**Robert L. Emmet, Robert A. Long, and Beth Gardner. Modeling multi-scale occupancy for monitoring rare and highly mobile species. Ecosphere.**

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LIST OF FILES:

**Files in folder ct\_vs\_dt\_sims (analysis code for Methods subsection "Simulation"):**

-runallscens\_idds.R: wrapper script with simulation setup, functions, and JAGS code

-runscen\_idds.R: simulates data and runs models for a specific simulation scenario

**Files in folder power\_analysis (analysis code for Methods subsection "Power analysis"):**

-pop\_sim\_and\_detect\_functions.R: functions to simulate wolverine populations, movement, and detection by camera grids

-runallscens\_idds.R: wrapper script with simulation setup and JAGS code

-runscen\_idds.R: simulates data and runs models for a specific power analysis scenario

**Other files:**

- highlymobile\_occ.Rmd: code to run data analysis and analyze simulation results

-wolverinepoiswa.txt: JAGS model file for wolverine data analysis (continuous-time multi-scale occupancy model)

-wolverinedtdowa.txt: JAGS model file for wolverine data analysis (discrete-time multi-scale occupancy model)

The data used in this paper are not owned by any of the coauthors on this manuscript. I have provided code that I used to run the data analysis and analyze simulation results in highlymobile\_occ.Rmd.

The data analysis code is provided in the code chunk titled "wolverine\_data\_analysis".

JAGS model files for the data analysis are provided in wolverinepoiswa.txt and wolverinedtdowa.txt

Please contact R.L. Emmet for questions about the data analysis code.

INSTRUCTIONS TO RUN CODE IN FOLDERS:

1. Begin a new R session/ensure global environment is empty.

2. Install any packages required to run the code (including external software JAGS).

3. Change line 4 in runallscens\_idds.R and line 3 in runallscens\_pwr.R.

4. Run code.