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July 22, 2021

Dear Dr. Moisen:

We would like to submit our manuscript entitled "Simplifying small area estimation with rFIA: a demonstration of tools and techniques" to to be considered for publication in Frontiers in Forests and Global Change.

We developed rFIA, an open-source R package, to improve access to the United States Department of Agriculture Forest Inventory and Analysis (FIA) database, with an original focus on implementing traditional, post-stratified estimation techniques. As the title implies, the objective of this manuscript is to demonstrate the potential for rFIA to simplify the application of alternative, model-based small area estimation techniques to data collected by the FIA program.

We demonstrate this potential via two original case studies involving the application of small area estimation techniques to FIA data: (1) improving county-level estimates of forest carbon stocks across the conterminous US with spatial Fay-Herriot model, and (2) improving annual estimates of trends in merchantable wood volume for a county in Maine using a Bayesian mixed-effects model. Our procedures can be easily adapted for use with alternative state variables, spatial domains, and/or auxiliary data, and we encourage interested users to adapt our code (publicly available, with links in text) for use in their own applications.

With the exception of arXiv.org, we confirm that this manuscript has not been published elsewhere and is not under consideration by another journal. If eventually accepted, we will of course link the published version of this manuscript to the arXiv.org version. All authors have approved the manuscript and agree with its submission to Frontiers in Forests and Global Change.

Thank you again for the opportunity for review and possible publication. We look forward to hearing from your office.

Sincerely,

Hunter Stanke