challenges to applying them on a larger scale.

Poplar is regarded as a model tree in forest genetics and biotechnology studies, as it grows rapidly and many varieties can be reproduced easily by cloning. *Populus* is the most widely used forest tree genus in genetic modification studies and the second most used in biotechnology research overall. A series of graphics elaborated by H. Marchadier and P. Sigaud demonstrate the importance of poplars in biotechnology.

The next three articles focus on willows. In Chimbarongo, Chile, the cultivation of basket willow (*Salix viminalis*) and its processing into furniture and crafts are important to the cottage-industry based rural economy. M.I. Abalos Romero summarizes efforts to revitalize the sector through improved quality and market development.

The last two articles examine novel uses for willows in energy production and in phytoremediation, i.e. clean-up of contaminated soils. I. Dimitriou and P. Aronsson describe a number of large-scale systems in Sweden where degraded sites are restored by using wastewater to irrigate and fertilize short-rotation willow coppice. The willows take up pollutants and excess nutrients from soil and are then burned for energy. L.B. Smart and co-authors describe a breeding programme to optimize traits of shrub willow crops for similar uses in the United States.

As member countries noted at the 2004 IPC meeting, clear and consistent policies, laws and strategies are needed to maximize the contribution of poplars and willows in forestry, agriculture and integrated rural development. Research, education and extension are critical for transfer of knowledge and technology concerning poplar and willow culture, processing and use to maximize social, environmental and economic benefits. FAO, through its regional and country offices and through the IPC Web site (www.fao.org/forestry/IPC), will continue to share information and technical support, targeted particularly towards private smallholders and farmers practising agroforestry to support livelihoods, alleviate poverty and enhance food security.

This *Unasylva* issues conveys the diversity of benefits from poplars and willows. Unfortunately it is impossible to cover everything. A report by D. Charlton in the August 2004 issue of *New Zealand Tree Grower*, for example, suggests that feeding sheep with fodder from poplars increases conception rate and number of lambs born. Could this be the result of an aphrodisiac effect? Who says poplars aren't sexy?