Alabama Breeding Bird Atlas 2000 - 2006

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WELCOME to the 2000-2006 Alabama Breeding Bird Atlas web site. Breeding bird atlas projects are designed to map the distribution of breeding birds within a geographic area - in this instance, Alabama. The 168 **species distribution maps** and **tables** were generated using data collected in **10-square-mile areas** by volunteer surveyors, conservation organizations and agencies, and interested individuals who reported birds seen during their nesting season.

B. Summerour

The atlas results posted on this web site provide a complete and reliable picture of breeding bird distribution in Alabama. The information should prove useful to scientists, conservationists, land managers, and government agencies, as well as casual observers simply interested in learning more about birds. The data provided by this web site will serve as a suitable baseline against which comparisons can be made 20 or 200 years from now as we monitor our changing planet. Included with the species map pages are excellent links to web sites that provide additional information (e.g., pictures, vocalizations, range maps, status of species in Alabama, and natural history). For those interested in a printed copy of a species map, a "print quality" pdf file accompanies each map or maps can be downloaded from the **"Maps Book"** page.

The primary objectives of the web site are:

- To provide breeding distribution maps for every bird species breeding in Alabama.

- To provide maps that display a 12% sample of reliably studied areas useful for statistical projections and as a baseline against which future changes in the status of breeding birds in Alabama can be measured.

- To provide tables that help summarize and interpret atlas results.

- To provide additional maps and links to sites that can help interpret the atlas results and help people learn more about birds.
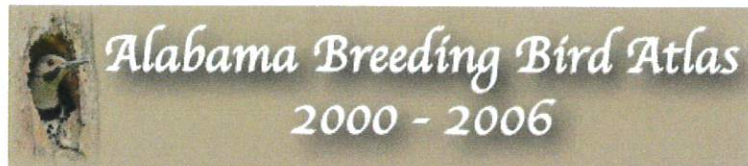
We hope you enjoy the site and return often.

Alabama Breeding Bird Atlas Committee of the AOS

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**Contributors
and
Special Assistance**

Atlasers

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* >100 atlas records, ** >500, *** >1000 , **** >5000, ***** >10,000

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METHODS

Atlas Grid

To conduct the project, an atlas grid (Fig. 1) was established and based on US Geological Survey maps, 7.5 minute series (quadrangles, or "quads"). Each quad was then divided into 6 equal blocks of about 10 sq miles. About 877 quads and 5087 blocks covered the state.
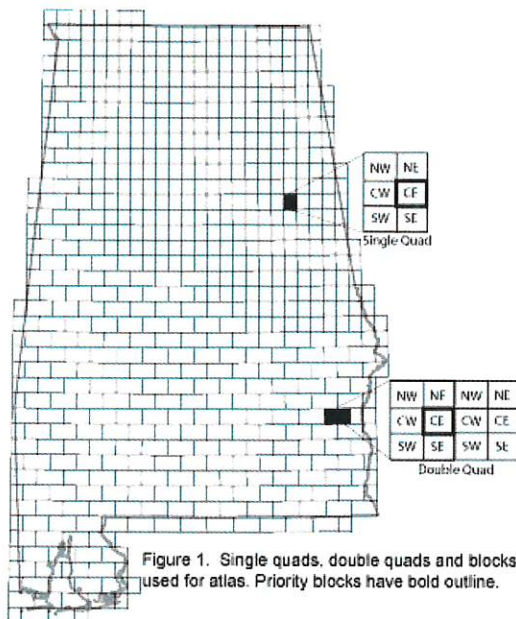
Sampling

The atlas project used different sampling methods in the upland and Coastal Plain regions of the state. In upland regions, the central east (CE) block from a single quad was surveyed (Fig. 1). If breeding evidence for a species was found in the CE block of a single quad, then the species was considered to breed within that quad (60 sq mi) (Fig. 1). In the Coastal Plain, the CE block of the more western quad of a "double quad" area was sampled (Fig.1). If breeding evidence for a species was found in the western CE block of a double quad, then the species was considered to breed within those two quads (120 sq mi). Sampling effort within these CE blocks or "Priority Blocks" was standardized, and therefore results from these blocks best reflect the breeding distribution of each species within the state.

Figure 1. Single quads, double quads and blocks used for atlas. Priority blocks have bold outline.

Standardized Distribution

The standardized distribution of a species was determined by using 585 sample quads (blue) and their priority blocks (red) (Fig. 2). If evidence of breeding for a species was found in the priority block within a single or double quad, the quad was colored blue (or shaded) and the level of breeding evidence symbolized (Fig. 3). If the species was found in any of the other 5 blocks of a single quad or 11 blocks of double quad, then the quad was not colored, but the level of breeding evidence was symbolized (Fig. 3). It should be repeated, only priority blocks received the same level of effort, and focusing on just symbols can lead to an incorrect interpretation of the distribution of a species within the state.
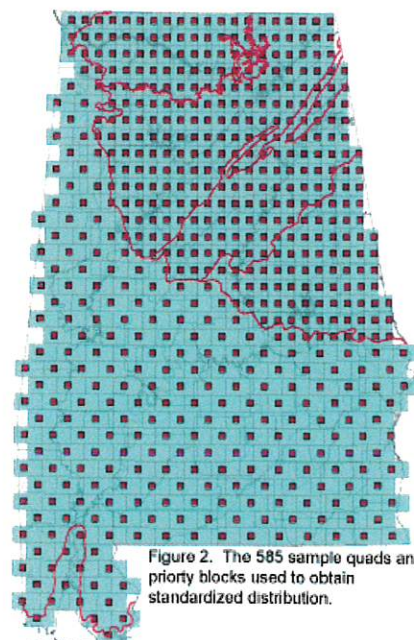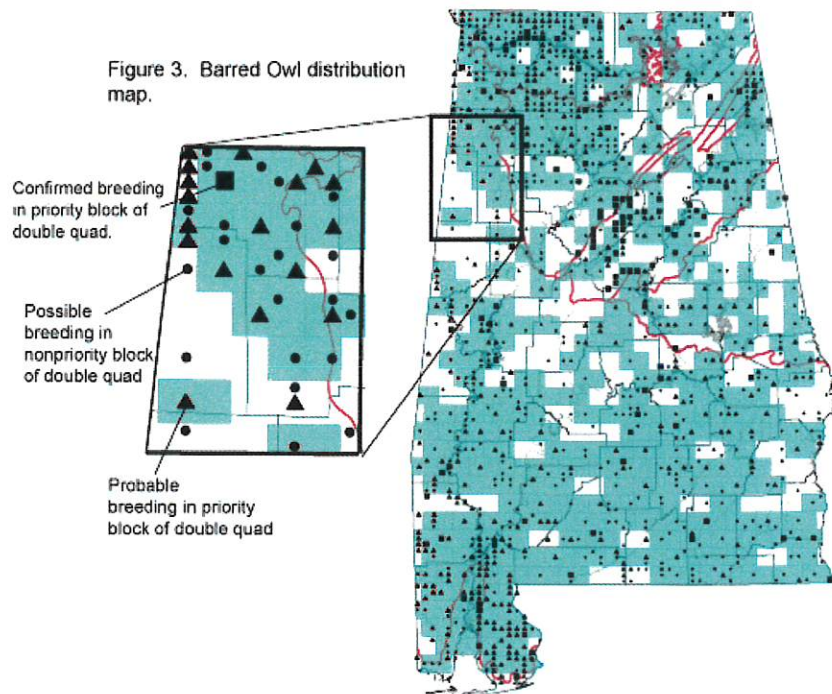
HHHHHHHHHHHHHH

Figure 2. The 585 sample quads and priority blocks used to obtain standardized distribution.

Figure 3. Barred Owl distribution map.

Confirmed breeding in priority block of double quad.

Possible breeding in nonpriority block of double quad

Probable breeding in priority block of double quad

Specialty Blocks

Although the primary focus of the sampling effort occurred within the designated CE blocks (Fig. 2), considerable surveying effort also was conducted in "specialty blocks" (Fig 4). These blocks were deemed special because they contained unique habitats, and/or species, or occured along the state border. Sampling these blocks greatly improved the thoroughness of the atlas project.
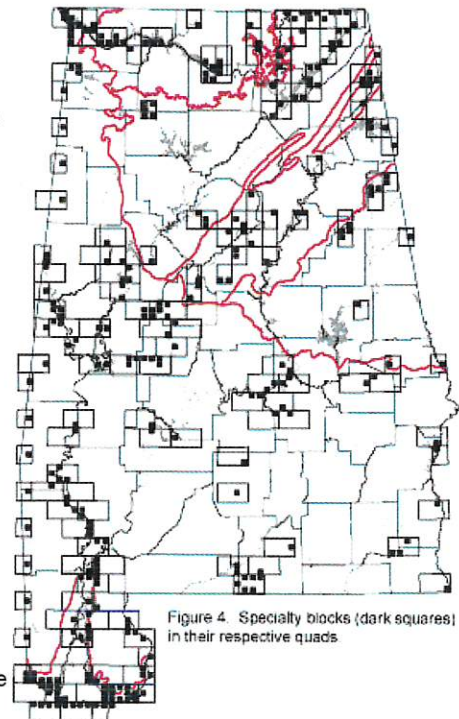

Figure 4. Specialty blocks (dark squares) in their respective quads

Atlas Regions

To help organize observers, collect data, and insure proper sampling coverage of the priority blocks, the state was divided into 9 atlas regions (Fig. 5). The boundaries of these regions were formed by roughly following the degree parallels to divide the state into 5 slices, and the 86 E 45' meridian to bisect the state into eastern and western halves. These lines were modified so that the counties were kept together in each region.

Region 1: Lauderdale, Limestone, Colbert, Franklin, Lawrence, Morgan, Marion, Winston, and Cullman
Region 2: Madison, Jackson, Marshall, De Kalb, Blount, Etowah, and Cherokee
Region 3: Lamar, Fayette, Walker, Jefferson, Pickens, Tuscaloosa, and Bibb
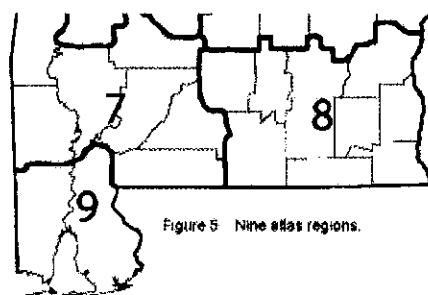**Region 4:** St. Clair, Calhoun, Cleburne, Shelby, Talladega, Clay,

Randolph, Chilton, and Coosa
Region 5: Sumter, Greene, Hale, Perry, Marengo, Dallas, and Autauga
Region 6: Tallapoosa, Chambers, Elmore, Macon, Lee, Lowndes, Montgomery, Bullock, and Russell
Region 7: Choctaw, Clarke, Wilcox, Monroe, Conecuh, Washington, and Escambia
Region 8: Butler, Crenshaw, Pike, Barbour, Covington, Coffee, Dale, Henry, Geneva, and Houston
Region 9: Mobile and Baldwin

Figure 5   Nine atlas regions.

Breeding Codes

The breeding codes below were used by observers for species seen in a block. Four major designations (Confirmed, Probable, Possible, Observed) were used to denote the level of confidence that a species was breeding in a block.

The **CONFIRMED** designation was used for a species when there was unquestionable evidence of breeding as indicated by the following:

CN -- Carrying nest material (nest not seen).

NB -- Nest building, not wrens or woodpeckers (see N, below).

DD -- Distraction display (life threatening).

UN -- Used nest or eggshells (caution with this one).

NE -- Nest with eggs. Cowbird egg or young also confirms host species.

ON -- Occupied nest (contents not determined).

IP -- Incubating position. Don't know if bird is incubating or brooding.

NY -- Nest with young (seen or surmised).

FS -- Adult carrying a fecal sac (white) from nest. One way to surmise **NY**.

CF -- Carrying food (young not seen).

FL -- Short-tailed fledglings, chicks, and young dependent on adults or adults' territory.

BG -- Begging young heard but not seen (e.g., owls, crows).

The **PROBABLE** designation was used for a species when there was very suggestive evidence of breeding but no actual evidence of nesting was found. This designation was used when one of the following was noted:

7 -- Seven or more widely distributed singing males observed in a single visit within safe dates. This code served to direct attention away from common species by providing a way to quickly upgrade them to Probable. It was also the only numerical code that was used and can therefore help indicate how common a species was in a block (i.e., seven or more or less than seven).

P -- Pair detected within suitable habitat and safe dates. You can distinguish a pair by differences in plumage or by behavior (two doves hanging together).

T -- Territorial behavior presumed by presence of singing male at same stop 5 or more days apart.

C -- Copulation or courtship, including mate feeding. Some species copulate away from their breeding territories, hence the caution of not using this as Confirmed breeding.

A -- Agitated behavior or anxiety calls by adults. This includes behavior just short of distraction displays. The loud cries and scolding given by birds in the presence of a snake, a marauding crow, or a female cowbird suggest that it has a nearby nest. This code was not used for responses to taped recorded songs and spishing.

N -- Nest building by wrens or woodpeckers. Male wrens can start nests before pairing. Woodpeckers excavate roost cavities. Also for observations falling just short of finding the nest without climbing but where a nest is indicated.

The **POSSIBLE** designation was used for a species when there was suggestive evidence of breeding as indicated by the following:

X -- Species found in suitable habitat within safe dates.

H -- Singing male or territorial call heard in suitable habitat within safe dates.

The **OBSERVED** designation was used for a species when there was no evidence of breeding other than the species being seen within the safe dates. This designation was only recorded consistently for species that nest in colonies (e.g., Great Blue Heron and Double-created Cormorant) and/or often fly and forage considerable distances from their nesting areas (e.g., Swallow-tailed Kite).

Seasonal Coverage, Safe Dates and Study Period

Fieldwork was conducted from mid-winter, when Great Horned Owls are nesting, into September, when doves and American Goldfinches may still be raising young. Most field work took place in May, June and July, when most species are breeding (geese, nuthatches, and kingfishers are mostly done by June 1, and woodcock even earlier).

"**Safe dates**" were established for most species to reduce that likelihood that migrants would be counted as breeding birds. The first safe date listed for a species was based on when the last migrants are known to pass through the state and local residents first establish territories or begin courtship. The last safe date was based on when returning migrants are known to show up and/or when dispersing local birds leave their territories. Safe dates were dictated by bird movements, not by nesting itself. Evidence of breeding can be noted for a species before or after its safe dates, so effective fieldwork often started early and continued through most of July for most species.

This study was a continuation of an atlas project run in the Tennessee Valley in northern Alabama during 1995-97 under the guidance of the Department of Conservation and Natural Resources (DCNR). Data from that atlas work (3,717 records) were incorporated into this project (265,747 records). Only data from CE blocks were recorded in the 1995-97 and these blocks were revisited between 2002-2006. Preliminary atlas work began in 2000 and 2001, and 38,881 records were collected. The majority (84%) of the breeding bird atlas records, however, were collected between 2002 - 2006.

Ecoregions

To better understand the distribution of bird species within the state, distribution data for the level III ecoregions are presented with the _species maps_. Figure 6 illustrates the level III ecoregions found in Alabama, and below are general descriptions of the regions (EPA 2002).

Interior Plateau - The Interior Plateau is a diverse ecoregion extending from southern Indiana and Ohio to northern Alabama. Rock types are distinctly different from the coastal plain sediments and alluvial deposits to the west, and elevations are lower than the Appalachian ecoregions to the east. Mississippian to Ordovician-age limestone, chert, sandstone, siltstone and shale compose the landforms of open hills, irregular plains, and tablelands. The natural vegetation is primarily oak-hickory forest, with some areas of bluestem prairie and cedar glades.

Southwestern Appalachians - Stretching from Kentucky to Alabama, these open low mountains contain a mosaic of forest and woodland with some cropland and pasture. The eastern boundary of the ecoregion, along the more abrupt escarpment where it meets the Ridge and Valley, is relatively smooth and only slightly notched by small. eastward flowing streams. The western boundary, next to the Interior Plateau's Eastern Highland Rim, is more crenulated, with a rougher escarpment that is more deeply incised. The mixed mesophytic forest is restricted mostly to the deeper ravines and escarpment slopes, and the upland forests are dominated by mixed oaks with shortleaf pine. Coal mining occurs in several parts of the region.

Ridge and Valley - This northeast-southwest trending, relatively low-lying ecoregion is sandwiched between generally higher, more rugged mountainous regions with greater forest cover. As a result of extreme folding and faulting events, the region's roughly parallel ridges and valleys have a variety of widths, heights, and geologic materials, including limestone, dolomite, shale, siltstone, sandstone, chert, mudstone, and marble. Springs and caves are relatively numerous. Present-day forests cover about 50% of the region. The ecoregion has a diversity of aquatic habitats.
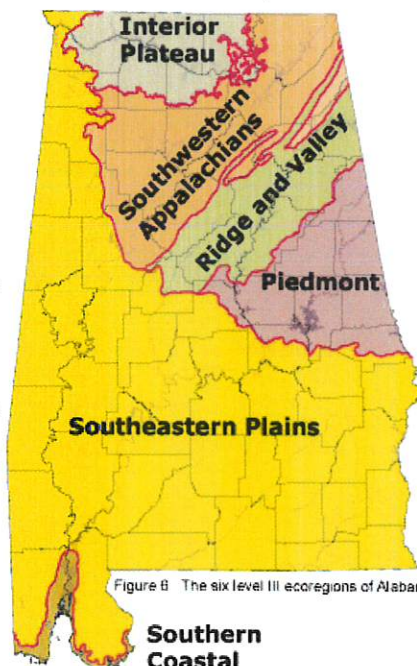

Figure 6   The six level III ecoregions of Alabama

Piedmont - Considered the nonmountainous portion of the old
Appalachians Highland by physiographers, the northeast-
southwest trending Piedmont ecoregion comprises a transitional area between the mostly mountainous
ecoregions of the Appalachians to the northwest and the relatively flat coastal plain to the southeast. It is a
complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks, with moderately dissected
irregular plains and some hills. The soils tend to be finer-textured than in coastal plain regions. Once largely
cultivated, much of this region has reverted to successional pine and hardwood woodlands, with an increasing
conversion to an urban and suburban land cover.

Southeastern Plains - These irregular plains have a mosaic of cropland, pasture, woodland, and forest. Natural
vegetation was predominantly longleaf pine, with smaller areas of oak-hickory-pine and southern mixed forest.
The Cretaceous or Tertiary-age sands, silts, and clays of the region contrast geologically with the older
metamorphic and igneous rocks of the Piedmont, and with the Paleozoic limestone, chert, and shale found in the
Interior Plateau. Elevations and relief are greater than in the Southern Coastal Plain, but generally less than in
much of the Piedmont. Streams in this area are relatively low-gradient and sandy-bottomed.

Southern Coastal Plain - This ecoregion consists of mostly flat plains, but it is a heterogeneous region
containing barrier islands, coastal lagoons, marshes, and swampy lowlands along the Gulf and Atlantic coasts.
This ecoregion is lower in elevation with less relief and wetter soils than the Southeastern Plains. Once covered
by a variety of forest communities that included trees of longleaf pine, slash pine, pond pine, beech, sweetgum,
southern magnolia, white oak, and laurel oak, land cover in the region is now mostly slash and loblolly pine with
oak-gum-cypress forest in some low lying areas, pasture for beef cattle, and urban.