Project CAPTURE: a U.S. National Prioritization Assessment of Tree Species for Conservation, Management, and Restoration[1]

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A variety of threats, most importantly climate change and insect and disease infestation, will increase the likelihood that forest tree species will undergo population-level extirpation or species-level extinction during the next century. Project CAPTURE (Conservation Assessment and Prioritization of Forest Trees Under Risk of Extirpation) is a cooperative effort across the three U.S. Department of Agriculture Forest Service (USDA FS) deputy areas to establish a framework for conservation priority-setting assessments of forest tree species across the entire United States. Project CAPTURE uses extensive lists of life history trait data, as well as climate change and pest and pathogen threat information, to categorize and prioritize 368 native tree species for conservation, monitoring, management, and restoration across all forested lands in the contiguous United States and Alaska. The project has recently expanded to include 561 native tree species of Puerto Rico and the Virgin Islands, and will eventually include the native trees of Hawaii.

The foundation of this overall effort is a flexible framework that rates species based on risk factors relating to (1) intrinsic attributes, such as population structure, fecundity and seed dispersal ability; (2) external threats to genetic integrity; and (3) conservation factors, including evolutionary distinctiveness and regional responsibility. The Project CAPTURE framework allows for the quantitative grouping of species into vulnerability classes that may require different management and conservation strategies for maintaining the adaptive genetic variation of the species contained within each class. The framework was developed with input from a 2014 workshop that included USDA FS resource managers and scientists across the country and from the three deputy areas. An assessment of climate change vulnerability for species of the continental United States has been completed (Potter, K.M.; Crane, B.S.; Hargrove, W.W. 2017. A United States national prioritization framework of tree species threatened by climate change. New Forest. doi: 10.1007/s11056-017-9569-5.), while an assessment of pest and pathogen vulnerability is under way. The Project CAPTURE assessment tool should be valuable for scientists and managers attempting to determine which species and populations to target for monitoring efforts and for pro-active gene conservation and management activities.