

## TREE GENES INITIATIVE-ACCELERATING STRESS ADAPTED TREE

Adam Costanza<sup>1</sup>, Keith Woeste<sup>2</sup>, and Susan McCord<sup>1</sup>

The health of many forests in North America is under threat now, and forests will be even more susceptible in the future because of a changing climate. Trees can naturally adapt to changing environments by slow migration - less than ½ a kilometer per year-but suitable habitats are predicted to shift at 10 times that rate. More extreme weather events are likely to increase the intensity of wildfires. Warmer winters allow pests, both native and invasive, to expand rapidly and devastate areas faster. We need an integrated approach to develop the next generation of trees that can better withstand current and future stressors. Several large research projects are working to understand how trees respond to climatic and biotic stressors at a genetic level. Unfortunately, the benefits from this research face obstacles that keep them from progressing to downstream users.

Too often good research gets lost along the path to operational use. Currently there are several large research projects working to understand how trees respond to the climate and biotic stressors at the genetic level. Connecting this research to downstream users will speed up the process of showing on-the-ground value for research money spent, and increase the chance of operationalizing research discoveries. The Tree Genes Initiative (TGI) brings experts together to identify obstacles, collaboration opportunities, and communicate unmet needs to organizations including those funding research, setting forest policy, and managing forest resources. The TGI is producing its first Forest Tree Adaptation Obstacles and Recommendations Report. This, and future TGI reports, are developed to identify obstacles along the chain of events (value chain) from research, to growth, to use of improved trees, and make recommendations that could speed the use of trees better adapted to stress. There are three categories of obstacles identified by the TGI consortium this year: obstacles to innovation, outdated policies, and market disconnects. These topics are explored in some detail with examples and recommendations to overcome the obstacles.

The TGI includes all points along the research-stewardship chain. The TGI works for on-the-ground changes by conveying practical information in a timely manner to stakeholders. This is accomplished by identifying current efforts, needs, and obstacles to using stress adapted trees.

### **Upstream Research**

- Funding agencies
- Forest biotechnologists
- Tree breeders

### **Midstream Growth**

- Land owners

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<sup>1</sup> Institute of Forest Biosciences

<sup>2</sup> Hardwood Tree Improvement and Regeneration Center, USDA Forest Service, West Lafayette, IN

- Forest growers
- Forest managers

### **Downstream Use**

- Timber management companies
- Forest products companies
- Federal land management agencies

At its core the TGI is a consortium of organizations engaged in the research, growth, deployment, and management of stress-adapted trees. Consortium experts include forest biotechnologists, tree breeders, forest growers, and forest managers. The TGI fosters communication among organizations throughout the research-management chain, and to outside stakeholders.