Measuring Stress-Induced Hormone Levels in Dusky Grouse

By Dominique Davis

Advisors

Stephanie Landry and Dave Dahlgren

Dusky Grouse

Found in mountain forests throughout the western US and Canada

Liron Gertsman via Macaulay Library

Female

David Brown via Macaulay Library

Male

Dusky Grouse and Stress

Alex Sliwa Photography

Predators

Ad Konings via Macaulay Library

Reproduction

Joshua Covill via Macaulay Library

Environmental Variables

Corticosterone

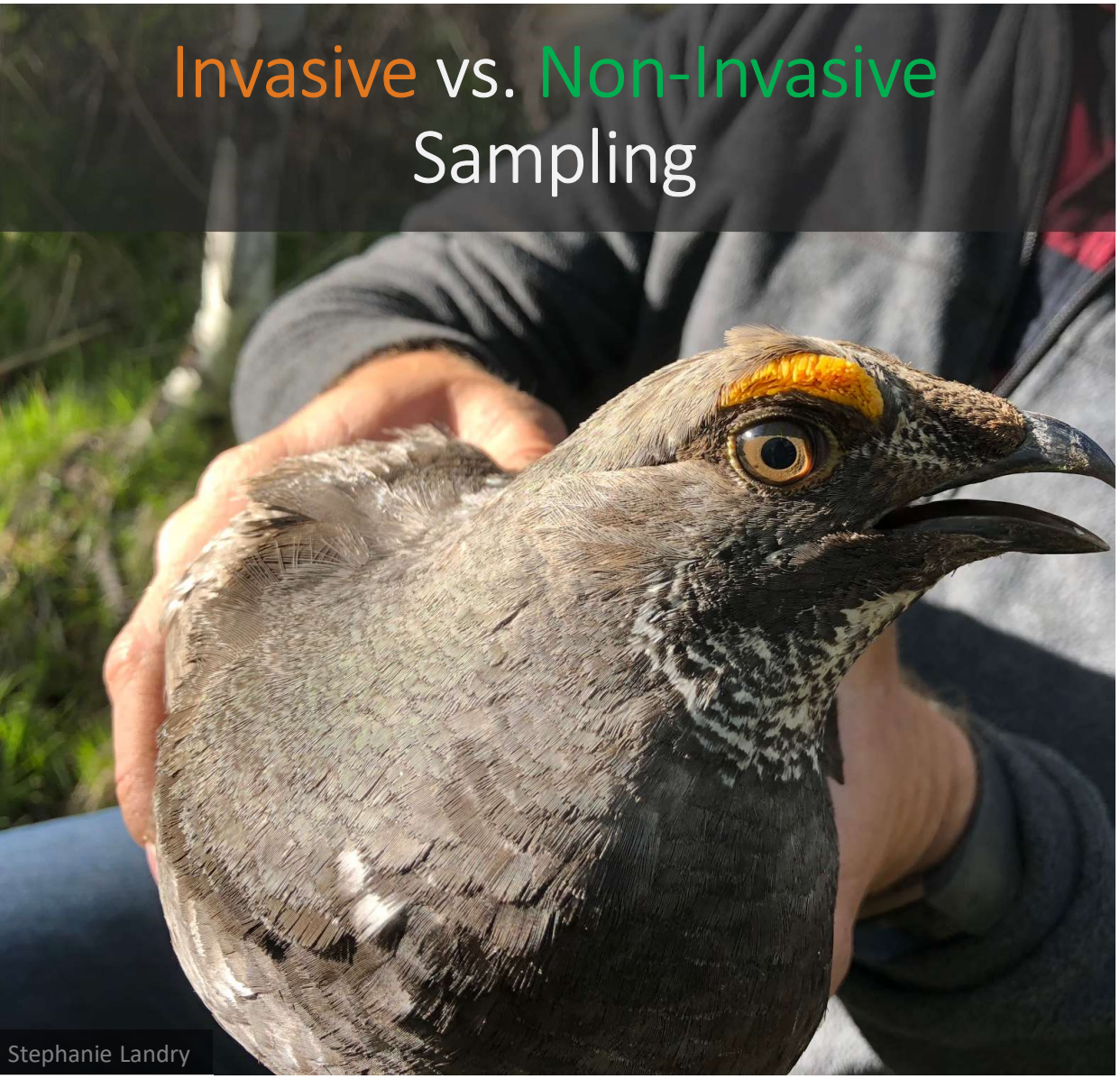
What is it?

How is it relevant to dusky grouse?

Why is it important?

John Reynolds via Macaulay Library

Invasive vs. Non-Invasive Sampling



Invasive

- Blood samples
- Risk of animal mortality
- Difficult and stressful
- Fast hormone level fluctuation
- Possible biased results

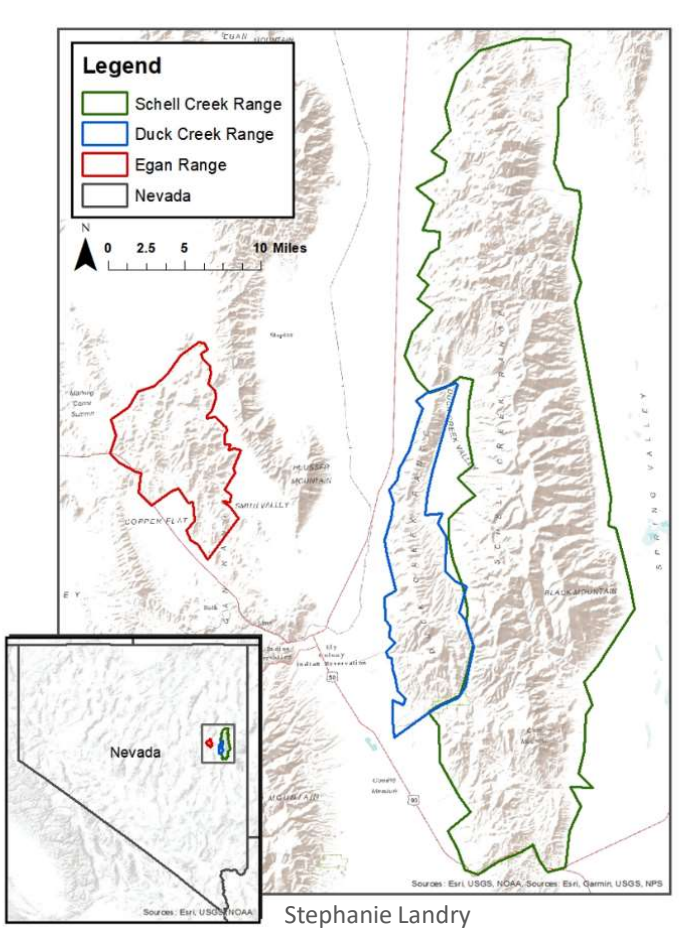
Non-Invasive

- Fecal/hair/feather samples
- Capture not always needed
- Hormone levels over a longer period
- Sampling method should not bias hormone levels


Stephanie Landry

Study Area

- White Pine County, Nevada
- The Great Basin Ecosystem
- Stressors and human activity



Stephanie Landry

Study Goals

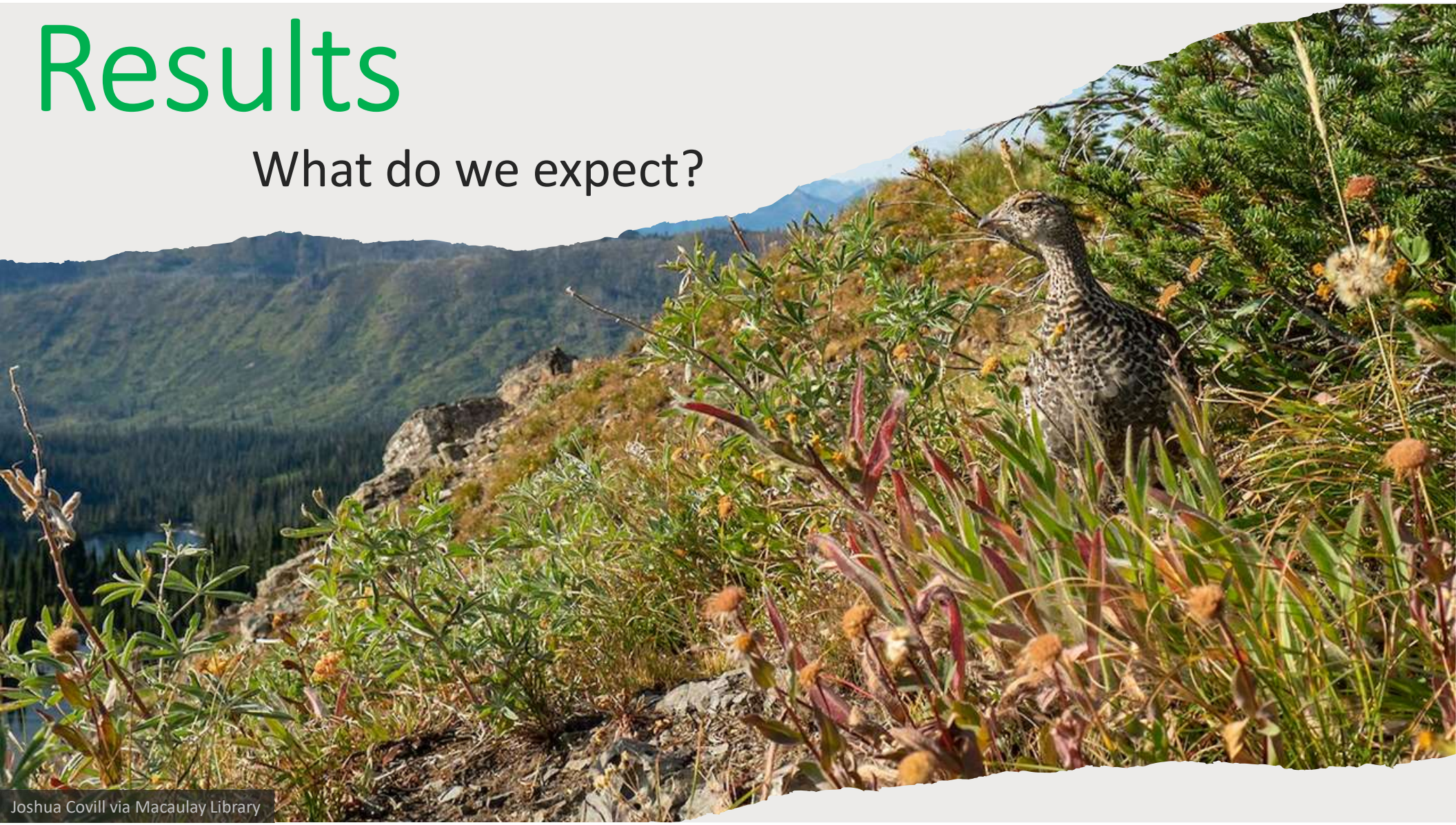
- Quantify dusky grouse baseline corticosterone levels
- Comparing corticosterone levels across:
  - Sexes
  - Age classes
  - Reproductive stages

Lab Work

- Sample **collection**
- **Preparing** samples for analysis
- **Extracting** corticosterone
  - Phosphate methanol extraction (fecal samples)
  - Grinding prep followed by ethanol extraction (feather samples)
- **Measuring** corticosterone
  - ELISA Corticosterone Assay Kits
    - Validating the assay for our samples
    - Post-validation running all samples

Results

What do we expect?



Joshua Covill via Macaulay Library

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Questions?