Wetland Mapping Tool

1. Works with ArcGIS Pro.

(can potentially be modified to also work with ArcGIS 10)

2. Requires python and R computer languages.

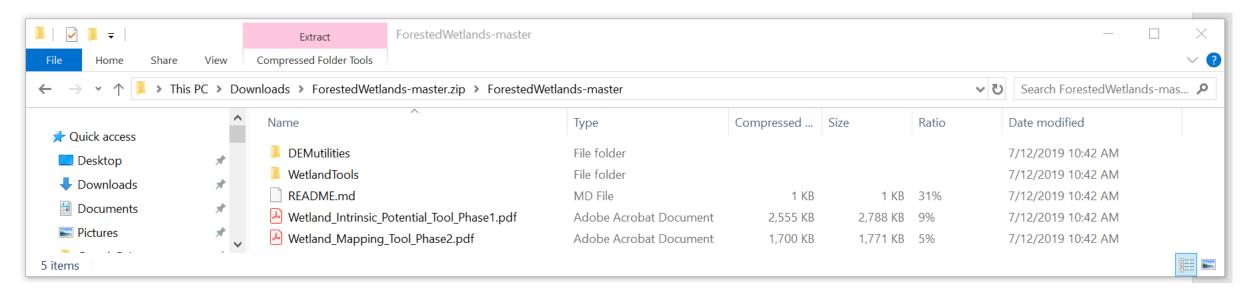
Python and R are widely used, open-source computer languages. The R language implements a large range of statistical analyses (https://www.r-project.org/). ArcGIS provides capabilities to run scripts (programs) written in python and in R to perform custom analyses. We have used both R and python scripts for the wetland mapping tools. Python is included as part of ArcGIS; R must be installed separately.

3. Install R and the arcgisbinding package.

This is required for ArcGIS to use R scripts. Instructions for installing R and the package are available here: https://github.com/R-ArcGIS/R-Bridge-Tutorial-Notebooks/blob/master/R-bridge-install-and-setup.ipynb

4. Get the DEMutilities and WetlandTools scripts. They are available on a github repository: https://github.com/DanMillerM2/ForestedWetlands. This link takes you here Pull requests 0 Projects 0 <> Code (!) Issues 0 Wiki Security III Insights Settings 3 Code for building raster files of elevation derivatives, python and R scripts for using these rasters for building and applying random Edit forest models of wetland presence/absence in ArcGIS Pro Manage topics Click here to download a 21 commits **2** branches **0** releases 1 contributor zip archive with all the Upload files Branch: master > New pull request Create new file Find File Clone or download ▼ files. DanMillerM2 Add files via upload Latest commit 67c6c35 3 days ago Add files via upload 3 days ago DEMutilities Use SSH Clone with HTTPS ? WetlandTools Add files via upload 3 days ago Use Git or checkout with SVN using the web URL. README.md Initial commit 20 days ago Ê https://github.com/DanMillerM2/ForestedW Wetland_Intrinsic_Potential_Tool_Phase1.pdf Add files via upload 4 days ago Wetland_Mapping_Tool_Phase2.pdf Add files via upload 15 days ago Open in Desktop **Download ZIP ■ README.md** This puts the Forested Wetlands ForestedWetlands-Master.zip file into your downloads Code for building raster files of elevation derivatives, python and R scripts for using these rasters for building and applying random forest models of wetland presence/absence in ArcGIS Pro directory.

Here are the contents of that zip archive:



<u>DEMutilities</u> is a folder containing the files needed to install the DEMutilities toolbox in ArcGIS Pro.

WetlandTools is a folder containing the files needed to install the WetlandTools toolbox in ArcGIS Pro.

"Wetland Intrinsic Potential Tool Phase1.pdf" is the final report for Phase 1 of the project, and includes the user manual for the Phase 1 Wetland Intrinsic Potential Tool.

"Wetland Mapping Tool Phase2.pdf" is the report for Phase 2.

Unzip the DEMutilities and WetlandTools folders to where you want them on your computer.

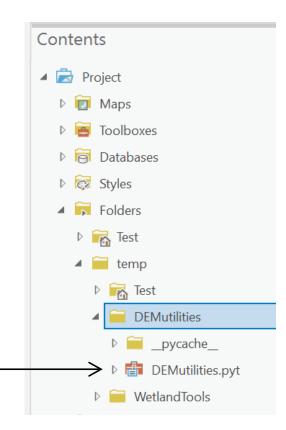
Within the DEMutilities folder is another zip file, ExecutableFiles.zip. It contains 3 files:

- i. MakeGrids.exe
- ii. LocalRelief.exe.
- iii. Libiomp5mp.dll

Unzip these into the DEMutilities folder.

In ArcGIS Pro, go to the "View" tab and click "Catalog Pane". In the table of contents, go to "Folders" and right-click to "Add Folder Connection". Navigate to the location of the DEMutilities and WetlandTools folders and add that folder to the table of contents.

Click on the folder you just added to expand it in the table of contents, then click on the DEMutilities folder. You should see a python-tool icon for DEMutilities.pyt

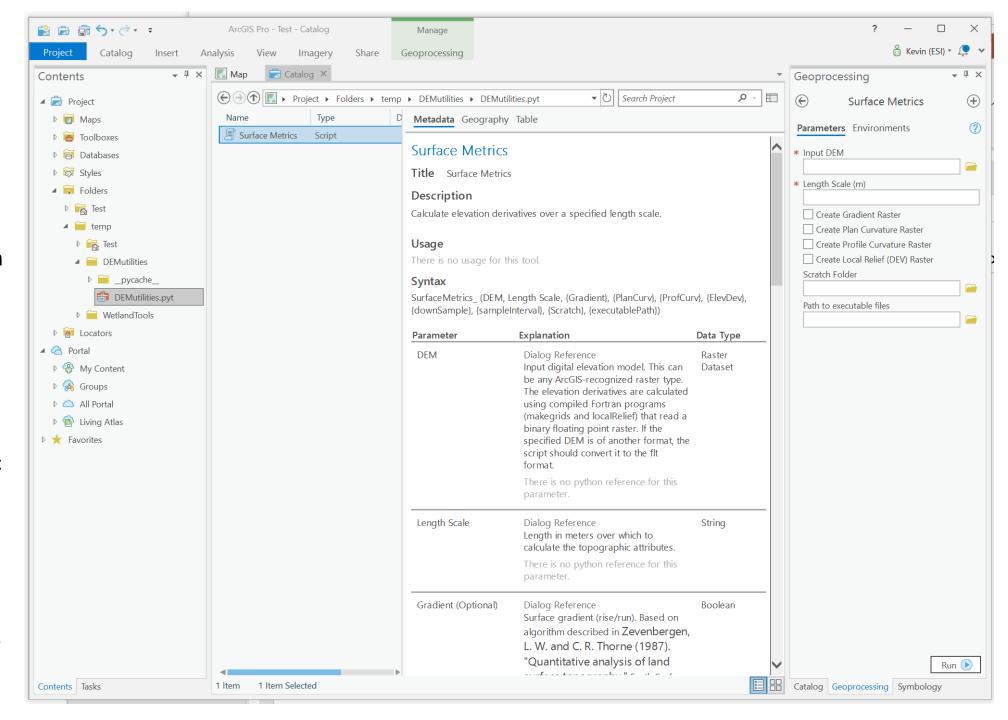


Within the DEMutilities.pyt toolbox is a single script: Surface Metrics.

Click on it to open the script in the Geoprocessing window and to show a description of the tool in the Metadata window.

Follow instructions in the metadata.

This tool creates new raster files of topographic attributes stored in binary floating point format. These raster files provide the input explanatory variables for the random forest model.



Similarly for the WetlandTools toolbox.

It contains two scripts: Build Random Forest Run Random Forest

Use the Build Random Forest script to train a model using point locations classified as wetland or upland (not wetland).

Use the Run Random
Forest script to apply
an existing random
forest model – built
with the Build Random
Forest script – at new
locations or to see
how well the model
works when compared
to new field data.

