Energy-Ecology Project Outputs Folder:

This folder contains the estimated weekly detection probability of bird species in Massachusetts towns from 2005-2018. Detection probability is the probability of an observer detecting a species during a bird survey. It is a measure of relative bird abundance. Detection probability (hereafter ‘DP’) estimates were predicted using a random forest approach outlined in the eBird data Best Practices ([Strimas-Mackey et al. 2020](https://cornelllabofornithology.github.io/ebird-best-practices/encounter.html)).

Contains 14 folders, one for each bird species, labeled by species 4 letter codes. Species were selected based on their susceptibility to interfering with the power grid (NRECA 2006, Chow and Taylor 1995, [Avian Power Line Interaction Committee (APLIC), 2006](https://www.nrc.gov/docs/ML1224/ML12243A391.pdf)):

**Flocking/roosting species – shake powerline cables**

Bhco=Brown-headed cowbird

Cogr= Common grackle

Rwbl=Red-winged blackbird

Modo=Mourning dove

**Cavity nesters - build nests in electrical equipment (also flocking species)**

Eust=European Starling

Hosp=House sparrow

**Wingspan/size electrocution, dropping prey onto lines**

Ospr=Osprey

Tuvu=Turkey vulture

Rtha=Red-tailed hawk

**Pole damage (Polat et al. 2018)**

Dowo=Downy woodpecker

Hawo=Hairy woodpecker

Nofl=Norther flicker

Piwo=Pileated woodpecker

Rbwo=Red-bellied woodpecker

Each species folder contains:

1. Data:

**SpeciesCode\_weekly\_DP\_MAtowns\_05\_18.csv** = Weekly DP estimates for every MA town 2005-2018. Important variables are **city** (MA town name), **date**, **eBird.DP.RF** (detection probability), **eBird.DP.RF** (inverse of the standard error for the DP estimate). Also included are the covariates used in the RF predictions (survey effort and environmental variables).

**SpeciesCode\_weekly\_DP\_MA\_05\_18.csv** = State-level weekly DP estimates. State-level values are the average town-level DPs weighted by the inverse of their standard errors; placing less weight on estimates with greater uncertainty.

1. Figures:

**SpeciesCode\_weekly\_townmaps\_2018** = Massachusetts towns mapped by their DP for the species. Towns are mapped every 10 weeks throughout 2018 to show how DP changes across the state throughout the seasons.

**SpeciesCode\_town\_plots** = Weekly town-level DP time series for six sample towns. Three temporal resolutions: **Top**, weekly DP plotted across all years; **Bottom**, weekly DP plotted for a single year.

**SpeciesCode\_state\_plots** = Weekly state-level DP time series (State-level values are the average town-level DPs weighted by the inverse of their standard errors; less weight placed on estimates with greater uncertainty). Three temporal resolutions: **Top**, DP annual mean plotted across all years; **Middle**, weekly DP plotted across all years; **Bottom**, weekly DP plotted for a single year.