1. Download rSFSTEP2.
   1. “ git clone --branch master <https://github.com/DrylandEcology/rSFSTEP2.git>”
2. Make sure all the scripts are executable (i.e. given executable permissions) prior to following the steps below: chmod +x nameoffile
3. Copy the weather database to the inputs folder within rSFSTEP2.
4. In R\_program/Main.R:
   1. Set the location of the weather database (where it says set database location - ~line 24), along with the name of the weather database (where it says Provide the name of the database in quotes ~ line 44).
   2. set the proc\_count based on the number of cores on the computer (~line 16). Also set simyears (line 27), which the number of STEPWAT2 simulation years provided in model.in. The default is 300.
   3. Edit the default climate scenarios you wish to run, specified in temp (line 559). The number of GCMs listed here must match <number\_of\_scenarios> below in the call to generate\_rSFSTEP2\_structure.sh (RCPs and time periods are not counted). For example - if you have 10 GCMs for 2 RCPs and "Current" in climate.conditions, the correct <number\_of\_scenarios> = 11 in the generate\_rSFSTEP2\_structure.sh call.
5. In generate\_rSFSTEP2\_structure.sh script
   1. Add site ids, you wish to run the wrapper on, to the siteid variable (third line from top) in the generate\_rSFSTEP2\_structure.sh script. Site 1 and 2 are present as examples.
6. Run the cloneSTEPWAT2.sh script. “./cloneSTEPWAT2.sh” OR put a clone of compiled STEPWAT2 folder in the R\_program folder.
7. Change the number of iterations and years you want to run in the STEPWAT2>testing.sagebrush.master>Stepwat\_Inputs>Input>model.in.
8. Run the generate\_rSFSTEP2\_structure.sh script in the terminal. The parameters are <R\_program> <number\_of\_sites> <number\_of\_scenarios>. Example for 2 sites, 10 GCMs and Current (11). “./generate\_rSFSTEP\_structure.sh R\_program 2 11” \*\*check the python call on your machine. It is ‘python’ on the .sh on github but it is ‘python3’ on TEM computer. \*\*\*\*\*THIS CAN TAKE UP A LOT OF SPACE! 144.GB on TEM computer for 40 sites and 18 GCM and 2 RCP and 1 time period.\*\*\*\*\*
9. Run the run\_local.sh script. The parameter is <number\_of\_sites>. Example: “./run\_local.sh 2” If you have a lot of sites and want to run it on a local computer, I recommend breaking this loop into 5-8 site segments. I did this by making a copy of this files and the changing the number on line 5 “i==X” where X is the lowest number of the segment run. For example, changing X to 5, the you can run sites 5 -10 using “./run\_local.sh 10”

POTENTIAL ISSUES:

- TEM having “ **error: use of undeclared identifier 'sqlite3one’”.** To correct go into sqlite-amalgamation/sqlite3.c and uncomment lines 8864 and 8863. Then change the “#ifndef” in line 8865 to “#else”.

- TEM has made a few changes to base SQLite call the data from the weather database because the current database does not pass SOILWAT2 checks (and therefore cannot use the SOILWAT functions). These edits will change if we can correct the weather database check errors.

- We currently have the rescaling of phen and rgroup off (as FALSE). If wanting to use these, we will most likely have to edit the code because of the weather database check errors.