



# Birds of Loudoun County, Virginia

## Bird Atlas Summary Report



### INTRODUCTION

Birds provide an easy yet powerful way to connect to our natural world and serve as important indicators of the overall health of our environment. Loudoun County's diverse habitats, ranging from forests and wetlands to suburban parks, make this county a critical breeding and wintering site and important migratory stop-over for many birds.

Loudoun is one of the fastest growing counties in the nation. How is this growth impacting the birds around us? To learn more, the Loudoun Wildlife Conservancy organized and funded a five-year Bird Atlas, from 2009-2014, to establish a comprehensive list of breeding and non-breeding birds and determine their distribution throughout the county.

Most bird atlases are conducted at the state level and collect data only on breeding birds. The Loudoun County Bird Atlas is unique in that the project focused on a single county and collected data year-round for both breeding and non-breeding birds. Volunteer bird atlasers systematically conducted bird surveys throughout Loudoun County, documenting the full range of bird behaviors. The data was entered and stored in the USGS Patuxent Wildlife Research Center database.



White-eyed Vireo by Liam McGranaghan

This report provides a detailed summary of the Bird Atlas results, draws comparisons to the 1985-1989 Virginia Breeding Bird Atlas dataset, and offers ways that we can take action to help preserve and protect Loudoun's beautiful birds and habitats.

*"To do an Atlas survey justice, you can't just see a bird briefly, or hear it call, then check a list and move on. Watching a bird court a mate, build a nest, care for young, or establish its territory not only solidifies its place on the list as an Atlas breeding species, it is fundamental to really understanding that bird's behavior and life-cycle. By taking the time to do it right, we build a deeper intimacy with the birds we see. And this intimacy makes the value of conservation and habitat protection that much more urgent and tangible... The Atlas provides a great excuse to spend more time close to home, in our own backyards, small local open spaces, parks, and other niche habitats that we might otherwise ignore. What we find there refreshes our understanding that birds are an integral part of our local environment, whether urban, suburban or rural, wild or tame. Hopefully, this rediscovery renews our commitment to protecting them everywhere."*

*~Bruce Hill, atlaser and regional coordinator*

## A SNAPSHOT

**Who collected the data?** 85 volunteer atlasers

**How many blocks were surveyed?** Loudoun County was divided into 73 10-square-mile blocks



Great Horned Owl by Liam McGranaghan

**How many total species were reported?** 263 (averaging 110 species per block)

**How many breeding birds were reported?** 120  
104 Confirmed, 13 Probable, and 3 Possible breeders

**How many hours were spent atlasing?** 5,931 (averaging 83 hours per block) over a 5-year period from April 2009 through April 2014

**How many sightings were recorded?** 64,813

**How many species use Loudoun as a migratory stop-over?** 77

**How many species spend winter only in Loudoun?** 66

**How many species live in Loudoun year-round?** 68

**Do the birds benefit from county parks?** Yes!  
85% of the atlas species were documented non-exclusively in 7 Special Areas which include Algonkian, Bles, and Claude Moore Parks, the Blue Ridge Center, Banshee Reeks, as well as the privately owned Dulles Wetlands and Horsepen Preserve

**How many species were reported in every block?** 14  
Turkey Vulture, Red-bellied and Downy Woodpeckers, Great Crested Flycatcher, Blue Jay, Carolina Chickadee, Tufted Titmouse, Carolina Wren, Gray Catbird, Cedar Waxwing, Eastern Towhee, Chipping Sparrow, Northern Cardinal, and American Goldfinch

**Migratory and winter species highlights**  
Brant, Tricolored Heron, Cattle Egret, Mississippi Kite, Black Rail, Sandhill Crane, American Avocet, Red Phalarope, Northern Saw-whet and Snowy Owls, Alder Flycatcher, Connecticut and Mourning Warblers, and Red and White-winged Crossbills



Hooded Merganser by Nicole Hamilton

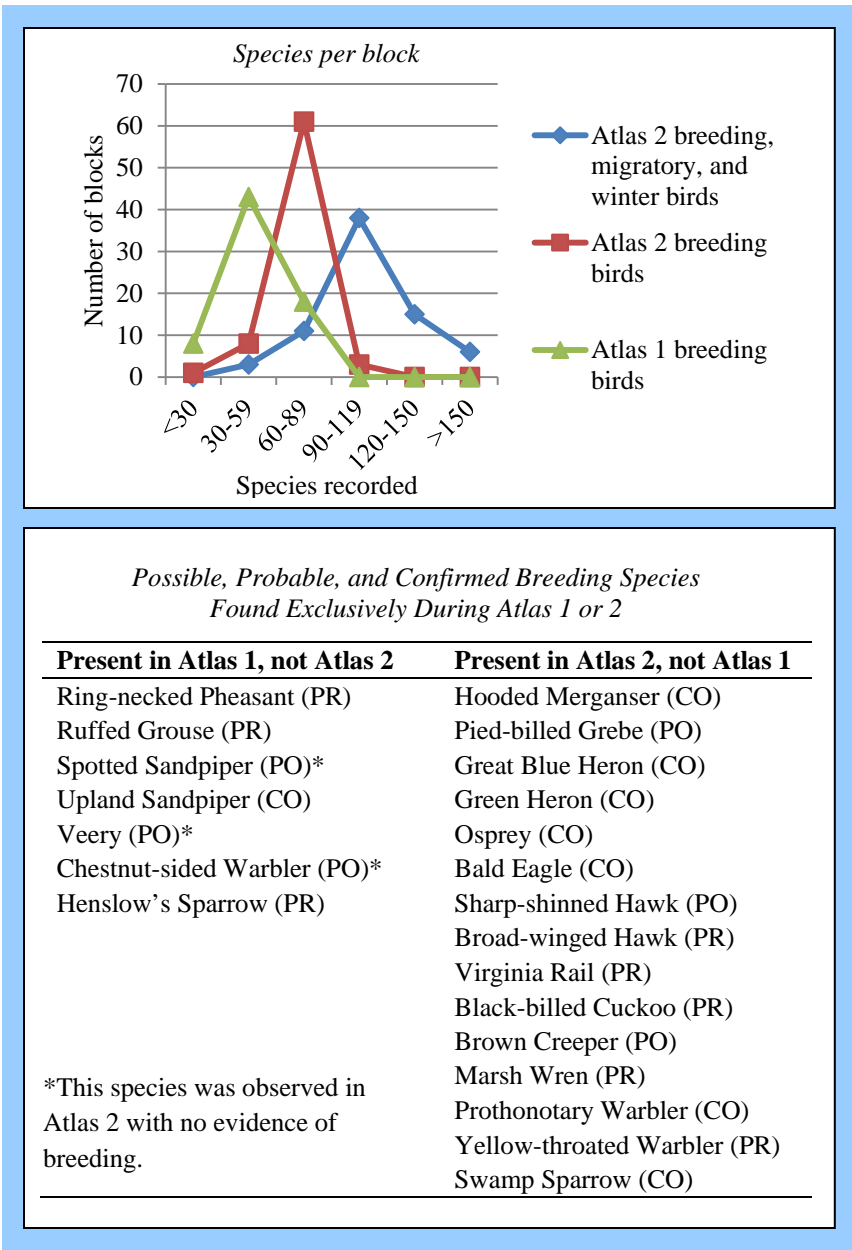
**Breeding species highlights**  
*Confirmed breeders:* Hooded Merganser (county first), Barn Owl, Loggerhead Shrike, Blue-winged Warbler, Vesper Sparrow, Dickcissel, and Bobolink  
*Probable breeders:* Black-billed Cuckoo, Eastern Whip-poor-will, Horned Lark, Marsh Wren, Yellow-throated and Cerulean Warblers, and Summer Tanager

## COMPARING DATASETS: THEN AND NOW

Many environmental changes have occurred throughout Loudoun County over the past two decades. Examples of such changes include habitat loss due to development, increase in human population (more vehicular traffic, communication towers, house cats, etc.), forest fragmentation, habitat degradation from deer and invasive exotics, natural habitat succession, and climate change. Some species have benefited from these changes, while others have declined. By comparing the 2009-2014 Loudoun County Bird Atlas (Atlas 2) results to data from the 1985-1989 Virginia Breeding Bird Atlas (Atlas 1), we can begin to understand how these environmental changes throughout Loudoun are impacting the birds around us.

Drawing comparisons between the Atlas 1 and Atlas 2 datasets can provide valuable insight; however, these comparisons should be interpreted with caution. Atlas 2 volunteers documented an average of 71 breeding species per block (110 total species per block) whereas Atlas 1 volunteers recorded an average of 50 breeding species per block (see graph). It's not likely that the higher number of breeding species in Atlas 2 was entirely driven by new species colonizing a block. Rather, a variety of factors are likely at play, with a significant factor being the more thorough coverage and higher level of effort per block in Atlas 2 (Atlas 2 averaged 80 effort hours per block compared to 10 hours per block in Atlas 1).

Comparing the results from the first and second atlas reveals a variation in species between atlases. Seven species reported as breeding in Atlas 1 were not reported during Atlas 2, whereas 15 species reported as breeding during Atlas 2 were not reported during Atlas 1 (see table). In addition to the environmental changes previously discussed, intentional management programs and expanded or shifting breeding ranges may also explain some of this variation. Breeding species are categorized as Confirmed (CO), Probable (PR), or Possible (PO) breeders.



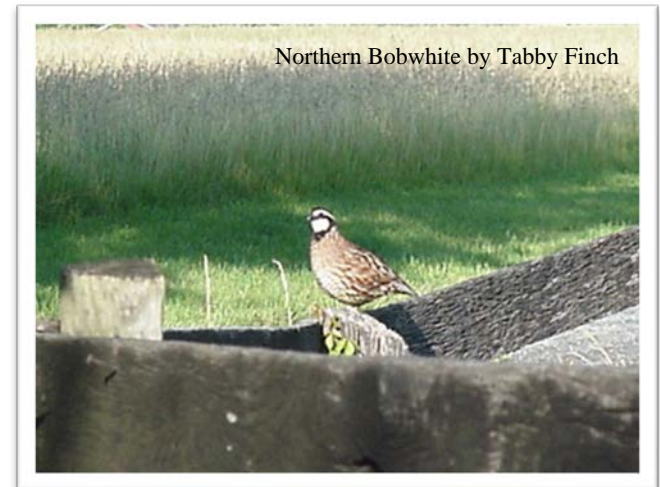


Bald Eagle by Larry Meade

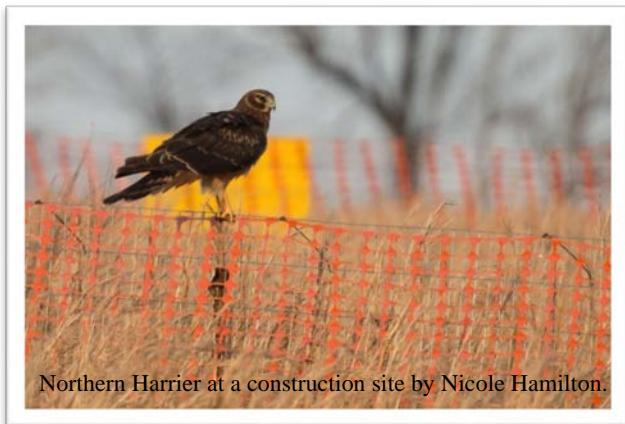
### WHICH BIRDS ARE INCREASING, DECREASING, OR STABLE?

One shining example of a species that has thrived over the past 2 decades is our national bird, the Bald Eagle. This species was confirmed as breeding in 7 atlas blocks and observed in 52 of the 73 blocks. These results provide a striking contrast to Atlas 1, which did not report any breeding Bald Eagles in Loudoun County. The successful comeback of this species can be directly attributed to the banning of DDT and its placement on the endangered species list. There were noteworthy increases in the percentage of blocks for other species reported in Atlas 2, including Wild Turkey, Green Heron, Black and Turkey Vultures, Cooper's Hawk, Red-shouldered and Red-tailed Hawks, Tree Swallow, and Eastern Bluebird.

The Northern Bobwhite provides an example of a species that has declined severely throughout the county over the past 25 years. Evidence of at least possible breeding was reported in only 19 of the 73 Atlas 2 blocks, down significantly from 61 blocks in Atlas 1. This species' decline may be attributed to habitat loss and degradation resulting from development in rapidly growing Loudoun, as well as to changes in agricultural practices throughout their range. There were noteworthy decreases in the percentage of blocks for other species reported in Atlas 2, including Ring-necked Pheasant, Ruffed Grouse, Loggerhead Shrike, Kentucky Warbler, and Eastern Meadowlark.



Northern Bobwhite by Tabby Finch



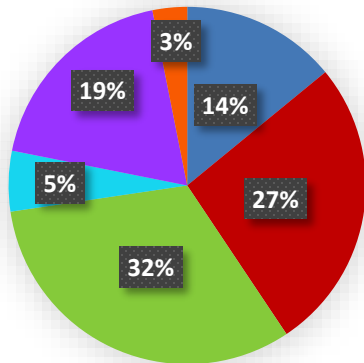
Northern Harrier at a construction site by Nicole Hamilton.

Habitat preference can play an important role in the success of a species. While the number of breeding species in suburban and woodland habitats remained relatively unchanged between atlases, there was a noteworthy decline in grassland species and increase in water species (see charts on next page). As discussed for the Northern Bobwhite, the decline in grassland species may be largely attributable to habitat loss and degradation. The increase in water species is likely due to an increase in habitat compared to the 1980s. Loudoun now hosts more ponds (throughout the suburbs) and the privately-owned Dulles Greenway Wetlands, which attracts many types of birds. Increased access by atlasers to riparian areas may also be a factor.

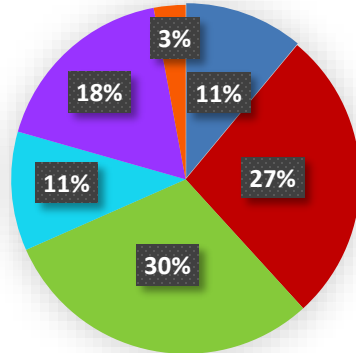
### Number of Breeding Species Reported

Habitat	Atlas 1	Atlas 2
Grassland Species	18	15
Woodland Species	34	37
Open Woodland Species	41	41
Water Species	7	15
Urban, Suburban, Rural Development Species	24	24
Other Species	4	4

Atlas 1



Atlas 2



Comparing the most widely distributed breeding birds for Atlas 1 and Atlas 2 reveals a shift in 7 of the top 25 breeding species (see table). Grassland species, such as the Northern Bobwhite and Eastern Meadowlark, have slipped from the top 25 in Atlas 2, replaced with suburban and open woodland species such as the Downy Woodpecker, White-breasted Nuthatch, and Blue Jay. The establishment of multiple bluebird box trails throughout the county has greatly benefited the Eastern Bluebird, which made the top 25 list in Atlas 2.

### Top 25 Breeding Species

Atlas 1	Atlas 2
Northern Cardinal (97%)	<b>Downy Woodpecker (100%)</b>
American Crow (96%)	<b>Great Crested Flycatcher (100%)</b>
Red-bellied Woodpecker (93%)	Carolina Wren (100%)
American Robin (93%)	Northern Cardinal (100%)
Gray Catbird (93%)	Red-bellied Woodpecker (99%)
Chipping Sparrow (93%)	American Crow (99%)
Field Sparrow (93%)	Carolina Chickadee (99%)
Indigo Bunting (93%)	Tufted Titmouse (99%)
<b>House Wren (91%)</b>	<b>White-breasted Nuthatch (99%)</b>
Common Grackle (91%)	American Robin (99%)
Mourning Dove (90%)	Gray Catbird (99%)
Northern Mockingbird (90%)	Eastern Towhee (99%)
European Starling (90%)	Chipping Sparrow (99%)
Eastern Wood-Pewee (89%)	Indigo Bunting (99%)
<b>Barn Swallow (89%)</b>	American Goldfinch (99%)
Carolina Chickadee (89%)	Mourning Dove (97%)
Eastern Towhee (89%)	Eastern Wood-Pewee (97%)
<b>Red-winged Blackbird (89%)</b>	Northern Mockingbird (97%)
<b>Northern Bobwhite (87%)</b>	<b>Turkey Vulture (96%)</b>
Tufted Titmouse (87%)	<b>Eastern Phoebe (96%)</b>
American Goldfinch (87%)	<b>Blue Jay (96%)</b>
Carolina Wren (86%)	<b>Eastern Bluebird (96%)</b>
<b>Song Sparrow (86%)</b>	European Starling (96%)
<b>Eastern Meadowlark (86%)</b>	Field Sparrow (96%)
<b>House Sparrow (86%)</b>	Common Grackle (96%)

Numbers in parentheses indicate the percentage of blocks in which the species was observed exhibiting breeding behavior. Species that occur in the top 25 list in one atlas but not the other are in bold font.

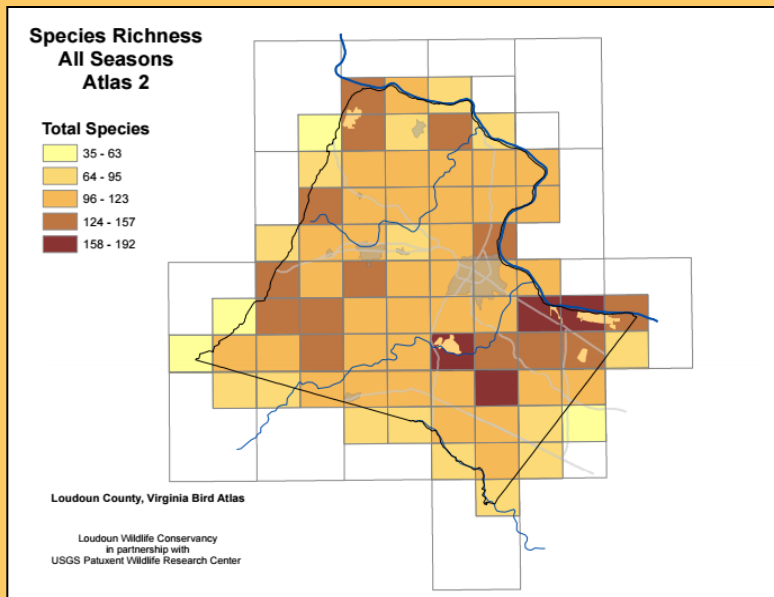
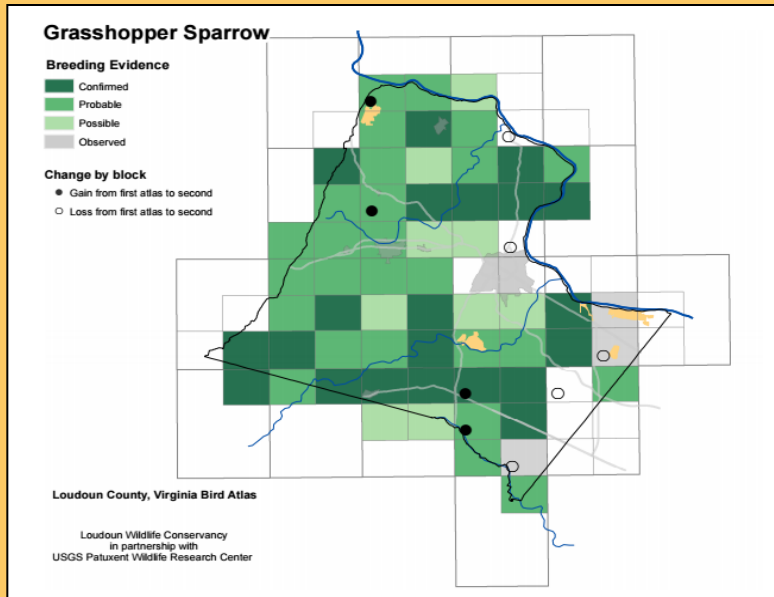
## SPECIES ACCOUNTS – AN EXAMPLE

Bird atlases are designed to determine the distribution of each documented species throughout a specific area. The map on the top left illustrates the distribution of the Grasshopper Sparrow throughout Loudoun County. Blocks shaded green indicate the different levels of breeding evidence reported, while blocks shaded gray indicate that the species was observed only (perhaps during migration or winter). Distribution maps for all 263 atlas species will be available both online and in print in 2016.

For breeding species, a ‘change by block’ comparison is drawn from Atlas 1. For example, Grasshopper Sparrows were reported as breeding in 4 new blocks since Atlas 1, indicated by filled circles, and disappeared as breeders in 5 blocks, indicated by open circles. These comparisons should be interpreted with caution due to the significantly higher level of effort per block in Atlas 2. Areas in yellow indicate parks or preserves designated as Special Areas for Atlas 2, many of which did not exist as such during Atlas 1 (for example, Banshee Reeks Nature Preserve).

## SPECIES RICHNESS

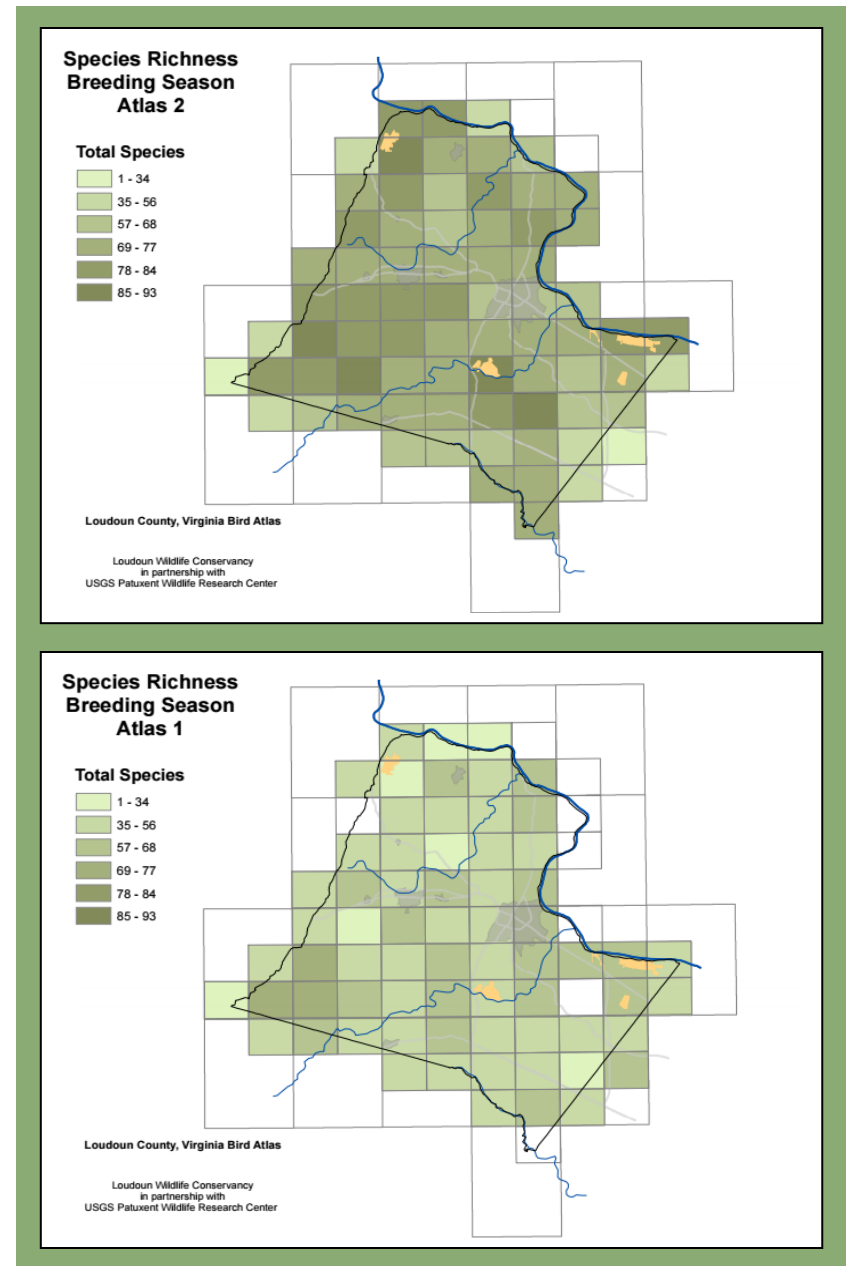
The top 4 blocks with the highest number of migratory, winter, and breeding species (158-192 total species) were located in eastern Loudoun, which, unlike the more rural western half of the county, is undergoing rapid development (see bottom left map). An astounding 190 species were documented in the Brambleton area and also in southern Leesburg (areas in and around Banshee Reeks Nature Preserve and the Dulles Wetlands). The Sterling area, including Algonkian and Bles Parks, proved to be another bird-rich area, hosting over 165 species. These results are a bit surprising and do not hold true for breeding only birds, whose most species-rich blocks are located in more rural western and northern Loudoun.



Here are a few possible explanations why eastern Loudoun hosts the most total species:

- ❖ While all of Loudoun lies within the Piedmont, eastern Loudoun is close to a second physiographic region in Virginia, the Coastal Plain. Eastern Loudoun includes the Potomac River, several rich wetlands and large ponds, and rich green open space in a suburban setting. This physiographic combination provides a nice diversity of species.
- ❖ Suburban areas that are not too urbanized often have more bird diversity than large rural areas, especially if those rural areas are heavily forested or in intensive agricultural use. Whereas some species disappear as land is transformed by human development, others move in and thrive.
- ❖ As habitat becomes developed in more urbanized areas, birds are often forced into smaller pockets of suitable habitat, perhaps making them easier to observe and document. The majority of species in the top 4 species-rich blocks were reported in protected parks and preserves. Though these smaller pockets of suitable habitat may result in higher species diversity, they offer fewer opportunities for establishment of territories and breeding success. It's also important to note that many of the grassland and uncommon species reported in eastern Loudoun were observed during the early years of Atlas 2 in abandoned fields pending development. Most of these fields have since been developed. Outside the few public and private protected parks and preserves in eastern Loudoun, suitable habitat for many sensitive bird species is increasingly fragmented, and is rapidly disappearing.

Breeding success plays a key role in determining the overall success of a bird population. When migrants and winter birds are excluded in Atlas 2, the most species-rich blocks are located in relatively rural western and northern Loudoun (see maps at right). Interestingly, the most species-rich blocks in Atlas 1 are fairly evenly distributed throughout the county.



## TAKING ACTION TO HELP BIRDS

Thanks to the efforts of many talented atlasers and friendly landowners, there is now a database with a wealth of information regarding the birds of Loudoun County. This database serves to protect and preserve the birds by:

- ❖ Identifying important bird areas throughout the county using factors such as number of species per block, relative abundance, and type of species. The Loudoun Wildlife Conservancy and other local conservation groups can then design strategies to protect the birds and other wildlife within these areas.
- ❖ Providing a baseline of information to assist environmental planners in making sound decisions regarding the use and management of natural resources in the county.
- ❖ Generating information on the status and distribution of species of special interest in Loudoun, such as the Loggerhead Shrike and Cerulean Warbler.
- ❖ Educating Loudoun County residents about the importance of protecting birds and their habitat.



You can help too! Following these steps will benefit not only the birds, but all wildlife, and will truly make a difference:

The Loudoun Wildlife Conservancy website is packed with educational resources, programs, and ways to speak out for issues that matter to you. Check it out! [www.loudounwildlife.org](http://www.loudounwildlife.org)

- ❖ Plant native trees, shrubs, and flowers which provide food and shelter for wildlife.
- ❖ Buy local food and products to support Loudoun's farms and businesses.
- ❖ Encourage local parks to manage lands for a variety of bird species.
- ❖ Reduce or eliminate pesticides and fertilizers. Look for natural alternatives instead.
- ❖ Maintain hedgerows and brush along streams, fence lines, and field borders.
- ❖ Install decals or other treatments to reduce window collisions.
- ❖ Consider adding a nest box, water feature, or feeder to your yard and keep cats indoors.

Visit the Bird Atlas website for more information on this exciting project, including a Birds of Loudoun checklist and species lists for many of the county parks. The site is continually updated as maps and other atlas products become available.

[www.loudounwildlife.org/Bird\\_Atlas.htm](http://www.loudounwildlife.org/Bird_Atlas.htm)

Contact Atlas Coordinator Spring Ligi at [sligi@loudounwildlife.org](mailto:sligi@loudounwildlife.org) with questions or comments.