**Activity 1: Types of Historical Occurrence data (10 min)**

*\*you may not use your notes or the paper itself!*

On your board, list the **four types of historical occurrence data** described in today’s reading. (If you do not know them, you can give up a point from your score on this activity to have me tell them to you)

Next to each type, place the correct square figure that represent the type of data recovered in that type of occurrence data, and the type(s) of inference that can be made with that type of data (i.e. extinction, colonization, change in population size)

When you are finished, return to your seats.

When all groups are finished, we will discuss and grade each other.

**Activity 2: Addressing biases in studies using historical data from museum specimens (25 min, 6 min per paper)**

\**Still, you may NOT use the paper we read. But you can use your notes.*

Read the methods sections of the four papers in your folder (these are on Moodle as well, for those with internet-enabled devices).

Fill in the following chart on your boardspace:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Paper Topic** | **Type of historical data used (same categories as in activity 1)** | **Attempted to resurvey specific localities?**  **(yes or No)** | **Addressed differences in methodology or similar factors? (Statistically, Verbally, or No)** | **Addressed false absences?**  **(Statistically, Verbally, or No)** |
| Wetland specialist Swertia perennis |  |  |  |  |
| Amphibians Mojave desert |  |  |  |  |
| White-tailed ptarmigan |  |  |  |  |
| Mammals of Yosemite |  |  |  |  |

**Activity 3: Occupancy modeling: Paired and Unpaired sites comparison (10 min)**

On your board, write the two types of occupancy models from Table 1 (you can use your copy of the paper and any notes you have).

Write the following statements up next to the type of model they correspond to. Some may go with **both** models.

**You use this model when…**

* 1. You surveyed at 20 *different* sites every 2 years for 20 years; and, you also surveyed 3 sites every 2 years for the same 20 years. Most of the sites either remained occupied or unoccupied at each survey site.
  2. you surveyed the same 20 sites every 2 years for 20 years.
  3. You don’t know a precise location for where the specimens were collected or the observations were made during historical surveys
  4. You know that where a species occurs is related to the rainfall at a site (and you know how much rain falls at each site)
  5. You want to examine how a species distribution has changed over a temperature gradient at sites over time