# **Team B**

Question:

Hypothesis:

# The Scientific Method

**Day 2: Step 4 – 6 in the Scientific Method**

Sage-grouse Location Information:

|  |  |  |
| --- | --- | --- |
| Sex | Flag# | Location or Random |
| F |  | Location |
| F |  | Random |
| F |  | Location |
| F |  | Random |

# Objectives

Today, you will continue your investigation of Greater sage-grouse. First, you will strengthen your skills with a GPS Unit as you use it to find locations. The locations were obtained through satellite telemetry, via a transmitter on the back of a sage grouse. Second, you will increase your observational skills as you look for “sign” of sage-grouse and other animals: feces, tracks, feathers. Third you will learn how to assess habitat characteristics of sage-grouse by recording information on height of vegetation. Fourth, you will learn how to correctly record data onto a data sheet and how to summarize that data. Finally, using that data, you will practice how to interpret data to support or refute a hypothesis.

# Step 4: Data Collection

# Instructions

1. Break into your teams

2. Obtain data collection materials from Nicki. Each team has a unique list of locations and a unique hypothesis

**3. Listen closely to Nicki’s instructions and example of data collection**

4. Nicki and Ms. Warner have pre-entered locations for you. You just need to find your flag.

**GROUND COMPOSITION**

5. When you get to your first location designate a Person A to stand at this location, holding the meter tape.

6. Designate a Person B

7. Find compass bearing 90**°**

* 1. Have Person B, walk along the 90**° bearing with the meter tape, out to 5 meters.**
  2. Those people not holding the tape will now collect shrub data

8. Place your hoop over the meter tape so that the outer ring is at the end of the tape, with the tape centered through the hoop. Remove the tape from the area within the hoop.

9. Look inside the hoop. Estimate how much of the area is fill by Shrubs, Grasses and Forbs, Litter (Dead material), Rock, and Bare Ground. The number should equal 100% when you add them all up.

Pick the substance that is the most abundant and start with that.

10. Enter the data so that is looks like this:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sex | Flag | Degree | % Shrub | %Forb | % Litter | %Rock | % Bare |
| F | 1 | 90 | 50 | 25 | 10 | 10 | 5 |
| F | 1 | 180 | 0 | 70 | <1 | 5 | 25 |
| F | 1 | 270 | 45 | 0 | <1 | 0 | 55 |
| f | 1 | 360 | 0 | 0 | 55 | 20 | 25 |

SEX AND FLAG LOCATION WILL BE REPEATED 4 TIMES PER LOCATION. EACH DEGREE LINE WILL BE ENTERED ON ONE ROW.

11. When you have recorded all shrubs in the 5-meter line, have person A reel the meter tape in.

12. Find compass bearing 180 and repeat steps 7 -10 for this bearing. Then repeat for bearings 270 and 360/0.

YOU FINISHED ONE DATA POINT!! NOW GO FIND THE NEXT SAGE GROUSE LOCATION. REPEAT STEPS FOR ALL 3 LOCATIONS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Team B | | | | | | | | |
|  |  |  |  |  |  |  |  |  |
| Frequency | Sex | FLAG  Location | Degree | % Shrub | %Forb | % Litter | %Rock | % Bare |
|  |  | 1 | 90 |  |  |  |  |  |
|  |  | 1 | 180 |  |  |  |  |  |
|  |  | 1 | 270 |  |  |  |  |  |
|  |  | 1 | 360 |  |  |  |  |  |
|  |  | Average of Plot 1 | |  |  |  |  |  |
|  |  | 2 | 90 |  |  |  |  |  |
|  |  | 2 | 180 |  |  |  |  |  |
|  |  | 2 | 270 |  |  |  |  |  |
|  |  | 2 | 360 |  |  |  |  |  |
|  |  | Average of Plot 2 | |  |  |  |  |  |
|  |  | 3 | 90 |  |  |  |  |  |
|  |  | 3 | 180 |  |  |  |  |  |
|  |  | 3 | 270 |  |  |  |  |  |
|  |  | 3 | 360 |  |  |  |  |  |
|  |  | Average of Plot 3 | |  |  |  |  |  |
|  |  | 4 | 90 |  |  |  |  |  |
|  |  | 4 | 180 |  |  |  |  |  |
|  |  | 4 | 270 |  |  |  |  |  |
|  |  | 4 | 360 |  |  |  |  |  |
|  |  | Average of Plot 4 | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

Step 5: Analyze Results

**Ground composition**

**Find the average % composition for each GPS location.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Ave Flag 1** | **Ave Flag 2** | **Ave Flag 3** | **Ave Flag 4** |
| Shrub |  |  |  |  |
| Grass/Forb |  |  |  |  |
| Bare Rock |  |  |  |  |
| Dead Material |  |  |  |  |
| Other |  |  |  |  |

What was the average % of shrubs found across all waypoints?

What was the average % of bare ground found across all waypoints?

Were there trees in your locations? How did that affect % composition?

# Step 6: Support or Refute Your Hypothesis

1. Does your data support your hypothesis?

2. What other data would help you support your hypothesis with more confidence?

3. Now that you have collected some data on sage-grouse habitat characteristics, what other questions do you want to know the answer to?