

Station Briefing Papers

Science-Based Solutions for the Four Threats
to the Health of the Nation's Forests and Grasslands

Forest Products Laboratory

USDA Forest Service



Research and
Development

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FIRE AND FUELS

Current Emphasis

- ✓ Studying methods to use materials from trees experiencing suppressed growth, such as ponderosa pine, Douglas fir, jack pine, red pine, and lodgepole pine.
- ✓ Developing new technologies to produce engineered lumber and fiber-based panel materials from small diameter, poorly formed trees.
- ✓ Analyzing economic opportunities for utilizing the thinnings and fire-killed timber.
- ✓ Studying the fermentation of carbon sugars produced from biomass to ethanol.
- ✓ Developing information on the quality of pulp from small diameter trees.
- ✓ Testing and demonstrating small scale (15kW – 50kW) forest biomass biopower units to produce electricity and heat.

Research Results

Small diameter timber and other biomass removals can offset forest management costs and provides economic opportunities for rural communities, and prevents catastrophic forest fires.

Further Research

New value-added uses in traditional wood products as well as energy uses. Conventional value-added uses include: engineered wood products; bridges and guardrails; round wood structures; glue-laminated timber, composites; and pulp and paper. Non-conventional uses include ethanol, hydrogen, filter mats, and chemical feedstock. Energy uses include biopower units burning wood chips.

INVASIVE SPECIES

Current Emphasis

- ✓ Providing fungal biosystematics information for use in pest risk assessments associated with wood imports.
- ✓ Developing new low cost, effective thermal treatments for green wood, that are not based on use of undesirable toxic fumigants.
- ✓ Finding uses for invasive species such as juniper--on rangeland—and saltcedar in composites as a way to offset the costs of their removal.

Research Results

Organisms imported into or exported from the United States during shipment or exchange of wood-based materials (e.g., woodchips, green lumber, sap stained lumber, specimens, etc.) pose great dangers to forest ecosystems. One of the most likely ways that invasive insect species (e.g., Asian longhorned beetle, Formosan termite and emerald ash borer), entered the United States is through use of green (undried/untreated) lumber in dunnage, pallets, crates, and other packing and packaging material in international trade.

Further Research

- ✓ Develop new low cost, effective treatments for green wood that are not based on use of undesirable toxic fumigants such as methyl bromide.
- ✓ Develop fungal biosystematics information for use in pest risk assessments associated with wood imports.

LOSS OF OPEN SPACE

Current Emphasis

- ✓ Developing new technologies and technical information to create new value added opportunities for forest landowners and businesses.
- ✓ Finding ways to use low-value hardwoods to help keep ranches and working forests in operation.

Research Results

Materials from privately held forests could play a major role in providing raw materials, thereby providing an economic return to forest landowners and helping to retain land in forests instead of giving way to subdivisions, ranchettes, farmettes, strip malls, and other forms of fragmentation.

Further Research

Develop new technologies and technical information to create value-added utilization opportunities for forest-based materials.