

Conifers manuscript

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##Data

Data for this project was downloaded from the Botanical Information and Ecology Network (BIEN) Database. You can learn more about BIEN by going to : <https://bien.nceas.ucsb.edu/bien/>. Range maps for common conifer species in British Columbia were obtained using the BIEN R package version 1.2.6 (Maitner et al. 2018).

Species included are:

1. *Abies amabilis*
2. *Abies grandis*
3. *Abies lasiocarpa*
4. *Thuja plicata*
5. *Pseudotsuga menziesii*
6. *Tsuga mertensiana*
7. *Tsuga heterophylla*
8. *Juniperus scopulorum*
9. *Larix lyallii*
10. *Larix laricina*
11. *Larix occidentalis*
12. *Pinus albicaulis*
13. *Pinus flexilis*
14. *Pinus banksiana*
15. *Pinus contorta*
16. *Pinus monticola*
17. *Pinus ponderosa*
18. *Picea mariana*
19. *Picea engelmannii*
20. *Picea sitchensis*
21. *Picea glauca*
22. *Taxus brevifolia*
23. *Chamaecyparis nootkatensis*

Both Douglas fir (*Pseudotsuga menziesii*) and lodgepole pine (*Pinus contorta*) are expected to experience contractions in both their fundamental and realized climate niches under the Shared Economic Pathways 2-4.5 greenhouse gas emissions scenario (Zhao et al. 2023).

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grateful::cite_packages(output = "paragraph", out.dir = ".")
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We used R version 4.4.0 (R Core Team 2024) and the following R packages: rmarkdown v. 2.26 (Xie et al. 2018, 2020; Allaire et al. 2024).

Allaire, J., Y. Xie, C. Dervieux, J. McPherson, J. Luraschi, K. Ushey, A. Atkins, et al. 2024. *rmarkdown: Dynamic documents for r*. Available online at: <https://github.com/rstudio/rmarkdown>.

Maitner, B. S., B. Boyle, N. Casler, R. Condit, J. Donoghue, S. M. Durán, D. Guaderrama, et al. 2018. The bien r package: A tool to access the Botanical Information and Ecology Network (BIEN) database McMahon, S. (ed.). *Methods in Ecology and Evolution*. 9(2):373–379 Available online at: <https://doi.org/10.1111/2041-210X.12988>

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- R Core Team. 2024. *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. Available online at: <https://www.R-project.org/>.
- Xie, Y., J. J. Allaire, and G. Golemund. 2018. *R markdown: The definitive guide*. Chapman; Hall/CRC, Boca Raton, Florida. Available online at: <https://bookdown.org/yihui/rmarkdown>.
- Xie, Y., C. Dervieux, and E. Riederer. 2020. *R markdown cookbook*. Chapman; Hall/CRC, Boca Raton, Florida. Available online at: <https://bookdown.org/yihui/rmarkdown-cookbook>.
- Zhao, Y., G. A. O'Neill, and T. Wang. 2023. Predicting fundamental climate niches of forest trees based on species occurrence data. *Ecological Indicators*. 148:110072 Available online at: <https://linkinghub.elsevier.com/retrieve/pii/S1470160X23002145>.