

# Investigating Alabama's Eagles

As a kid, Mercedes Maddox loved spending time outdoors looking for animals. She found insects, green tree frogs, and more. Maddox had lots of questions about the animals she found. When she caught green tree frogs, she wondered, Why are they so green? What makes them slimy? Maddox says, "I was never satisfied. I always had more questions."



Mercedes Maddox investigates golden eagles for the state of Alabama.

Today, Maddox is a scientist who works for the state of Alabama. Asking questions about animals is her job!

She **investigates** birds and other wild animals that live in Alabama. Maddox asks many questions: What **species** of birds are found in Alabama? What **environments** are they using? Are there more birds than there used to be or fewer? If a species is in trouble, how can we help?

First, Maddox investigates her questions by gathering **data**. Next, she looks for **patterns** in the data. Finding patterns in the data can help her answer her questions. For example, Maddox is using patterns in data to investigate questions about golden eagles. She works with scientists in many different states on this project, and it has been going on for years.

Golden eagles are huge birds with wings that stretch wider than the height of a person. They get their name from the golden-brown feathers on the back of their necks. Strong feet with sharp talons help golden eagles catch rabbits and other small animals to eat. Maddox and other scientists have many questions about these powerful birds.



**Golden eagles are powerful birds that hunt small animals for food.**

### **Question: Are there golden eagles in Alabama?**

To investigate this question, Maddox sets camera traps in forests in different parts of Alabama. She uses dead animals as bait to attract the eagles. Golden eagles usually hunt for their food, but they will eat dead animals if they find them. Whenever an eagle lands to eat meat from the dead animal, the camera takes a picture.

Pictures from the camera traps are giving Maddox lots of data about golden eagles in Alabama. She can find patterns in the data. Golden eagles visit the traps in the winter, usually between December and March. The same golden eagles have returned to the same traps year after year. Based on these patterns, Maddox can say that some golden eagles spend every winter in Alabama.

### **Question: What environments are golden eagles using in Alabama?**

The camera traps are helping to investigate this question, too. Maddox helps other scientists use nets to catch some of the golden eagles that land at her traps. When the scientists catch an eagle, they calm it down by putting a hood over its eyes. Then they attach a small box to the eagle's back, using straps just like backpack straps. The box is called a backpack transmitter! It records where the eagle goes and sends the data back to the scientists.



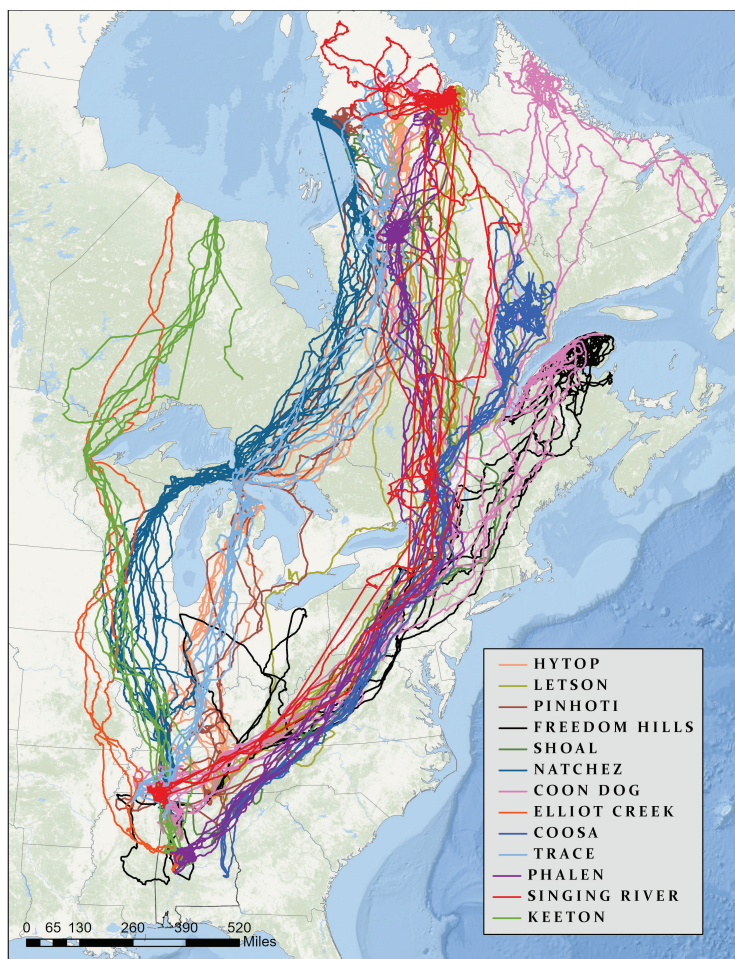
**This golden eagle is wearing a backpack transmitter.**

The backpack transmitters show Maddox where the golden eagles are spending their time in Alabama. She has noticed a very clear pattern in the data: the golden eagles are using forest environments in Alabama. They seem to avoid all cities, towns, and other areas with lots of people.



**Question: Where do these golden eagles travel when they're not in Alabama?**

Using data from the backpack transmitters, Maddox makes maps showing where golden eagles travel when they leave Alabama. Maddox can point to interesting patterns in the data. After spending the winter in Alabama, all of the golden eagles fly north in the spring. They spend the summer in Canada. Then, in the fall, the eagles fly south again. Each eagle usually returns to spend the winter in the same part of Alabama over and over again.



This map shows the routes different golden eagles took to travel between Alabama and Canada. Each color represents a different eagle.

Flying north and south each year is called migrating. Migrating is a **trait** that all of these golden eagles share. There is **variation** in the routes the eagles take when they migrate, though. Some eagles fly over the Great Lakes. Others fly over the mountains. Based on patterns in the data, it seems like golden eagles may learn their routes over time. Young eagles wander around as they travel between Alabama and Canada, as if they are trying out different routes. Older eagles have favorite routes that they always take, year after year.

**Question: Is the number of golden eagles in Alabama increasing, decreasing, or staying the same?**

Maddox and other scientists need more data to help answer this question. As they get more data, they will look for patterns. What kinds of data do you think they might look for? What kinds of patterns do you think they might find?

## About Mercedes Maddox

Mercedes Maddox is a wildlife biologist at the Alabama Department of Conservation and Natural Resources. She grew up in Georgia, and her family is originally from Peru. Maddox likes traveling and going hiking with her dog. She is planting a garden with plants that attract bees, butterflies, and other pollinators.



In this photo, Mercedes Maddox is holding a golden eagle. She says they feel surprisingly light for such big birds.