

**Modeling the Current and Future Distributions of *Juniper SPP.*
Across the Continental United States**

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Multiple Juniper species (*Juniperus* spp.) are native to North America, though some are widely recognized as encroaching on grassland ecosystems, threatening associated biodiversity and degrading grazing lands. Furthermore, pollen from these trees is a potent allergen, and expanding ranges may contribute to human health concerns. We developed models of the current and future distributions for multiple species of *Juniperus* across the continental United States, to ultimately inform long-term management and monitoring efforts. We developed the distribution models using a machine-learning algorithm, random forests, with available locality data from multiple biodiversity databases, pseudo-absence data, and environmental datasets characterizing climate and soil conditions. We projected the model into the future climate, for 2050, based on the CNRM-CM5 Global Climate Model. Our results suggest the amount of area suitable for *Juniperus* spp. will generally increase under future climate conditions, and recent locality data indicates that the ranges are already expanding. Final outputs from this work will help identify areas most susceptible to woody encroachment of *Juniperus*, allowing for early detection of and response to continued range expansions.