**Grassland songbird harmonizing point counts workflow**

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1. *QPAD Offest Estimation*
2. In the GRASS database:
   1. open the query “Matrix1\_2” in design view, and change the “GRASS\_SPP” criteria to the species to be modelled. Save and close.
   2. Run the query “Matrix1\_3” and save as “[SPP]\_counts.csv” substituting [SPP] for the four letter species code.
   3. Open the “SPP\_PC” query in design view, and change the “SPPCODE” criteria to the species to be modelled. Run the query, save the query, then export as a .txt file using comma delineated and including column headers, titled “[SPP]\_data.txt”
3. In R script removalmodel.R:
   1. Set your working directory, li2
   2. Change file name in li6 to load “[SPP]\_counts.csv” saved in step 1b
   3. Change file name in li37 to “[SPP]\_data.txt” saved in step 1c
   4. Li74 will return the name of the top model. Enter this model in li76
   5. Change the filename in li77 for the species rda file.
4. In R script distancesampling.R:
   1. Change the species code in li33
   2. Change the filename in li64 for the species rda file.
5. In R script offsets2.R:
   1. Load in the offsets as you saved them in li3 and li4.
   2. Choose the script in li77-78 (to be updated) corresponding with the removal model used for that species, to calculate phi.
   3. Change the filename of the offset save file in li89.