Improving ecological insights from dendroecological studies of Arctic shrub dynamics: Research gaps and potential solutions

APPENDIX B: Included Articles

We conducted a targeted literature review of published articles on the Scopus database on June 17, 2022 using the following search string: TITLE-ABS-KEY (arctic* OR oro-arctic* OR tundra AND shrub* OR woody* AND "growth" OR "recruitment" OR "establishment" OR advancement OR shrubline OR anatomy* OR "xylem" OR lumen OR fiber* OR vessel* OR dendroecology* OR dendrochronology* OR ring*) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND PUBYEAR >2004 AND (LIMIT-TO (LANGUAGE , "English"))

This search identified 570 articles (Appendix A) within our timeframe from January 1 2005-June 1 2022. Out of these articles, 86 were included in our review, based on the inclusion criteria stated in the main text in Section 2.1.1. We included all articles that met the inclusion criteria, regardless of the study aim or sub-discipline. These included articles are listed below:

Ackerman, D., Griffin, D., Hobbie, S.E., Finlay, J.C., 2017. Arctic shrub growth trajectories differ across soil moisture levels. Glob. Chang. Biol. 23, 4294–4302. https://doi.org/10.1111/gcb.13677

Ackerman, D.E., Griffin, D., Hobbie, S.E., Popham, K., Jones, E., Finlay, J.C., 2018. Uniform shrub growth response to June temperature across the North Slope of Alaska. Environ. Res. Lett. 13. https://doi.org/10.1088/1748-9326/aab326

Andreu-Hayles, L., Gaglioti, B. V., Berner, L.T., Levesque, M., Anchukaitis, K.J., Goetz, S.J., D'Arrigo, R., 2020. A narrow window of summer temperatures associated with shrub growth in Arctic Alaska. Environ. Res. Lett. 15. https://doi.org/10.1088/1748-9326/ab897f

Andruko, R., Danby, R., Grogan, P., 2020. Recent Growth and Expansion of Birch Shrubs Across a Low Arctic Landscape in Continental Canada: Are These Responses More a Consequence of the Severely Declining Caribou Herd than of Climate Warming? Ecosystems 23, 1362–1379. https://doi.org/10.1007/s10021-019-00474-7

Au, R., Tardif, J.C., 2007. Allometric relationships and dendroecology of the dwarf shrub Dryas integrifolia near Churchill, subarctic Manitoba. Can. J. Bot. 85, 585–597. https://doi.org/10.1139/B07-055

Bär, A., Bräuning, A., and Löffler, J., 2007. Ring-Width Chronologies of the Alpine Dwarf Shrub Empetrum Hermaphroditum from the Norwegian Mountains. IAWA Journal 28, 325-338. https://doi.org/10.1163/22941932-90001644

Blok, D., Sass-Klaassen, U., Schaepman-Strub, G., Heijmans, M.M.P.D., Sauren, P., Berendse, F., 2011. What are the main climate drivers for shrub growth in Northeastern Siberian tundra? Biogeosciences 8, 1169–1179. https://doi.org/10.5194/bg-8-1169-2011

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Boulanger-Lapointe, N., Lévesque, E., Baittinger, C., Schmidt, N.M., 2016. Local variability in growth and reproduction of Salix arctica in the High Arctic. Polar Res. 35. https://doi.org/10.3402/polar.v35.24126

Boulanger-Lapointe, N., Lévesque, E., Boudreau, S., Henry, G.H.R., Schmidt, N.M., 2014. Population structure and dynamics of Arctic willow (Salix arctica) in the High Arctic. J. Biogeogr. 41, 1967–1978. https://doi.org/10.1111/jbi.12350

Buchkowski, R.W., Morris, D.W., Halliday, W.D., Dupuch, A., Morrissette-Boileau, C., Boudreau, S., 2020. Warmer temperatures promote shrub radial growth but not cover in the central Canadian Arctic. Arctic, Antarct. Alp. Res. 52, 582–595. https://doi.org/10.1080/15230430.2020.1824558

Buchwal, A., Rachlewicz, G., Fonti, P., Cherubini, P., Gärtner, H., 2013. Temperature modulates intra-plant growth of Salix polaris from a high Arctic site (Svalbard). Polar Biol. 36, 1305–1318. https://doi.org/10.1007/s00300-013-1349-x

Buchwal, A., Sullivan, P.F., Macias-Fauria, M., Post, E., Myers-Smith, I.H., Stroeve, J.C., Blok, D., Tape, K.D., Forbes, B.C., Ropars, P., Lévesque, E., Elberling, B., Angers-Blondin, S., Boyle, J.S., Boudreau, S., Boulanger-Lapointe, N., Gamm, C., Hallinger, M., Rachlewicz, G., Young, A., Zetterberg, P., Welker, J.M., 2020. Divergence of Arctic shrub growth associated with sea ice decline. Proc. Natl. Acad. Sci. U. S. A. 117, 33334–33344. https://doi.org/10.1073/PNAS.2013311117

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Danby, R.K., Koh, S., Hik, D.S., Price, L.W., 2011. Four Decades of Plant Community Change in the Alpine Tundra of Southwest Yukon, Canada. Ambio 40, 660–671. https://doi.org/10.1007/s13280-011-0172-2

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