

TELLING THE STORY OF TREE SPECIES' RANGE SHIFTS IN A COMPLEX LANDSCAPE

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Abstract – The Forest Inventory and Analysis Program is the unrivaled source for long-term, spatially balanced, publicly available data. FIA will continue to be providers of data, but the program is growing and adapting, including a shift in how we communicate information and knowledge derived from those data. Online applications, interactive mapping, and infographics provide broader appeal to a wider audience compared to state reports or peer-reviewed journal articles. This presentation uses ArcGIS Online applications to tell the story of how tree species distributions are shifting in response to climate change. Evidence supports that species are changing in latitude and elevation, but estimating the magnitude of the change and attributing cause can be difficult. The strength of evidence increases as the geographic area, number of species, and length of time examined increases. This study took advantage of the large geographic scale of FIA data collection to compare the distribution of seedlings and mature trees for all but the rarest tree species in California, Oregon, and Washington. Across all species and despite individual species idiosyncratic responses, there is a significant shift in the distributions of seedlings towards colder environments, relative to the distribution of mature trees. The broad geographic scale and environmental diversity of the study area, the large number of systematically sampled trees, and the direct causal relationship between the response the hypothesized cause provide strong evidence to attribute those shifts to climate change. The research was published recently - *Monleon and Lintz, PLoS ONE 10(1), 2015* – and now we are exploring ways to share that story with a wider audience through different visualization applications.

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