



Proof

**CONTROL ID:** 1189589**TITLE:** Species Diversity and Response to Climate Change across Siberia**PRESENTATION TYPE:** Assigned by Committee (Oral or Poster)**CURRENT SECTION/FOCUS GROUP:** Global Environmental Change (GC)**CURRENT SESSION:** GC16. Regional Climate Impacts 7. Environmental, Socio-economic and Climatic Changes in Northern Eurasia and their Feedbacks to the Global Earth System: The Role of Remote Sensing and Integrative Studies**AUTHORS (FIRST NAME, LAST NAME):** Herman H Shugart<sup>1</sup>, Jacquelyn Kremper Shuman<sup>1</sup>**INSTITUTIONS (ALL):** 1. Environmental Sciences, University of Virginia, Charlottesville, VA, United States.**SPONSOR NAME:** Herman Shugart

**ABSTRACT BODY:** The Northern Hemisphere's boreal forests, particularly the Siberian boreal forest, may have a strong effect on Earth's climate through changes in dominant vegetation and associated regional surface albedo. Temperature increases have been identified as a driver of compositional change in the Russian forest with documented shifts in treelines and changes in regeneration. Warmer climate will likely convert Siberia's deciduous larch (*Larix* spp.) to evergreen conifer forests, and the low diversity areas across Siberia are identified as vulnerable to this vegetation shift from deciduous larch to evergreen conifer. A conversion to evergreen conifer dominance within southern Siberia will generate a local positive radiative forcing of  $5.1 \pm 2.6 \text{ W m}^{-2}$ . The forest gap model, FAREAST, simulates Russian boreal forest composition and was used to explore the feedback between climate change and forest composition in vulnerable low diversity areas. FAREAST was used to simulate the impact of changes in temperature and precipitation on total and genus-level biomass at sites across Siberia using multiple variants of the dominant larch to mimic species variability in growth rates. The use of multiple variants of the dominant species can be used to identify species variants which may be more successful under altered climate conditions. Identification of successful varieties of the dominant species will help in active management in efforts to mitigate the effects of climate change, especially the accelerated shift to evergreen dominance.

(No Image Selected)

(No Table Selected)

**INDEX TERMS:** [0410] BIOGEOSCIENCES / Biodiversity, [0439] BIOGEOSCIENCES / Ecosystems, structure and dynamics, [1637] GLOBAL CHANGE / Regional climate change, [1630] GLOBAL CHANGE / Impacts of global change.