**Readme file for “IS\_organized/analysis” folder**

Summary: Folder of data and R files used in final analysis for IS, including a file that creates all IS figures

Important files:

* allData\_IS/M&S\_model\_data: folder containing data from M&S sensitivity analysis
* allData\_IS/C&E\_model\_data: folder containing data from C&E sensitivity analysis
* FINAL\_figures\_3.2.2020.Rmd: file that produces all figures in my IS

1. **ExploratoryFigs :**potentially usefulfigures made during EDA
   1. **allData\_IS** : folder of all Rdata and csv files used for FINAL\_figures\_3.2.2020.Rmd file
      1. **M&S\_model\_data** : folder with data from M&S model sensitivity analysis, changing one factor at a time (contains two sets of data - each with 50 runs of 2,000 ticks for each set of parameters)
         * The RData files:
           1. This is raw data of individual runs exported from NetLogo, with data for each period (to convert to end-of-simulation summary statistics data frame use setupFile2.R)
           2. Named after the parameter that is varied (i.e. monitoring-level, sanction-level, initial-prob-cheat, cost, max-tree-growth, reference-threshold, initial-loggers)
           3. Each file consists of a variable called “dataOut” that is a list that is the length of the number of different values tested for that parameter (for parameter values, see IS or JGR\_runningNetLogo/M&S\_sensitivityAnalysis\_FINAL)

Note: don’t load all at once, or they will overwrite each other. Load one file and save dataOut into another variable before loading the next RData file

* + - * 1. Each element of the list consists of a list of 50 runs of the simulation for that parameter set.
        2. Each run contains values of the plots outputted from NetLogo at the end of each period (for 200 periods, i.e. 2000 ticks)
      * csv files:
        1. End-of-simulation summary statistics for for each parameter varied and for all of the data combined (allData.csv)
        2. Includes (all values at end of simulation):

variableValue: value of parameter that is being varied

K: institution

Unsatisfied: number of unsatisfied loggers

Payoffs: mean payoff of loggers

Total BM: BM (as % of original)

GreenPatches: Green Patches (as % of original)

beta.i: mean reference-trees

k.i: mean minimal-cut

numLoggers: number of loggers (as % of original)

Param: what parameter is being varied

Depleted: true if TotalBM<0.1

lowK : true if K < 10.12 (value chosen because that’s where the trough of the bimodal BM distribution was)

* + 1. **vallinoData** : folder with data from C&E model sensitivity analysis, changing one factor at a time (50 runs of 2,000 ticks for each set of parameters)
       - The RData files:
         1. This is raw data of individual runs exported from NetLogo, with data for each period (to convert to end-of-simulation summary statistics data frame use setupVallino.R)
         2. Named after the parameter that is varied (i.e. enforcement-level, initial-prob-cheat, cost, max-tree-growth, reference-threshold, initial-loggers)
         3. Each file consists of a variable called “dataOut” that is a list that is the length of the number of different values tested for that parameter (for parameter values, see IS or JGR\_runningNetLogo/C&E\_sensitivityAnalysis\_FINAL)
         4. Each element of the list consists of a list of 50 runs of the simulation for that parameter set
         5. Each run contains values of the plots outputted from NetLogo at the end of each period (for 200 periods, i.e. 2000 ticks)
         6. csv files:

End of simulation summary statistics for each parameter value and for all of the data combined (allData\_vallino.csv)

For more description see above M&S\_model\_data

* + 1. Several files with data used for figures in IS thesis
       - *sheep50wolves200.csv* : number of sheep and wolves outputted for 10 runs of NetLogo’s Wolf Sheep Predation ABM, starting with initial conditions sheep = 50 and wolves = 200 (sheep-reproduce = 4%, wolf-reproduce = 5%)
       - *Sheep50wolves100.csv* : number of sheep and wolves outputted for 10 runs of NetLogo’s Wolf Sheep Predation ABM, starting with initial conditions sheep = 50 and wolves = 100 (sheep-reproduce = 4%, wolf-reproduce = 5%)
       - *wolvesSheep\_difEQdata* : number of sheep and wolves outputted by NetLogo’s implementation of the Lotka-Volterra equations with initial conditions sheep = 50 and wolves = 100 or wolves = 200 ( predatorEfficiency = 1, predationRate = 3\*10^-4, wolves-death-rate = 0.15)
       - *bravo\_modelRun.csv* : exported graph outputs from NetLogo for a single run of Bravo’s Open Access model
       - *Log1000.csv* : exported graph outputs from NetLogo for a single run of Vallino’s C&E model with initial-loggers = 1000 (all other parameters at base values)
  1. **Figs** : FINAL\_figures\_3.2.2020.Rmd saves all of the figures in this folder. Also contains knitted version of this file for both sets of data in M&S\_model\_data
  2. *distributionOfCheaters.Rmd* : the "R" mini-simulation of what the distribution of prob-cheat is for 3 different monitoring levels (assuming loggers are perpetually unsatisfied  
      -- Saves data into "cheatProb\_distribution.RData"
  3. *FINAL\_figures\_3.2.2020.Rmd* : creates the figures in my IS   
      -- Uses setupFile2.R, setupVallino.R, setupLVequations.R
  4. *publication\_exploration1.Rmd* : R file with exploration figures for working on the publication
  5. *setupFile2.R* :
     1. Loads data from M&S Model runs (two sets of data - can choose which one to load within file)   
         -- Uses RData files from the folder allData\_IS/M&S\_model\_data
     2. Creates several functions used for organizing data
     3. Organizes data into data frames of end-of-simulation summary statistics (e.g. Final BM%, final number of cheaters, etc.); 1 data frame per parameter that is analyzed, 1 data frame with base data, and 1 data frame combining all of the data
  6. *setupLVequations.R* :
     1. Sets up data for comparing model to Lotka-Volterra differential equations   
         -- Uses from allData\_IS: logger\_and\_bm\_data.RData, changeEnf\_log1000.RData, fitToLV.csv
  7. *setupVallino.R* :
     1. Loads RData files from allData\_IS/vallinoData