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## Save the Forests – Finding and Using Natural Genetic Resistance

*By Richard A. Sniezko (rsniezko(at)fs.fed.us), Center Geneticist, USDA Forest Service, Deputy Coordinator IUFRO 2.02.15, http://www.iufro.org/science/divisions/division-2/20000/20200/20215/*

*Native and non-native pathogens, insects and animals continue to negatively impact forest ecosystems, managed forests and urban plantings worldwide. Climate change will alter host-damage agent relationships and is likely to increase detrimental impacts from many biotic agents.*

*Genetic resistance within tree species is a fundamental element to maintaining forest health. Utilizing genetic resistance is one of the few management options available to combat the impacts of insects, animals and pathogens and is the 'green', organic, sustainable avenue. Applied resistance programs, including resistance breeding, will be vital as they increase the efficiency in utilizing genetic variation to maintain or restore forest health when mortality or damage becomes unacceptably high.*

Fog chamber for white pine blister rust inoculation at Dorena Genetic Resource Center (Photo: R.Sniezko)

It has been three decades since the last international workshop on 'Resistance Breeding in Forest Trees to Pathogens and Insects'. During this time, ongoing resistance programs have made significant progress, and several new serious insect and pathogen problems have arisen. Scientists with experience in genetics, tree breeding, pathology, entomology, physiology, evolutionary biology, forestry and other related areas came together to help advance progress in genetic resistance programs by fostering collaboration between scientific and management communities from throughout the world.

Group photo by Robert Mutch

Through the sponsorship of USDA Forest Service, IUFRO Working Parties 2.02.15 (Breeding and Genetic Resources of Five-Needle Pines) and 7.03.11 (Resistance to Insects), and other groups (see http://ucanr.org/sites/tree_resistance_2011conference/Conference_Sponsors/) the 'Fourth International Workshop on the Genetics of Host-Parasite Interactions in Forestry – Disease and Insect Resistance in Forest Trees' took place July 31 – August 5, 2011 in Eugene, Oregon. This workshop brought together 88 participants from 12 countries for 90 oral and poster presentations to exchange information. In addition, the fieldtrip allowed participants to see ongoing applied operational resistance programs to two pathogens: *Cronartium ribicola* and *Phytophthora lateralis*.

The meeting covered many forest tree species highly impacted by pathogens or insects and provided an opportunity to discuss knowledge and use of genetic resistance as a key tool for managers in helping maintain or restore healthy native and managed forests and urban plantings.

*A book of abstracts and presentations from the live webcast are available on the meeting web page (and associated links) at: http://ucanr.org/sites/tree_resistance_2011conference/ . Publication of the presentations from the meeting is planned.*