Getting started on the cloud and function documentation

4 functions are described in this file that allow analyses and exploration after pulling in data from the Google Cloud. These may take some time to run but do not burden PCs.

**datafromcloud(species,resolution,rawpath,mappath)**

This function takes in the common name of a single ‘species’ and/or a spatial ‘resolution’ (“g1”,”g2”,”g3”,”g4”,”g5”,”district”,”state” as defined in the other file) at which to append map variables and **returns expanded data for that species**. It pulls data from the Google Cloud and adds all variables that are important (including map variables) and renames columns to match data on the system.

‘resolution’ defaults to “none”, ‘rawpath’ defaults to ‘aug2018’ and ‘mappath’ defaults to ‘maps.RData’ which is consistent throughout all functions. The workspace stored at ‘mappath’ is loaded within and the function ‘expandcloud’ is called within.

libraries required – lubridate, tidyverse, bigrquery, DBI, stringr, data.table, sp, rgeos

**expandcloud(data,species,checklistinfo)**

‘checklistinfo’ is the most important parameter here which **represents all unique combinations of checklist level information**, making for easy expansion. ‘species’ is the common name of a single species and ‘data’ is just a 2 column dataframe with group.id and OBSERVATION.COUNT of every row containing an observation of the species in question.

The function returns an expanded dataframe.

libraries required – tidyverse

**plotfreqmapcloud(species,resolution,rawpath,mappath)**

Arguments are identical to ‘datafromcloud’. It returns a ggplot object much like ‘plotfreqmap’. The function loads ‘maps.RData’ and ‘mask.RData’ and calls ‘datafromcloud’ and therefore ‘expandcloud’.

libraries required – tidyverse, ggfortify, viridis

**freqcomparecloud(species,tempres,spaceres)**

Arguments and returned objects are identical to ‘freqcompare’ except that data is pulled from the cloud. The function calls ‘datafromcloud’ and therefore ‘expandcloud’.

libraries required – tidyverse, lme4