**Interacting and non-linear avian responses to mixed-severity wildfire and time since fire**

**Manuscript Authors**

Taillie, Paul J.,†1 Burnett, Ryan D.,2 Roberts, L. Jay,2 Campos, Brent R.,2 Peterson, M. Nils,1 Moorman, Christopher E.1

1 *North Carolina State University, Fisheries, Wildlife, and Conservation Biology Program, Department of Forestry and Environmental Resources, Raleigh, NC 27695*

2 *Point Blue Conservation Science 3820 Cypress Drive #11, Petaluma, CA 94954*

**Journal**

Ecosphere

**Supplemental Materials**

Analysis of post-wildfire bird densities in northern California

R project name: Taillie\_CA\_fire

6 January, 2018

Paul J. Taillie1

1 *North Carolina State University, Fisheries, Wildlife, and Conservation Biology Program, Department of Forestry and Environmental Resources, Raleigh, NC 27695*

**Project Overview and Script Format**

The project includes all the required data and code to fit models, summarize results, and produce figures. The files are grouped in an R project and thus are relatively linked. This means that you do not have to change your working directory to get scripts to run on your machine. Simply unzip the folder, open R, select file>open project>browse to the unzipped folder>click the rproject file with the name listed above in heading. Each script starts with a preamble that will clear your workspace and load the required packages. You may have to install packages first if they are not yet installed on your machine. Otherwise, the script should run from start to finish.

**Naming and Organization of Files**

The first letter of a script file relates to a hierarchy of dependency. For example, scripts starting with “a” need to be run before scripts starting with “b.”

“a” scripts

* Do not depend on other scripts
* Use data from “raw\_data” folder
* Typically involve data formatting
* Last line writes formatted data to “processed\_data” folder

“b” scripts

* Depend on output from “a” scripts
* Data read from “processed\_data” folder (usually)
* These scripts typically perform an analysis

“c” scripts

* Depend on processed data
* Typically used to summarize data or produce graphics

“Figures” folder

* Destination folder for figures created from graphics scripts

**List of Files**

Raw data

ArcGIS\_covs.csv – Site covariate data derived from publicly available spatial data in raster format.

bird\_data.csv – observation covariate and bird observations. Minimal preliminary analysis not included here.

Processed data

results\_burned – Parameter estimates, standard errors, and peak density estimates for all bird species analyzed.

results\_burned\_lowsev – Densities with confidence intervals calculated by averaging (rather than peak density above) across time since fire for species that reached their greatest density 1 year following low severity fire.

results\_unburned – Densities with confidence intervals obtained from models of observations in unburned forest.

siteCovs\_formatted – formatted site covariate data; output from “a\_format\_siteCovs.R.”

species – list of species to be analyzed and best key function produced from preliminary analysis.

Script Files

a\_format\_siteCovs.R – format site covariates.

b\_fit\_models\_burned – fit models for burned points.

b\_fit\_models\_burned\_lowseverity – same as above but calculates predicted density averaged across time since fire.

b\_fit\_models\_unburned – fit models for unburned points.

c\_graphics – produce manuscript figures

c\_graphics\_prefire\_condition – produce prefire condition graphic (figure 6) for manuscript