

Peucaea aestivalis

Bachman's Sparrow

Class: Aves

Order: Passeriformes

Family: Emberizidae

Priority Score: **33** out of 100



Population Trend: Decreasing

Residence: Breeding

Global Rank: G3 — Vulnerable species

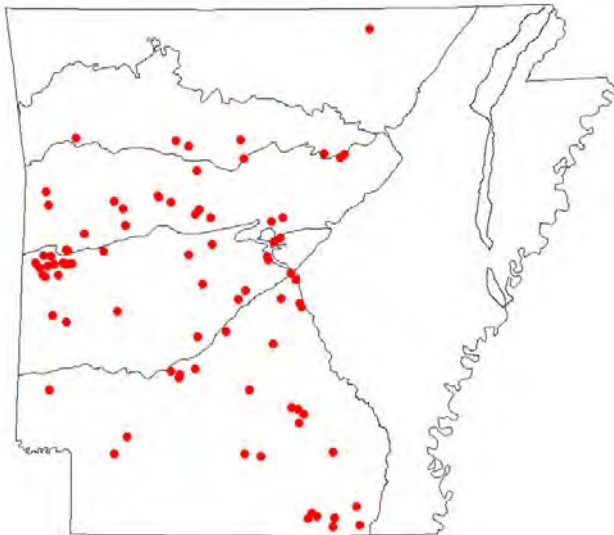
State Rank: S3B — Vulnerable breeding species in Arkansas



©Joe Neal

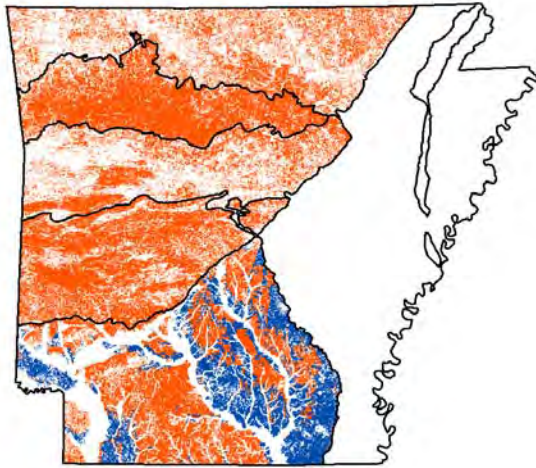
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

	Weight
Cultivated Forest	Marginal
Ozark-Ouachita Dry Oak and Pine Woodland	Marginal
Ozark-Ouachita Dry-Mesic Oak Forest	Marginal
Ozark-Ouachita Pine/Bluestem Woodland	Optimal
Ozark-Ouachita Pine-Oak Forest	Marginal
Ozark-Ouachita Pine-Oak Woodland	Marginal
Ozark-Ouachita Prairie and Woodland	Marginal
West Gulf Coastal Plain Dry Pine-Hardwood Flatwoods	Suitable
West Gulf Coastal Plain Pine-Hardwood Forest	Marginal
West Gulf Coastal Plain Sandhill Oak and Shortleaf Pine Forest and Woodland	Marginal

Problems Faced

KNOWN PROBLEM: Loss of shortleaf pine/bluestem communities from fire suppression.

Threat: Habitat destruction or conversion
Source: Forestry activities

KNOWN PROBLEM: Loss of shortleaf pine/bluestem communities from fire suppression.

Threat: Alteration of natural fire regimes
Source: Fire suppression

KNOWN PROBLEM: Loss of shortleaf pine/bluestem communities from fire suppression.

Threat: Habitat fragmentation
Source: Forestry activities

Data Gaps/Research Needs

Determine optimal amount of groundcover, especially grass cover, to maintain and increase sparrow populations.

Determine optimal growing season fire return interval for breeding habitats.

Determine the effects of habitat isolation and fragmentation.

Examine the relative importance of early successional versus older aged forest stands in maintaining local populations.

Conservation Actions

Develop or maintain early successional grass and forb layer with limited shrub and hardwood midstory.

Importance

Category

High

Habitat Restoration/Improvement

Maintain open, mature pine forest habitat.

High

Habitat Protection

Maintain or restore historical fire regimes.

High

Fire Management

Maintain or restore shortleaf pine/bluestem communities.

High

Habitat Restoration/Improvement

Monitoring Strategies

The Partners in Flight North American Landbird Conservation Plan indicates that this species has imprecise trend data at the continental level. An effort is being made to expand the BBS program to better survey this species.

Comments

Bachman's Sparrows use both early and late successional pine and pine hardwood forests where the mid-story is sparse and a ground cover of grasses and forbs are present (Krementz and Christie 1999, Tucker et al. 2006, Jones and others 2013, Allen and Burt. 2014, Jones and others 2014). These pine systems require disturbance (usually growing season fire) on a regular basis (<4-year return intervals) to maintain their attractiveness. The scale at which the disturbance is implemented may affect local population dynamics, but this question requires further research (Seaman and Krementz 2000, Jones and others 2014). Early successional habitats, including clearcuts, can be attractive, and in certain situations, can be productive sites for Bachman's sparrows (Krementz and Christie 1999, Stober and Krementz 2000).

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Picoides borealis

Red-cockaded Woodpecker

Class: Aves

Order: Piciformes

Family: Picidae

Priority Score: **43** out of 100



Population Trend: Decreasing

Residence: Permanent

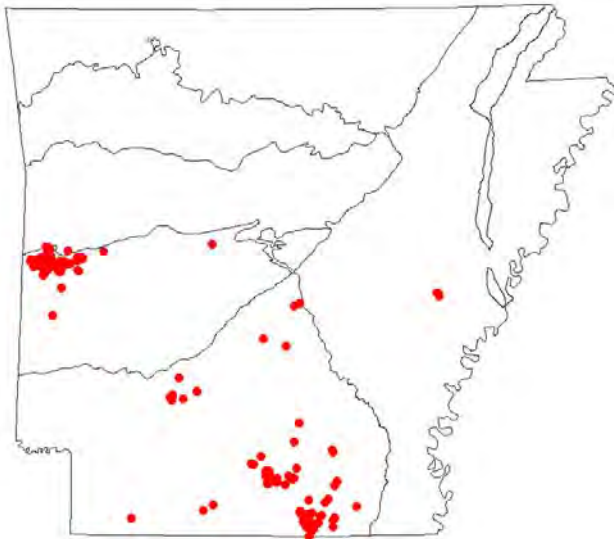
Global Rank: G3 — Vulnerable species

State Rank: S1 — Critically imperiled in Arkansas



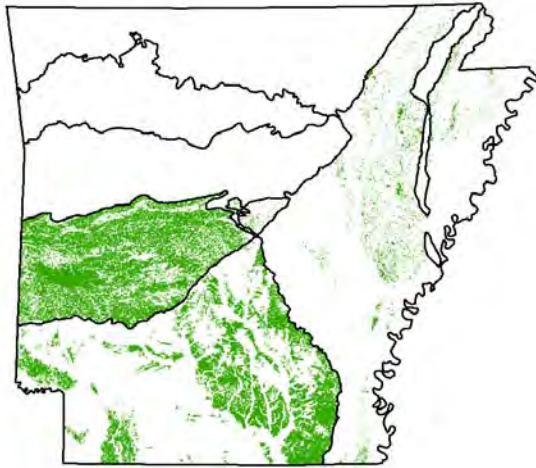
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

Habitats	Weight
Ozark-Ouachita Pine-Bluestem Woodland	Obligate
Ozark-Ouachita Pine-Oak Forest/Woodland	Marginal
West Gulf Coastal Plain Pine-Hardwood Flatwoods	Obligate
West Gulf Coastal Plain Pine-Hardwood Forest/Woodland	Obligate

Problems Faced

KNOWN PROBLEM: Competition for nesting cavities.	Threat: Altered composition/structure Source: Forestry activities
KNOWN PROBLEM: Fire suppression.	Threat: Alteration of natural fire regimes Source: Fire suppression
KNOWN PROBLEM: Habitat fragmentation.	Threat: Habitat fragmentation Source: Forestry activities
KNOWN PROBLEM: Habitat loss and degradation.	Threat: Habitat destruction or conversion Source: Fire suppression
KNOWN PROBLEM: Loss of extensive, mature pine habitat that is open and park-like.	Threat: Habitat destruction Source: Forestry activities
KNOWN PROBLEM: Predation by snakes.	Threat: Extraordinary predation/parasitism/disease Source: Predation

Data Gaps/Research Needs

No data gaps or research needs were identified.

Conservation Actions	Importance	Category
Manage clusters and translocate individuals to augment existing or establish new populations.	High	Population Management
Protect and restore additional sites and additional habitat adjacent to existing protected sites; develop connectivity between populations.	High	Habitat Protection
Reduce nest predation and cavity kleptoparasitism; important in small populations (i.e, < 100 breeding groups).	Medium	Threat Abatement
Restore canopy structure and composition; reduce mid-story encroachment; restore native groundcover.	High	Habitat Restoration/Improvement
Restore fire regimes through frequent (every 2-4 years) use of prescribed fire.	High	Fire Management

Monitoring Strategies

Annual property data reports submitted to the U.S. Fish and Wildlife Service provide population trends at the local, regional, and range-wide levels. Continue monitoring of clusters year-round that is being conducted by the ANHC, TNC, USFS, and the USFWS. Continue tracking of this species by the Arkansas Natural Heritage Commission.

Comments

This endangered species is a habitat specialist that occurs only in mature, open pine woodlands and savannas of the southeastern United States. Primary threats are loss of open pine habitat due to fire suppression and habitat conversion, loss of older pines needed for roost and nest cavities, and fragmentation of habitat causing isolation of populations which results in reduced genetic diversity and greater vulnerability to demographic and environmental chance events. A territorial, non-migratory species, it often occurs in family groups with a breeding pair and a male helper that is an offspring from a previous year; average group size is 2-3 birds. Until the mid-to-late twentieth century, largest populations were known from open pine flatwoods along the Ouachita terraces of southern Arkansas, and building on strong conservation efforts underway in that region represents one of the best opportunities for recovery of this species in this state. The Ouachita NF currently supports the largest population and has the potential for supporting a population 2-3 times its current size; additional habitat restoration in this region represents the other best recovery opportunity. Portions of the Ozark NF undergoing pine-hardwood woodland restoration may present additional opportunities, but the extent and likelihood need further exploration. A small population in eastern Arkansas, the only known one throughout the Mississippi Alluvial Plain, needs additional habitat protection and restoration to attain long-term viability. (Conner and others 2003, Costa and others 1996, Holimon and Montague 2003, Jackson 1994, James and Neal 1986, Masters and others 1995, McKellar and others 2014, Montague and others 1995, Neal 1992, Neal and others 1992, 1993a, 1993b, 1998, Robison and others 1999, Rudolph and others 1992, USDA FWS 2003, Walters and others 2002)

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Kremenz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Pluvialis dominica

American Golden-Plover

Class: Aves

Order: Charadriiformes

Family: Charadriidae

Priority Score: **15** out of 100



Population Trend: Unknown

Residence:

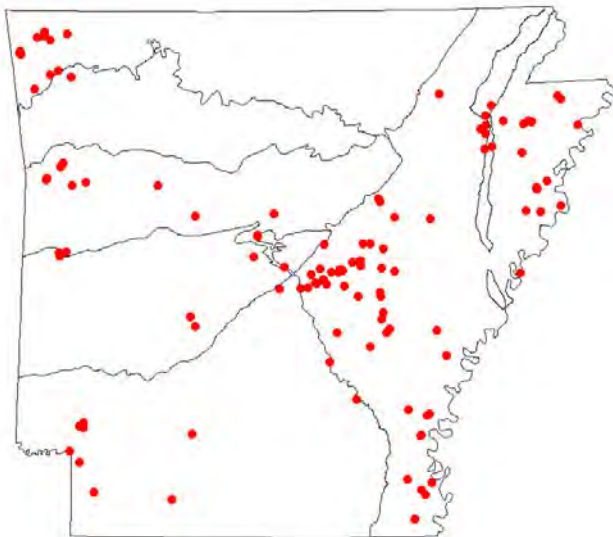
Global Rank: G5 — Secure

State Rank: S3N — Vulnerable nonbreeding species in Arkansas



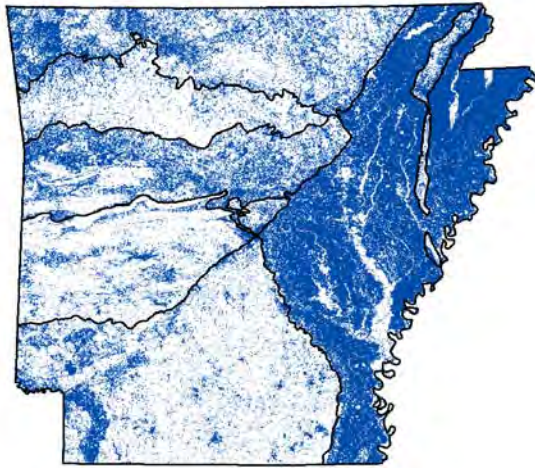
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

Crop Land	Suitable
Lower Mississippi Alluvial Plain Grand Prairie	Suitable
Mud Flats	Suitable
Pasture Land	Suitable
Ponds, Lakes, and Water Holes	Suitable
Urban/Suburban	Suitable

Weight

Problems Faced

KNOWN PROBLEM: Lack of wet prairie habitat.	Threat: Hydrological alteration Source: Agricultural practices
KNOWN PROBLEM: Lack of wet prairie habitat.	Threat: Groundwater depletion Source: Agricultural practices
KNOWN PROBLEM: Lack of wet prairie habitat.	Threat: Habitat destruction or conversion Source: Agricultural practices

Data Gaps/Research Needs

- Determine habitat use during spring migration.
- Determine stopover duration during spring migration.

Conservation Actions

Conservation Actions	Importance	Category
Manage for wet, open prairies and grasslands.	High	Habitat Restoration/Improvement

Monitoring Strategies

Develop spring migration counts in Arkansas through Lower Mississippi Valley/West Gulf Coast Joint Venture.

Comments

This shorebird has a long circular migration route that includes Arkansas during only spring migration. Spring migration records occur throughout the state. Some counts can be in the tens of thousands in Arkansas, but inter-annual variation in counts are high. Similar American Golden-Plover counts at some inland stopover sites in Indiana are thought to account for a significant portion of the entire known population (Johnson 2003). That comparable numbers of American Golden-Plovers use Arkansas stopover sites suggests that these sites may be important to the continental American Golden-Plover population. Usual habitats include short-grass prairies, flooded pastures, plowed fields and less often on mudflats and beaches where foraging for invertebrates occurs. Management for plover migration habitat may require the maintenance of complexes of potential habitat to assure alternatives when local conditions vary (Skagen and Knopf 1994). Very little is known about habitat use in Arkansas by this species.

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Pluvialis squatarola

Black-bellied Plover

Class: Aves
 Order: Charadriiformes
 Family: Charadriidae

Priority Score: **24** out of 100



Population Trend: Decreasing

Residence: Transient

Global Rank: G5 — Secure

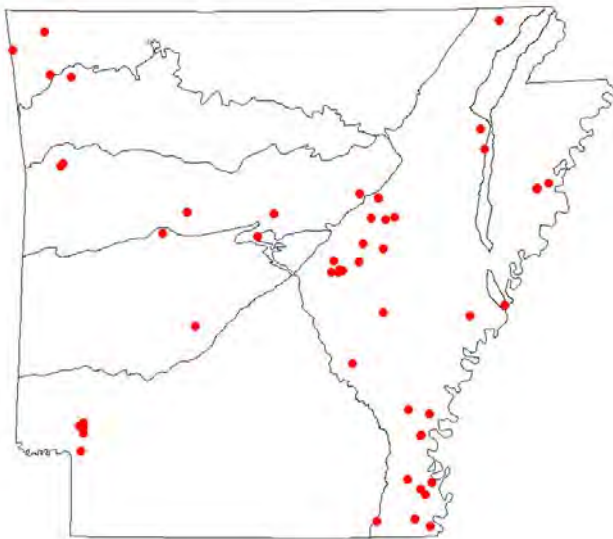
State Rank: S2N — Imperiled nonbreeding species in Arkansas



©Allan Mueller

Distribution

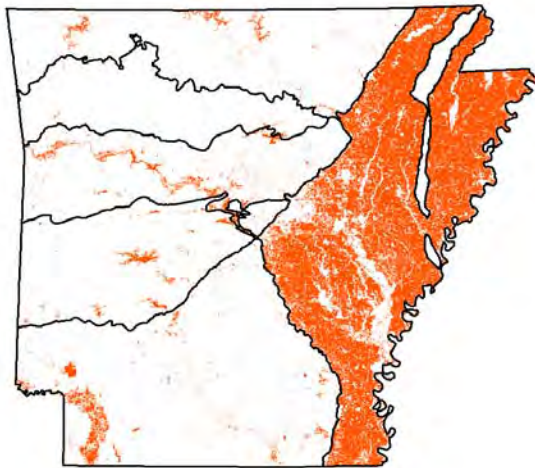
Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains

Habitat Map



Habitats

Crop Land	Weight
Mud Flats	Marginal
Ponds, Lakes, and Water Holes	Optimal
	Marginal

Problems Faced

KNOWN PROBLEM: Lack of mud flat habitat.	Threat: Habitat destruction or conversion Source: Agricultural practices
KNOWN PROBLEM: Lack of mud flats during migration as a result of hydrological alteration.	Threat: Hydrological alteration Source: Water diversion

Data Gaps/Research Needs

No data gaps or research needs were identified.

Conservation Actions

	Importance	Category
Draw down fish ponds to create mud flat habitat in July - November.	High	Habitat Restoration/Improvement
Flood cropland in summer and early fall after harvest.	High	Habitat Restoration/Improvement
Manipulate federal and state managed moist-soil units to provide mud flat habitat during March-early June and, if possible, during July - November.	Medium	Habitat Restoration/Improvement
Manipulate reservoirs (private and publicly owned) to provide mud flat habitat during July - November migration, and, if possible, during March-early June migration.	Medium	Habitat Restoration/Improvement
Restore mud flats.	High	Habitat Restoration/Improvement

Monitoring Strategies

Initiate late summer - fall migration counts in the Mississippi Alluvial Valley and the West Gulf Coastal Plain, coordinated through Lower Mississippi Valley Joint Venture.

Comments

This species is seen in the state March-November, with March- June sightings believed to be spring northward migrants, while birds seen July through November are believed to be southbound migrants. They are often seen in association with Long-billed Dowitchers, and tend to forage in very shallow water rather than exposed mud. Studies suggest that populations of this and other shorebird species are declining. The availability of habitat and food along their migratory route is critical. Birds need to stop and refuel as they go. Proper management of water levels on wetlands, artificial impoundments, and flooded agricultural fields can help. (Arkansas Audubon Society 2012, Carter and others 2000, CWCS 2004, CWCS 2005A, CWCS 2005B, Hamel 1992, James and Neal 1986, Klima and Jehl 1998, Martin and Finch 1995, National Audubon Society 2002, Rich and others 2004, Sauer and others 2004)

Commercial aquaculture facilities are important stopover sites for this species and many other shorebirds (Lehnen and Krementz 2013). The decline of fish pond acreage in the state from 60,000 surface acres in 2002 to less than 30,000 acres in 2012 is alarming (personal communication Dr. Carole Engle, UAPB). Water management strategies have changed at many of the remaining facilities because of increased efficiency. Emphasis should be placed on programs that would encourage fish farmers to provide shallow-water habitat for extended periods of time.

Additionally, management plans for reservoirs (ex. Chicot, Millwood) and moist-soil impoundments (AGFC, USFWS, private) could be altered to provide additional benefit to many shorebirds that rely on mudflat habitat. Deeper water that is drawn down slowly typically provides more invertebrates than very recently flooded water.

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Porphyrio martinicus

Purple Gallinule

Class: Aves

Order: Gruiformes

Family: Rallidae

Priority Score: **23** out of 100



Population Trend: Stable

Residence: Breeding

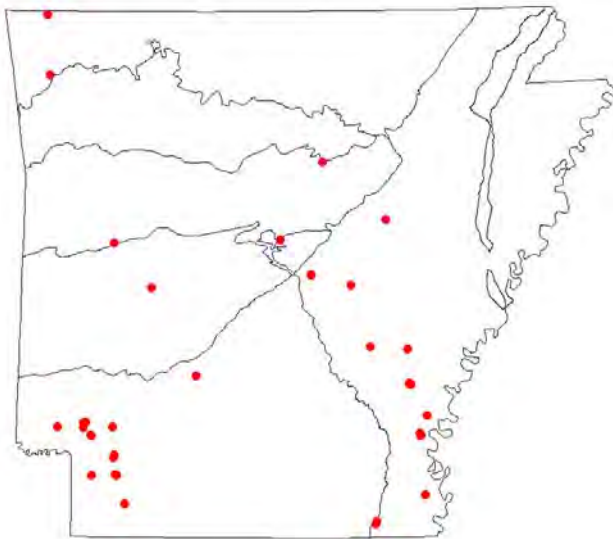
Global Rank: G5 — Secure

State Rank: S1B — Critically imperiled breeding species in Arkansas



Distribution

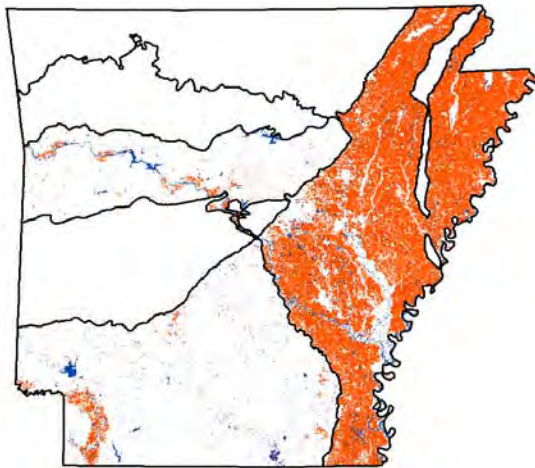
Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains

Habitat Map



Habitats

Crop Land

Herbaceous Wetland

Ponds, Lakes, and Water Holes

Weight

Marginal

Optimal

Suitable

Problems Faced

KNOWN PROBLEM: Loss of herbaceous wetlands.

Threat: Habitat destruction
Source: Agricultural practices

KNOWN PROBLEM: Loss of herbaceous wetlands.

Threat: Habitat destruction
Source: Urban development

Data Gaps/Research Needs

No data gaps or research needs were identified.

Conservation Actions

Maintain herbaceous wetlands.

Importance

High

Category

Habitat Protection

Restore herbaceous wetlands.

High

Habitat Restoration/Improvement

Monitoring Strategies

Conduct secretive marshbird surveys using the North American Marsh Bird Survey Protocol outlined in the National Marsh Bird Survey Program.

Comments

Purple Gallinules are not considered to be native to the state of Arkansas; rather they have expanded their range northward into Arkansas (Crow 1974). Their low population numbers in Arkansas is not an immediate concern, though climate change may shift their breeding range northward, increasing the importance of available habitat in Arkansas. The restoration of emergent wetlands could benefit this species and increase their population numbers overall. Extensive loss of wetland habitat may be offset by this adaptable species' use of rice fields, impoundments, and wildlife refuges. It readily accepts weedy conditions brought on by eutrophication and feeds on exotic weeds such as water hyacinth and hydrilla. Rapidly maturing rice varieties and subsequent early harvest together with removal of emergent vegetation from ponds could negatively affect this bird. (Arkansas Audubon Society 2012, Carter and others 2000, Crow 1974, CWCS 2004, CWCS 2005A, CWCS 2005B, Hamel 1992, James and Neal 1986, Martin and Finch 1995, National Audubon Society 2002, Rich and others 2004, Sauer and others 2004, West and Hess 2002)

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Rallus elegans

King Rail

Class: Aves

Order: Gruiformes

Family: Rallidae

Priority Score: **33** out of 100



Population Trend: Decreasing

Residence: Permanent

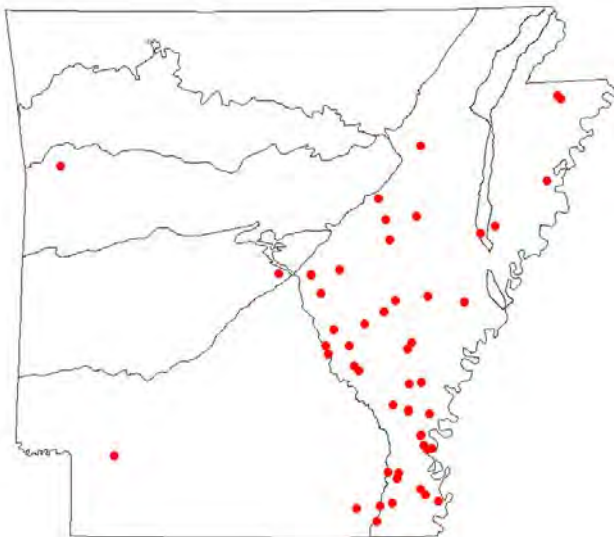
Global Rank: G4 — Apparently secure species

State Rank: S1B — Critically imperiled breeding species in Arkansas



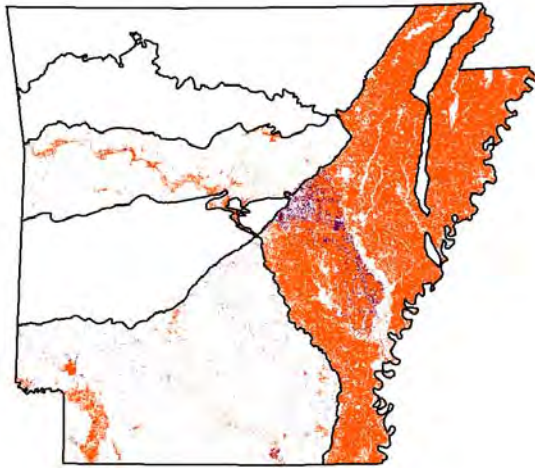
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

Crop Land	Weight
Herbaceous Wetland	Marginal
Lower Mississippi Alluvial Plain Grand Prairie	Optimal
Ponds, Lakes, and Water Holes	Optimal
	Marginal

Problems Faced

KNOWN PROBLEM: Conversion of emergent and herbaceous wetlands to bottomland hardwoods.	Threat: Habitat destruction or conversion Source: Forestry activities
KNOWN PROBLEM: Loss of herbaceous wetlands.	Threat: Habitat destruction Source: Agricultural practices
KNOWN PROBLEM: Loss of herbaceous wetlands.	Threat: Habitat destruction Source: Urban development
KNOWN PROBLEM: Loss of herbaceous wetlands.	Threat: Hydrological alteration Source: Water diversion

Data Gaps/Research Needs

Determine current distribution and abundance.

Conservation Actions

Conservation Actions	Importance	Category
Protect herbaceous wetlands.	High	Habitat Protection
Restore herbaceous wetlands.	High	Habitat Restoration/Improvement

Monitoring Strategies

Conduct secretive marshbird surveys using the North American Marsh Bird Survey Protocol outlined in the National Marsh Bird Survey Program.

Comments

The Grand Prairie region of Arkansas was historically important to King Rails, and they were common breeders in the rice fields and associated drainage ditches in the 1950s and 60s (Meanley 1969). Their abundance or occurrence throughout the rest of Arkansas was largely unknown outside of a few observations posted to the Arkansas Audubon Society's bird record database. In 2004, 2005 and 2012, marshbird surveys were conducted throughout the Mississippi Alluvial Valley of Arkansas to document the abundance and range of this species (Budd and Krementz 2011, Budd and Rowe 2013). In each of the three field seasons, very few (<25 individuals) King Rails were observed. The surveys also noted that King Rails were no longer common in the Grand Prairie Region, likely due to changes in agricultural practices. This species utilizes emergent wetlands that consist of cattails, sedges, rushes, etc and that have at least small pockets of water throughout the summer months. The King Rail also tends to use emergent wetlands that are more than 400 meters away from a forested block. These habitat conditions are rare in Arkansas. In order to improve their population status, more emergent wetlands need to be restored and maintained.

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Scolopax minor

American Woodcock

Class: Aves

Order: Charadriiformes

Family: Scolopacidae

Priority Score: **24** out of 100



Population Trend: Decreasing

Residence: Permanent

Global Rank: G5 — Secure

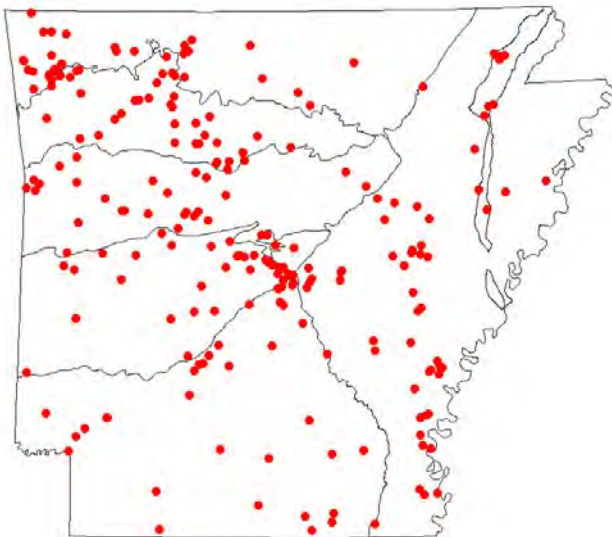
State Rank: S2B,S3N — Imperiled breeding, vulnerable nonbreeding species in Arkansas



©U.S. Fish and Wildlife Service

Distribution

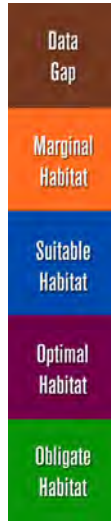
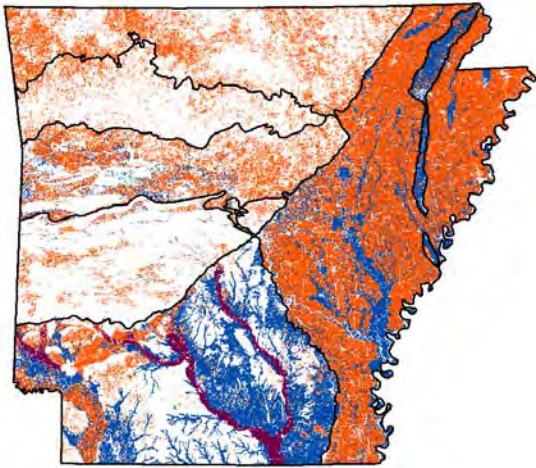
Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains

Habitat Map



Habitats	Weight
Crop Land	Marginal
Crowley's Ridge Loess Slope Forest	Suitable
Lower Mississippi Alluvial Plain Grand Prairie	Suitable
Lower Mississippi Flatwoods Woodland and Forest	Suitable
Lower Mississippi River Bottomland Depression	Marginal
Lower Mississippi River Dune Woodland, Pond, and Forest	Marginal
Lower Mississippi River High Bottomland Forest	Suitable
Lower Mississippi River Low Bottomland Forest	Suitable
Lower Mississippi River Riparian Forest	Suitable
Ozark-Ouachita Large Floodplain	Suitable
Ozark-Ouachita Mesic Hardwood Forest	Marginal
Ozark-Ouachita Prairie and Woodland	Suitable
Ozark-Ouachita Riparian	Suitable
Pasture Land	Marginal
West Gulf Coastal Plain Calcareous Prairie and Woodland	Marginal
West Gulf Coastal Plain Dry Pine-Hardwood Flatwoods	Suitable
West Gulf Coastal Plain Large River Floodplain Forest	Optimal
West Gulf Coastal Plain Mesic Hardwood Forest	Suitable
West Gulf Coastal Plain Red River Floodplain Forest	Suitable
West Gulf Coastal Plain Small Stream/River Forest	Suitable
West Gulf Coastal Plain Wet Hardwood Flatwoods	Optimal

Problems Faced

KNOWN PROBLEM: Conversion of wet hardwood sites to commercial pine lands.

Threat: Habitat destruction or conversion
Source: Forestry activities

KNOWN PROBLEM: Conversion of wet hardwood sites to commercial pine lands.

Threat: Habitat destruction or conversion
Source: Conversion of riparian forest

KNOWN PROBLEM: Draining of swampy areas in bottomland hardwood and flatwood forests.

Threat: Hydrological alteration
Source: Water diversion

KNOWN PROBLEM: Lack of early successional forests.

Threat: Altered composition/structure
Source: Conversion of riparian forest

POTENTIAL PROBLEM: Loss of individuals to hunting.

Threat: Biological alteration
Source: Recreation

POTENTIAL PROBLEM: Vulnerability to toxins and contaminants.

Threat: Toxins/contaminants
Source: Agricultural practices

Data Gaps/Research Needs

Nocturnal habitat use during autumn migration in the Mississippi Alluvial Valley.

Stopover duration during autumn and spring migration.

Conservation Actions

Manage for successional bottomland and flatwood forests.

Importance

High

Category

Habitat Restoration/Improvement

Monitoring Strategies

Initiate autumn migration counts in the Mississippi Alluvial Valley and the West Gulf Coastal Plain, coordinated through Lower Mississippi Valley West Gulf Coastal Plain Joint Venture.

Comments

This compact shorebird spends its time probing for food on forest floors rather than mud flats. Its long, flexible bill is sensitive to touch, and it uses it to find and extract earthworms. Forest management practices and hunting may influence population trends. Management for this species in Arkansas should prioritize providing migration habitat, as relatively little breeding occurs in Arkansas, and few woodcock overwinter here as compared to Texas and Louisiana. Woodcock use a wide variety of habitat types during both autumn and spring migration, but the use of open habitats like old fields and clearcuts can be quite important especially during spring migration. Diurnal habitat management should focus on high stem density of forbs/shrubs/trees (but not grass) at the ground layer with a sparse mid-story and an open canopy. Woodcock prefer loamy to sandy-loam soils where earthworm abundances, an important food source, are high. Disturbance (fire, thinning, grazing) of some habitat types is important component of management.

(Arkansas Audubon Society 2012, Carter and others 2000, CWCS 2004, CWCS 2005A, CWCS 2005B, Hamel 1992, James and Neal 1986, Keppie and Whiting 1994, Martin and Finch 1995, National Audubon Society 2002, Rich and others 2004, Sauer and others 2004)

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Kremetz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Setophaga cerulea

Cerulean Warbler

Class: Aves
 Order: Passeriformes
 Family: Parulidae

Priority Score: **24** out of 100



Population Trend: Decreasing

Residence: Breeding

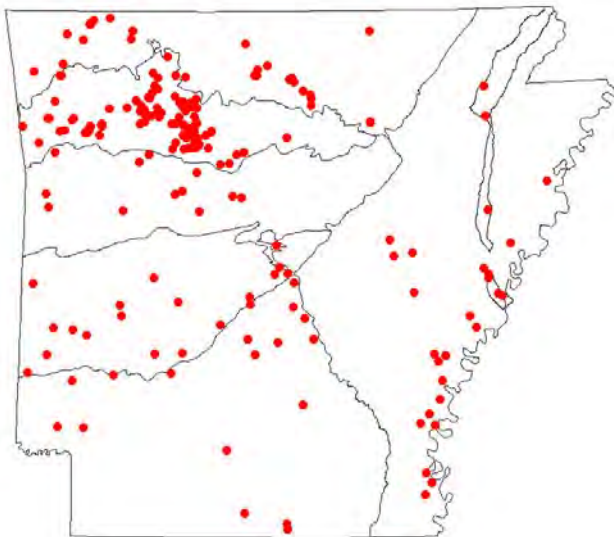
Global Rank: G4 — Apparently secure species

State Rank: S3B — Vulnerable breeding species in Arkansas



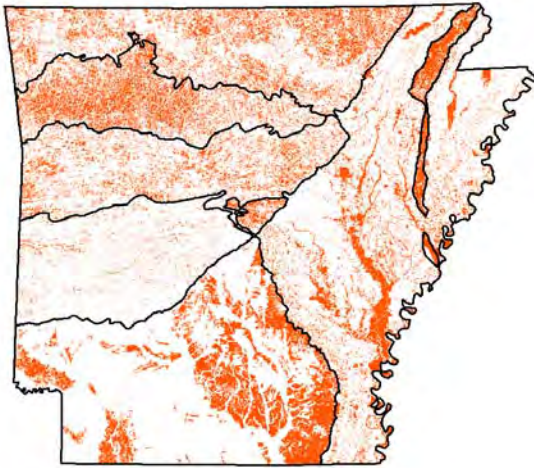
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

	Weight
Crowley's Ridge Loess Slope Forest	Marginal
Lower Mississippi Flatwoods Woodland and Forest	Marginal
Lower Mississippi River High Bottomland Forest	Marginal
Lower Mississippi River Low Bottomland Forest	Marginal
Lower Mississippi River Riparian Forest	Marginal
Ozark-Ouachita Dry-Mesic Oak Forest	Marginal
Ozark-Ouachita Mesic Hardwood Forest	Suitable
Ozark-Ouachita Riparian	Marginal

Problems Faced

KNOWN PROBLEM: Loss of large blocks of mature/old growth unevenaged forests.	Threat: Habitat fragmentation Source: Forestry activities
KNOWN PROBLEM: Lack of small openings/canopy gaps in large contiguous forests.	Threat: Altered composition/structure Source: Forestry activities
KNOWN PROBLEM: Loss of large blocks of mature/old growth unevenaged forests.	Threat: Habitat destruction Source: Forestry activities
KNOWN PROBLEM: Loss of unevenaged forest structure.	Threat: Alteration of natural fire regimes Source: Fire suppression
KNOWN PROBLEM: Loss of uneven-aged forest structure.	Threat: Altered composition/structure Source: Forestry activities
KNOWN PROBLEM: Nest parasitism from Brown-headed Cowbirds.	Threat: Extraordinary predation/parasitism/disease Source: Parasites/pathogens
KNOWN PROBLEM: Nest parasitism from Brown-headed Cowbirds.	Threat: Habitat fragmentation Source: Forestry activities
POTENTIAL PROBLEM: Loss of preferred tree species.	Threat: Altered composition/structure Source: Forestry activities
POTENTIAL PROBLEM: Red oak-borer problems resulting from fire suppression.	Threat: Alteration of natural fire regimes Source: Forestry activities

Data Gaps/Research Needs

Determine breeding status in the South Central Plains ecoregion.

Determine relationship between breeding habitat type, management practices, and post-fledgling survival.

Identify preferred vegetation structure within habitats.

Conservation Actions	Importance	Category
Enlarge and connect forests to reduce the amount of non-forested edge.	High	Habitat Restoration/Improvement
Enlarge and connect forests to reduce the amount of non-forested edge.	High	Land Acquisition
Minimize forest fragmentation.	High	Habitat Restoration/Improvement
Promote unevenaged forest management.	High	Habitat Restoration/Improvement
Utilize prescribed fire to improve habitat suitability.	Medium	Fire Management

Monitoring Strategies

The Partners in Flight North American Landbird Conservation Plan indicates that long-term population trend monitoring for this species is generally considered adequate, but some issues, such as bias, may not have been accounted for. Continue to conduct Breeding Bird Surveys at all routes established in Arkansas. Continue effort to locate new locations for breeding populations in Arkansas. Conduct area-specific surveys in order to capture territorial clusters that may be missed by Breeding Bird Surveys. Continue tracking of this species by the Arkansas Natural Heritage Commission.

Comments

The loss and fragmentation of extensive unfragmented tracts of mature forest, with natural disturbance regimes intact, is the primary threat to this species on the breeding grounds. Within these habitat patches, birds are affected (both positively and negatively) by local forest management practices. Small group-selection cuts can mimic the canopy gaps found in preferred habitat and may be attractive if occurring in regions with high overall forest cover (e.g., Ozark NF). However, these same artificial disturbances may lead to reduced densities in landscapes with low forest cover (Crowley's Ridge or LMAV). These efforts may also lead to a decrease in nesting success and a decline in densities over time (in regions of high forest cover as well). Thus, appropriate placement of these emulated disturbances in areas of highly forested regions with lower densities of birds (at a local scale) would be prudent. In any event, large trees (>40 cm DBH) are needed for nesting and foraging, and a complex layering of upper canopy, midstory, and understory vegetation is also preferred.

The species is locally common in appropriate habitat in the Ozark NF, but much less numerous in the Ouachita Mountain, Gulf Coastal Plain, and Mississippi Delta regions. (ANHC 2003, Boves and others 2013a and b, Buehler and others 2013, Clawson 1982, Duzan and others 2003, 2003A, Evans and Kirkman 1980, Fitzgerald 2000, Hamel 1992, 2000, Jacobs 2001, James 1971, James and Neal 1986, James and others 2001, Kellner In prep, Martin and Finch 1995, Probst and Thompson 1996, Robbins and Easterla 1992, Robinson and others 1989, 1995, Rodewald and Smith 1998, Rosenberg and others 2000, Wood and others 2013)

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Kremetz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Sternula antillarum athalassos

Interior Least Tern

Class: Aves
 Order: Charadriiformes
 Family: Laridae

Priority Score: **31** out of 100



Population Trend: Increasing

Residence: Breeding

Global Rank: G4T2Q — Apparently secure (imperiled subspecies) questionable taxonomy

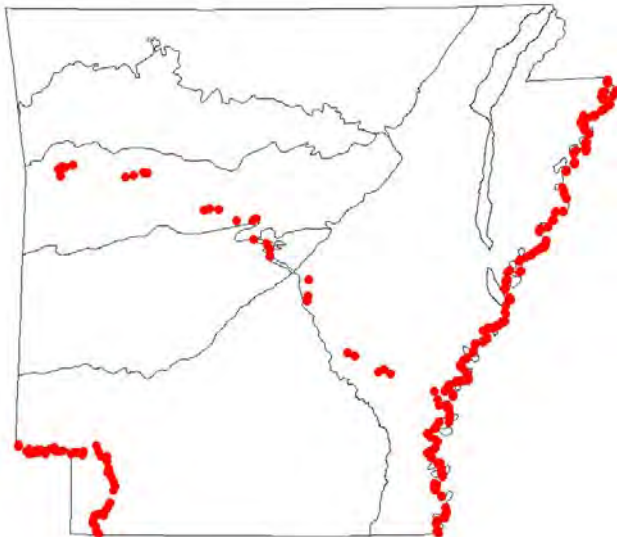
State Rank: S3B — Vulnerable breeding species in Arkansas



©U.S. Fish and Wildlife Service

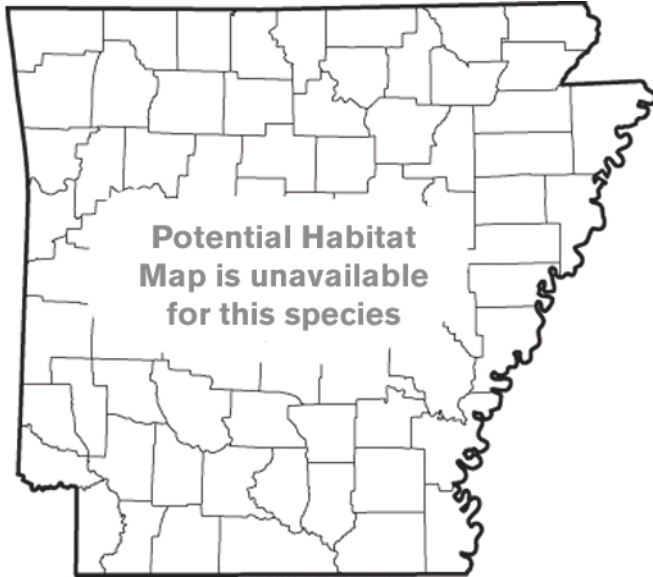
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

Mud Flats

Ponds, Lakes, and Water Holes

Weight

Obligate

Suitable

Problems Faced

KNOWN PROBLEM: Disturbance by cattle.

Threat: Habitat disturbance
Source: Grazing/Browsing

KNOWN PROBLEM: Disturbance by humans.

Threat: Habitat disturbance
Source: Recreation

KNOWN PROBLEM: Loss of sandbars.

Threat: Hydrological alteration
Source: Channel maintenance

KNOWN PROBLEM: Predation by mesopredators.

Threat: Extraordinary predation/parasitism/disease
Source: Predation

Data Gaps/Research Needs

Monitor Red River population and determine reproductive success as well as causes of nest and nestling mortality.

Conservation Actions

Create sandbars.

Importance

Medium

Category

Habitat Restoration/Improvement

Encourage predator control.

High

Threat Abatement

Protect sandbars.

High

Habitat Protection

Reduce human disturbance.

High

Public Relations/Education

Monitoring Strategies

Monitor nest success and population numbers on Arkansas and Red Rivers to assess disturbance from human related activities, including boaters, ATV use, and cattle intrusion. Continue monitoring breeding success. Continue tracking of this species by the Arkansas Natural Heritage Commission.

Comments

An endangered species in the interior portion of the country. Breeding habitat is limited to sand bars on large rivers - the Arkansas, Red and Mississippi Rivers. Numbers are increasing on the Mississippi. They also forage on open bodies of water, such as lakes and fish ponds in migration. (Arkansas Audubon Society 2012, Carter and others 2000, CWCS 2004, CWCS 2005A, CWCS 2005B, Hamel 1992, James and Neal 1986, Martin and Finch 1995, National Audubon Society 2002, Rich and others 2004, Sauer and others 2004, Thompson and others 1997)

Numbers on the Arkansas, Red and Mississippi rivers have exceeded the delisting criteria since 2005 when annual surveys began (U.S. Fish and Wildlife Service 2013). In 2007 birds were discovered nesting on rooftops throughout the river valley; birds were discovered using at least five white gravel rooftops within 10 miles of the Arkansas River (Nupp and Watterson 2007).

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Thryomanes bewickii

Bewick's Wren

Class: Aves
 Order: Passeriformes
 Family: Troglodytidae

Priority Score: **29** out of 100



Population Trend: Decreasing
 Residence: Permanent

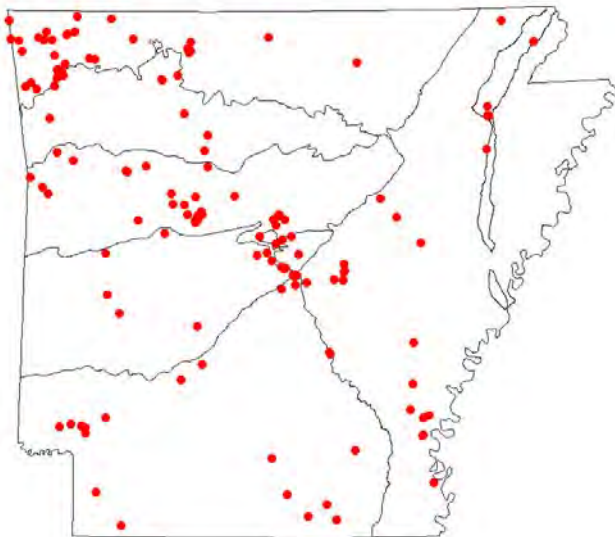
Global Rank: G5 — Secure

State Rank: S1B,S1S2N — Critically imperiled breeding species, critically imperiled nonbreeding species (uncertain rank) in Arkansas



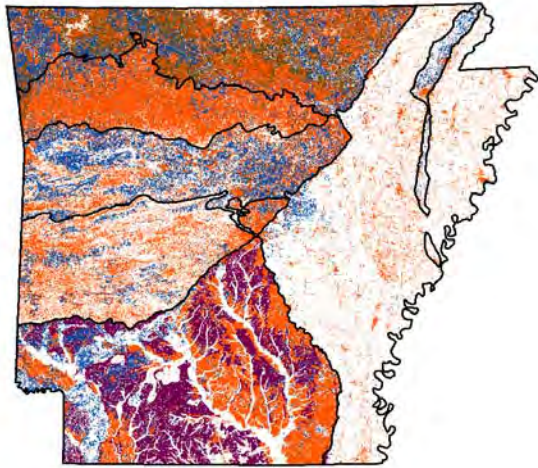
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

- Interior Highlands Calcareous Glade and Barrens
- Interior Highlands Dry Acidic Glade and Barrens
- Lower Mississippi Flatwoods Woodland and Forest
- Ozark-Ouachita Dry Oak and Pine Woodland
- Ozark-Ouachita Dry-Mesic Oak Forest
- Ozark-Ouachita Pine-Oak Forest/Woodland
- Ozark-Ouachita Prairie and Woodland
- Pasture Land
- Urban/Suburban

Weight

- Data Gap
- Marginal
- Marginal
- Optimal
- Marginal
- Suitable
- Suitable
- Suitable
- Marginal

Problems Faced

KNOWN PROBLEM: Breeding habitat loss from clean farming practices.

Threat: Habitat destruction
Source: Agricultural practices

KNOWN PROBLEM: Collisions with towers.

Threat: Collision with man-made structures
Source: Commercial/industrial development

KNOWN PROBLEM: Competition for nest sites with House Wrens.

Threat: Extraordinary competition for resources
Source: Interspecific competition

POTENTIAL PROBLEM: Breeding habitat loss from succession.

Threat: Habitat destruction or conversion
Source: Forestry activities

POTENTIAL PROBLEM: Breeding habitat loss from succession.

Threat: Alteration of natural fire regimes
Source: Fire suppression

Data Gaps/Research Needs

Determine distribution and abundance.

Determine dispersal and survival of immatures from adjacent populations outside of Arkansas.

Determine habitat use and ecology.

Determine whether individuals in AR are eastern subspecies.

Study nest site limitations including competition with House Wren.

Conservation Actions

Importance Category

Manage for early successional and savanna habitat.

High

Fire Management

Monitoring Strategies

The Partners in Flight North American Landbird Conservation Plan indicates that long-term population trend monitoring for this species is generally considered adequate but some issues, such as bias, may not have been accounted for. Additional targeted surveys in Northwest Arkansas with concomitant population studies are recommended. Continue to conduct Breeding Bird Surveys at all routes established in Arkansas. Continue tracking of this species by the Arkansas Natural Heritage Commission.

Comments

Breeds in open country with a mix of shrubs and open woodland. Eastern populations are often around outbuildings of farms near brushy or wooded areas in cleared or fairly open country. The species has been nearly extirpated as a breeding bird across the entire eastern US, possibly due to habitat change (e.g. habitat succession of abandoned farms), and competition from the more aggressive House Wren for nest cavities. Targeted surveys by Thompson (2011) during 2008-2010 suggest the species has been essentially extirpated as a breeding bird, with occasional recolonizations possible in extreme northwest Arkansas from populations in southwest Missouri. (Arkansas Audubon Society 2012 Clawson 1982, Duzan and others 2003, 2003A, eBird 2014, Evans and Kirkman 1980, Fitzgerald 2000, Hamel 1992, Jacobs 2001, James and Neal 1986, Kennedy and White 2013, Martin and Finch 1995, Robbins and Easterla 1992, Robinson and others 1999, Thompson 2011)

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan

Vireo bellii

Bell's Vireo

Class: Aves

Order: Passeriformes

Family: Vireonidae

Priority Score: **19** out of 100



Population Trend: Decreasing

Residence: Breeding

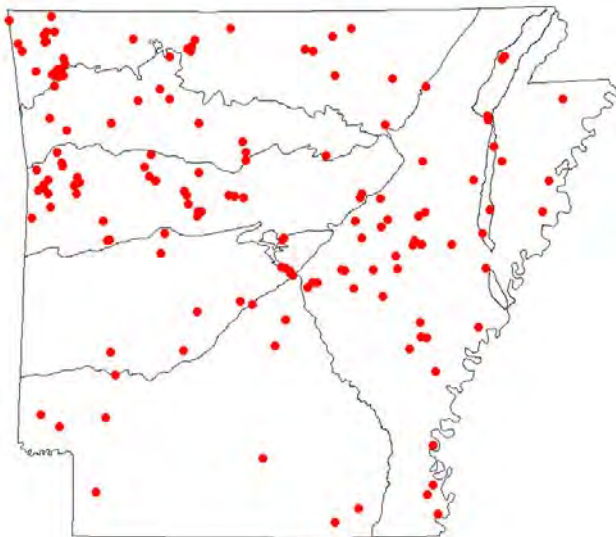
Global Rank: G5 — Secure

State Rank: S3B — Vulnerable breeding species in Arkansas



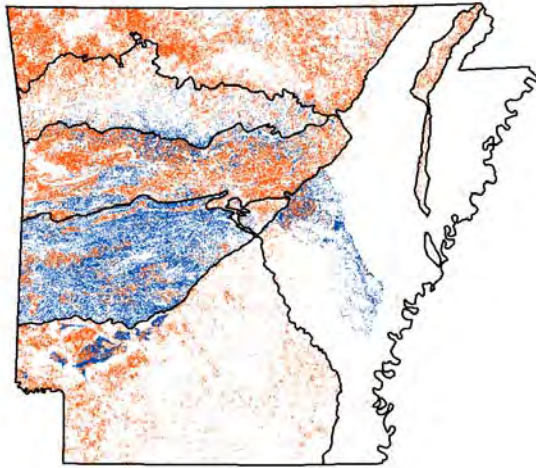
Distribution

Occurrence Records



Ecoregions where the species occurs:

- Ozark Highlands
- Boston Mountains
- Arkansas Valley
- Ouachita Mountains
- South Central Plains
- Mississippi Alluvial Plain
- Mississippi Valley Loess Plains



Habitat Map



Habitats

Lower Mississippi Alluvial Plain Grand Prairie	Suitable
Ozark-Ouachita Pine-Bluestem Woodland	Suitable
Ozark-Ouachita Prairie and Woodland	Optimal
Pasture Land	Marginal
West Gulf Coastal Plain Calcareous Prairie and Woodland	Suitable

Weight

Problems Faced

KNOWN PROBLEM: Loss of extensive early successional habitat with shrub component.	Threat: Altered composition/structure Source: Fire suppression
KNOWN PROBLEM: Loss of extensive early successional habitat with shrub component.	Threat: Habitat destruction or conversion Source: Agricultural practices
KNOWN PROBLEM: Loss of extensive early successional habitat with shrub component.	Threat: Habitat destruction or conversion Source: Urban development
KNOWN PROBLEM: Parasitism by Brown-headed Cowbirds.	Threat: Extraordinary predation/parasitism/disease Source: Parasites/pathogens

Data Gaps/Research Needs

Conduct surveys to improve distribution and abundance information.

Determine if openings in bottomland hardwood restoration areas are utilized on migration or during the nesting season.

Determine the age class and extent of use of early to mid successional bottomland hardwood restoration areas both on migration and during the nesting season.

Determine whether breeding habitat type affects abundance and reproductive success to better focus effective conservation and restoration efforts.

Examine effects of the variability of the timing of arrival on breeding grounds and nest initiation on reproductive success and annual productivity and identify factors underlying this variability.

Identify source and sink populations.

Conservation Actions	Importance	Category
Establish, restore, and manage shrubby fencerows and hedgerows in pasturelands and crop lands.	Medium	Habitat Restoration/Improvement
Reduce parasitism by Brown-headed Cowbird.	High	Threat Abatement
Restore habitat.	High	Habitat Restoration/Improvement
Restore native grasslands with a shrub component.	Low	Habitat Restoration/Improvement

Monitoring Strategies

The Partners in Flight North American Landbird Conservation Plan indicates that long-term population trend monitoring for this species is generally considered adequate, but some issues, such as bias, may not have been accounted for. Expand efforts to locate and survey potential breeding habitat for this species. Continue to conduct Breeding Bird Surveys at all routes established in Arkansas. Continue tracking of this species by the Arkansas Natural Heritage Commission.

Comments

This species is affiliated with shrubby components of prairies or grasslands where it nests in thickets. Where the habitat is patchy, many nests are parasitized by Brown-headed Cowbirds. (Arkansas Audubon Society 2012, Brown 1993, Carter and others 2000, CWCS 2004, CWCS 2005A, CWCS 2005B, Hamel 1992, James and Neal 1986, Martin and Finch 1995, National Audubon Society 2002, Rich and others 2004, Sauer and others 2004)

Taxa Association Team and Peer Reviewers

AGFC Ms. Karen Rowe, ANHC Mr. Bill Holimon, USFWS-retired Mr. Allan Mueller, Audubon Arkansas Dr. Dan Scheiman, AGFC Mr. Dick Baxter, USFS Mr. Leif Anderson, USGS Dr. David Krementz, ASU Dr. Than Boves, ATU Dr. Chris Kellner, UA Dr. Kim Smith, UAM Dr. Doug Osborne, AGFC Mr. Garrick Dugger, AGFC Mr. Bubba Groves, AGFC Ms. Allison Fowler, USFWS Mr. Mike Budd, USFWS Ms. Erin Knoll, USFS Mr. Steve Duzan