

## Fantastic Birds and Where to Find Them Worksheet

**First**, take a look at Map 1 below. Heat maps are a visual representation of data using colors. In these maps warmer colors (red and yellow) represent locations with more specimen records and cooler colors (blue and purple) represent places with less specimen records.



Map 1: Heat map of specimen records of the Red-cockaded Woodpecker.

1. Based on these maps describe the Red-Cockaded Woodpecker's general distribution:

2. Would it be possible see a Red-Cockaded Woodpecker in a natural area near you? Why, or why not?

3. What are some potential factors that could affect a species' distribution?

4. These data come from natural history collection specimens. What is a natural history collection? What do scientists use natural history collections for?







**Now**, we will look more closely at where Red-cockaded Woodpeckers occur throughout their range. Take a look at the map below. The map displays the specimen records as points along with general ecoregions for the United States.



Map 2: North American Ecoregions - Level II (EPA) specimen records of Red-cockaded Woodpecker (dark blue points).

Legend North American Ecoregions - Level II (EPA) 8.1 MIXED WOOD PLAINS 8.3 SOUTHEASTERN USA PLAINS 8.4 OZARK/OUACHITA-APPALACHIAN FORESTS 9.4 SOUTH CENTRAL SEMIARID PRAIRIES 9.2 TEMPERATE PRAIRIES 9.5 TEXAS-LOUISIANA COASTAL PLAIN 15.4 EVERGLADES





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6. Name the top ecoregion where Red-cockaded Woodpeckers are found according to this map.

7. What inferences can you make about their ecoregion preference?-\_\_\_\_

**Next**, we can look at the species' occurrence at an even finer scale by using a map of forest types for the southeast. Map 3 displays Red-cockaded Woodpecker specimen records as orange points over a visualization of forest types.

Pink areas are primarily pine forests, blue areas are dominated by oak, turquoise areas are mixed upland hardwoods, purple are pine/hardwood forests and the white areas represent no data.



Map 3: USA forest type and specimen records of Red-cockaded Woodpecker (orange points).

6. Based on this map, what forest types are preferred by Red-cockaded woodpeckers?



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## STOP HERE and WAIT for further instructions.

Red-Cockaded Woodpeckers are one of the few birds that are endemic to (i.e., found only in) the United States. They live in mature southern pine forests with a preference for Longleaf Pines (*Pinus palustris*). Red-Cockaded Woodpeckers use pine trees for foraging and probe the tree's bark looking for beetles, ants, roaches, and other insects.

Scientists are always collecting and analyzing new data to see if it either supports or does not support previous findings. Nothing is ever black and white in science.



7. Does Map 4 support the statement above in blue?

**Map 4**: Heat map of specimen records of the Longleaf Pine and specimen records of Red-cockaded Woodpecker (orange points).



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8. Which of the following did you observe for distribution of Longleaf Pine relative to the Red-cockaded Woodpecker?

- Distribution of *Longleaf Pine* overlaps completely with the *Red-cockaded woodpecker*.
- Distribution of *Longleaf Pine* is more extensive than the *Red-cockaded Woodpecker* species.
- Distribution of the *Red-cockaded Woodpecker* is more extensive than the *Longleaf Pine*.

9. What are some of the benefits to using natural history collections data to evaluate distribution? Are there drawbacks?



