

Abstract:

Most of the global boreal forest has retained a largely natural ecosystem distribution and condition. In the recent geologic past the boreal region experienced Earth's largest range of natural climate variation, which changed ecological communities and forced the migration of most elements of boreal ecosystems across long distances. The successes and failures of those past adjustments contain important lessons for natural area managers and conservation biologists of today. Recent and largely humancaused warming of the climate system is strong and now pervasive across the boreal region and has spread or is spreading to other parts of the Earth. Boreal environments are now being altered to the degree that the early stages of species migration are necessary or underway. Yet some of the core legal and policy concepts that currently underlie natural resource and natural area management such as sustained yield, sustainability, and native vs. exotic species, appear to be inadequate or antagonistic to potentially responsive management practices. Natural area managers can assist the challenge to broaden or re-focus the mandate for resource management in a time of change by collecting their stories of adaptive practices that lead to resilience in species and ecological communities.



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include natural controls over biodiversity, climate variability and change, tree ring studies, sustaining biodiversity in forest management, and forest development following wildfire and forest harvest. He began as a faculty member in 1981, received emeritus status in 2015, and currently maintains a number of research, environmental monitoring, and science advising efforts. He was a Research Scientist in the USDA Forest Service at the Institute of Northern Forestry in Fairbanks from 1977-1981, working for the next 15 years as Alaska Ecological Reserves Coordinator. He was responsible for establishing or proposing 80 research natural areas totaling nearly 670K acres. Dr. Juday taught graduate and undergraduate level university courses in conservation biology, wilderness management, natural resource decision making, and tree ring analysis over three decades. Dr. Juday was a Senior Investigator in the NSF-supported Bonanza Creek Long-Term Ecological Research site in central Alaska from 1990 until 2017. Juday served as President of the Natural Areas Association from 1985 through 1988.

