

IUFRO INTERNATIONAL SYMPOSIUM PACIFIC TEMPERATE CONIFERS AS INTRODUCED SPECIES

Orléans, France, May 27–30, 2002

A symposium dedicated to the topic of the Pacific temperate conifers of western North America and their use as exotic forestry species was held from the 27th to the 30th of May in Orleans, France. This symposium was hosted by INRA and Cemagref and was the occasion of a meeting of the two IUFRO working groups: 2.02.05 – Breeding and genetic resources of Pacific north-west conifers and 2.01.16 – Physiology of sexual reproduction. Prior to the symposium a pre-meeting tour, hosted by the Irish Forestry Board (Coillte Teoranta), was held in Ireland to demonstrate these species growing outside of their range.

The conifer species of western North America are an important part of the world's softwood resource and their economic value has led to the expansion of these species far outside of their native ranges. Because the ecological conditions of western Europe are very similar to those of western North America the Pacific temperate conifers have been well received here. This includes 600,000 hectares of Douglas-fir plantations 350,000 hectares of which are in France, notably in the Limousin Region. Their use as an exotic, in some cases, far exceeds their use in North America (Sitka spruce in Great Britain and Ireland, radiata pine in the Southern Hemisphere). The productivity of these exotic forests has helped greatly in reducing pressure on native forest lands. The symposium explored themes of why these species have become so important to world forestry.

The 48 participants of the symposium represented 14 countries of Europe, North America and Oceania. The symposium was preceded by the tour in Ireland which has Europe's most aggressive afforestation effort. Ireland, with its mild maritime climate, has experimented with most of these temperate conifer species and provided an ideal opportunity to see a range of trials and plantations employing these Pacific temperate conifers. In Orleans the meeting took place over three and one-half days. The 28th of May was used to visit several local field sites showing silvicultural demonstrations, species comparisons and experimental field trials – primarily with Douglas-fir. Although Douglas-fir occupies a modest place in the forests of Region Centre of France, it was introduced and has been successfully used for over a century. Two impressive plantations of about 70 years were viewed in Sologne just outside of Orleans on the morning of the field day, later that day we visited experimental trials comparing various seed orchard. In the afternoon of the 29th of May participants of the symposium visited

experimental installations and laboratory facilities at the INRA Research Station in Ardon. The group viewed some early selection experiments and later visited the physiology and wood science laboratories.

In the course of the symposium 31 papers and 15 posters were presented on the following themes:

- The economic importance of western North American conifers in the context of world forestry. Different presentations demonstrated the interest in these species outside of their native range, either as a substitute to native conifers or as a complement to native species. Examples included lodgepole pine as an alternative to Scots pine on certain sites in Sweden, Douglas-fir as a complement to radiata pine in New Zealand and radiata pine as an afforestation species in Turkey.
- Studies of diversity and conservation of genetic resources. Presentations were made of *in-situ* conservation efforts being made to preserve the gene pools of these species in their native range. Results were presented from the network of IUFRO trials in Europe. Alan Fletcher, formerly of the Forestry Commission of the UK, gave a valuable historical perspective, and new directions for their future use were discussed. Besides providing valuable information and material and being an *ex-situ* preservative of genetic resources, this network of trials may be used to model the evolution of these genetic resources under the effect of climate change.
- Breeding objectives: wood quality. Selection techniques for early evaluation of genotypes for form and wood quality (less than 10 years) were discussed and were viewed during the INRA station visit. Presentations were made on which wood quality traits should be assessed, effective ways for their measurement, and methods for incorporating these traits into tree improvement programmes.
- Breeding objectives: resistance to insects and diseases. At the present, in Western Europe the exotic species from North America are relatively healthy and disease free. However there are cases, particularly noticeable in cone insects, where native North American pests, that provide only minor harm in their native environment, can become a serious problem when transported without their array of congeneric fauna that would normally act as biological controls.
- Flowering biology and seed production. Progress in flower stimulation and supplemental pollination has

enabled seed orchard managers to optimize seed production and reduce seed cost. From a more fundamental point of view, it is recognised that the temperatures that occur during reproductive development can affect progeny performance, but this effect seems to be more significant biologically than operationally. The role of ovular secretions in pollen germination and prezygotic selection was pointed out. Investigations into the identification of the proteins present in these drops are underway using molecular biology techniques.

On the last day (30th of May) a business meeting of the two working groups was held. The following decisions were made:

- The new chairman of the Working Group: 2.02.05 – Breeding and genetic resources of Pacific north-west conifers is John King (British Columbia Forest Service, Canada) assisted by two "co-chairmen" : Steve Lee (Forestry Commission, Great Britain) and Jean-Charles Bastien (INRA, France).
- Joe Webber (British Columbia Forest Service,

Canada) and Gwenaël Philippe (Cemagref, France) will stay respectively the chairman and co-chairman of Working Group 2.01.16 Physiology of sexual reproduction.

- The joint meeting of the two Working Groups was seen as a very useful exchange and it was decided to continue to organize common meeting venues. One proposal discussed is to possibly have the next meeting in New Zealand in 2004 or 2005.
- The Proceedings of the symposium will be edited by Cemagref and will be released in 2003. Included in the proceedings will be a CD of the presentations made at the meeting.
- A selection of about 6 articles covering salient features of the symposium will, upon being judged by a scientific review committee, be submitted for inclusion in a special edition of an appropriate scientific journal (*Silvae Genetica* or *Forest Genetics*).

Jean-Charles Bastien & John King