

NESTING JUNCOS IN OHIO

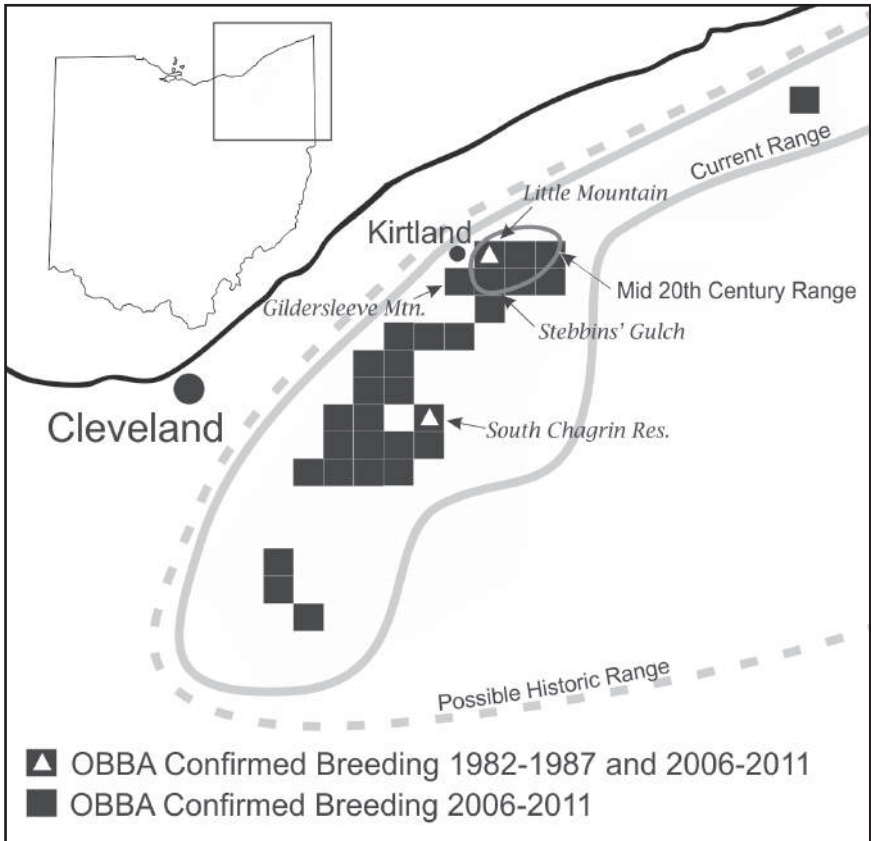
By Haans Petruschke

I remember the first time I heard a Junco singing on territory. I was a boy of seven or eight and my family was on a fishing trip to the French River in Ontario. Already well aware of bird songs, and having the benefit of both a mother and father keenly interested in nature, we quickly found the source of the Tinkerbell song we heard around our cabin in the northern woods. What fun to see what was a winter bird for us on its nesting grounds. That was 1964 or '65.

At the time we were not aware that Dark-eyed Juncos nested in Ohio and most likely within my hometown and current residence of Kirtland. They were very rare and noteworthy in summer and for the most part, everyone considered them to be a winter bird. The local experts whom we knew, notably B.P. "Pat" Bole, did not make the fact of their nesting in the area well known to the general public, although it was certainly noted in the Cleveland Bird Calendar of the day.

Today Juncos are an abundant and prolific nester in a small area of Ohio concentrated in eastern Cuyahoga, southern Lake, western Geauga, and northern Summit counties. Nesting activity is reported outside of this area, but its abundance in those locations is not obvious. It is striking how once you are in an area having appropriate habitats, Juncos are everywhere and obvious during the breeding season, while outside of those areas they are completely absent.

Historically Juncos have always nested in the state: In the nineteenth century, Dr. Jared Kirtland observed Juncos breeding "in great numbers" in the Beech-Maple* forests of the Western Reserve**.¹ In the twentieth century Juncos were restricted to Ashtabula, Geauga, Lake, and Trumbull counties, with only Ashtabula having a sizable population (Hicks 1935).² By the mid-20th century A.B. Williams found them to be scarce and cited only a few records of nesting Juncos, all concentrated along the Lake Geauga county border.¹ During the survey for the first Ohio Breeding Bird Atlas, 1982-1987, the species was confirmed as breeding only in that same



Changes in Dark-eyed Junco Nesting Range in Ohio

area with the addition of a location in eastern Cuyahoga County.³ A decade later I began to notice and report increasing abundance of *Juncos* during the breeding season in the established locations. This resulted in their status being upgraded to “locally common summer resident” (Rosche).⁴ Thirty years after the original atlas, the OBBA 2 (2006-2011)⁵ recorded explosive growth in the abundance of breeding *Juncos* and an expansion of their breeding territory southwest into Summit country, resulting in the status we have today.

So in my lifetime we have seen the status of breeding Dark-eyed *Junco* change dramatically, from perhaps less than 100 breeding pairs in the 1960’s to the stunning local abundance we see today. Yet the range remains confined to the areas Dr. Kirtland observed almost two centuries ago. We forget that our human lifespan is a mere blink of an eye to nature, and so to see such a dramatic change in such a short period raises many questions about both the earlier decline and relatively recent sudden increase of *Juncos* as a breeding species in Ohio. Additionally contemporary reports have *Juncos* nesting well outside of the traditional habitat associated with that species.

What follows is a narrative which may provide an explanation. Realize that attempting to explain animal behavior in the field is on the fringe of science, as real science depends upon repeated observation under controlled conditions and tests to also show the absence of a phenomenon under different circumstances. Any speculation about why an animal behaves in a certain way in the field, no matter how well observed, well researched, or scholarly, is at the very best educated speculation, and I make no claim of presenting anything more here. Also, I must add that I like *Juncos*, a lot. And I have lived in the heart of their nesting territory for much of my life. I have had extraordinary access to the places where they remained as nesters when they were at their lowest numbers, and have had them nesting in my yard, in two Kirtland locations, for over 20 years. So the narrative is also a personal one. It is also the story of a small place in Ohio that exemplifies the story.

Kirtland, Ohio was named for Turhand Kirtland, a revolutionary war veteran, first judge of Trumbull County (which once encompassed the entire Western Reserve), and the father of Dr. Jared Kirtland. Since Dr. Jared Kirtland was a founder of a medical school in Willoughby, Ohio, immediately to the northwest of Kirtland, it is highly likely that Dr. Kirtland was a visitor to Kirtland proper. Given its location on the edge of the Portage escarpment, this landscape of old growth forests, rocky outcrops, steep ravines, and deep valleys whose soil is mostly composed of alluvial clays was given the lowest grade by the Connecticut Land Company. It was considered suitable only for orchards and pastures once the forests had been cleared. Three features found in or near present day Kirtland during Moses Cleveland’s survey for the Connecticut Land Company proved particularly unsuitable for any agricultural activity; they were also considered difficult to log because their terrain was particularly steep. The plots of land as originally laid out did not subdivide these areas. That platting system and the rugged and difficult nature of these places kept them wild and provided refuge for *Juncos* when all other suitable habitat was lost. It is from

these places that they probably expanded.

Of the three, Gildersleeve Mountain and Stebbins Gulch are named for the original landowners. Little Mountain was divided in two by the boundary of Chardon and Concord Townships. These borders mostly followed a 5 mile by 5 mile grid pattern which was seldom violated for the sake of geography. So Little Mountain got a literal feature name.



A fledgling Dark-eyed Junco.

These areas and a few others along the front of the Allegheny Plateau survived the deforestation which came as Europeans settled in the Western Reserve beginning in 1796. Land with the most potential for agriculture was cut first and this provided ample timber for most purposes for decades. Commercially valuable Eastern Black Walnut was abundant in riparian areas of the Ashtabula, Chagrin, Cuyahoga, and Grand Rivers, and these were logged as far upstream as possible once the Erie Canal made shipment of this lumber east viable when it opened in 1825. American Chestnut was certainly an abundant and well used tree in these forests as well. Older homes and barns using post and beam construction used this wood. Hickory was useful for tools and implement frames. Oak was used for tanning and barrels. Cherry was used locally for furniture. Tulip Trees, Cucumber Magnolia, and Yellow and Black Birch are even-grained and easy to work for household and kitchen items. But what of the Beech forests mentioned by Dr. Kirtland? And the Sugar Maples that we know associate with them? Maple sugar is indeed the answer, as this was a valuable resource if the trees were left unlogged. American Beech has little commercial value even today. So the favored habitat of nesting *Juncos* was generally spared, at least in the beginning.

By the 1890s the clearing of the land for agriculture was essentially complete. Photos of the Kirtland area from the 1840s and onward show a largely open landscape with only a few trees, a very different landscape from what we see today. In the early 20th century only a few patches of old growth forest remained and those were often in the most difficult areas to log. Sugar bushes also survived, but beeches were cleared out to make room for the maples. The symbiotic relationship of beech and maples had yet to be discovered.

In the early 20th century the once abundant *Juncos*, as a breeding species, were nearly extirpated from Ohio due to loss of habitat. The few areas that did remain did so by the grace of the land owner or because the forest had value as forest. Stebbins Gulch was preserved by the land owner. Little Mountain had become

a resort where wealthy Clevelanders came in summer to escape the heat and coal soot and smog of the city. When the resort was no longer viable the land was purchased and preserved for riding horses. Gildersleeve Mountain came under threat, but early conservationists organized, rallied, and saved the old growth forest there. Little changed for 30 years, but in the 1950's a part of Gildersleeve Mountain not owned by the state of Ohio began being mined for sand and gravel. This continued until 1968 and had multiple effects on the non-quarried areas including changes to the hydrology. Other parts of Gildersleeve were subdivided and became residential properties.

The 1970s, early 80's, and the decade that followed the first Ohio breeding bird atlas are times when our knowledge of breeding Juncos is scarce. There are two reasons for this. The old guard of citizen scientists was fading rapidly. The new guard of birders did not much care for places without a high diversity of habitat and species. So other than the work done for the Ohio Breeding Bird Atlas, it seems no one really looked. Peterjohn estimated that during the 1990s, 30 to 50 pairs were present during the breeding season.

My own recollection is that around Kirtland the range and abundance of Juncos were expanding during this period. Where they had previously gone unreported on Gildersleeve Mountain (not to say they were not present), I began to notice them in summer during the late 80's and early 90s, at first by their Tinkerbelle song. At the same time we began to find them in Pierson's Creek valley. Tom Yates and Charles Klaus found them at Lantern Court at The Holden Arboretum. In my recollection they also were being found by Kevin Metcalf at Cleveland Metroparks North Chagrin Reservation, this being, at the latest, the mid-1990s.

Keep in mind that during the first atlas survey, Juncos were confirmed as breeders in only two blocks. One of these blocks included the established location of Little Mountain. The other confirmed block was a new location which included Cleveland Metroparks' South Chagrin Reservation. Two blocks in Lake County that included Lake Metroparks' Hell Hollow and Girdled Road Reservations were listed as probable. The block containing Gildersleeve Mountain is listed as possible. The block containing Stebbins Gulch does not even show Juncos as having been observed! The reasons for such oversights are beyond my knowledge. All I can say was there was either a lack of breeding activity among the Junco population, or it was being overlooked. I can attest that I personally contributed to the latter category during the 1980s.

In stark contrast Juncos were confirmed as breeding birds in 30 blocks during the 2006-11 atlas survey. This is, from my point of view, an astonishing and explosive expansion. It also raises questions about why this happened.

If we accept the assumption that loss of habitat was the reason for the decline of breeding Juncos, then we could easily conclude that return of habitat is the reason for their increased abundance. This is supported by data which show that the area where Juncos are found as a breeding species has experienced an increase in forest cover over the past quarter century. My own feeling is that this overly simplifies the situation. I would specu-

late there are three main factors accounting for this dramatic increase: habitat improvement, habituation, and improved observation and awareness.

My own study of habitat leads me to believe our local Juncos like a high quality forest, with good leaf litter and decaying trees, when breeding. Such a forest also includes a healthy herbaceous layer, a nearby source of clean running water, and mature canopy. The locally dominant Beech-Maple forest is certainly a good habitat, but so are rocky Sharon Conglomerate outcrops where Canada Hemlock and Yellow Birch are more predominate. These areas also generally have the necessary high quality water and herbaceous layer. Both forest types have increased in area during the past 30 years, especially where beech trees have matured. If you are in a wooded or riparian area along the edge of the Allegheny plateau in northeast Ohio and you find have full shade and native herbaceous plants, you have a good chance of finding Juncos during the breeding season.

Habituation is a generally overlooked aspect of bird behavior. There is now ample evidence of avian intelligence and learned behavior spreading rapidly in bird populations. One of the best known examples is of Great Tits in England learning to remove the caps from milk jugs to get at the cream. This trick quickly spread through the entire English population of this species. Our Juncos also seem to have habituated to use areas that are not especially natural as nest sites. In their Ohio breeding range there are numerous examples of their using hanging plants and residential gardens for nesting, even though their typical forest habitat may be, in human terms, a good distance away. Habituation may also be a reason for the spread of the species into more diverse natural areas as well. The last enclaves were typically ravines and steep valleys. But success in these areas required that future generations habituate to less secluded areas.

Improved observation and awareness is certainly a factor in our noticing the explosion in Junco breeding populations. As mentioned earlier, the block containing Stebbins Gulch does not show Juncos as having been observed during the first Ohio Breeding Bird Atlas. This is most certainly an oversight, most likely due to lack of coverage. During the second atlas survey the organizers did an outstanding job of recruiting people to participate in the effort and the nearly complete coverage of the entire state attests to this.

I would add there may be other contributing factors. While the effect of the pesticide DDT on Bald Eagle, Osprey, and Peregrine Falcon populations is well known, the effect on passerines is less so. Holden Arboretum has high quality data on nesting Eastern Bluebirds going back over 50 years. One can easily see the increase in nesting success and steady increase in population which occurred after DDT was banned. It is the typical knee in the curve associated with causality. Perhaps there was a similar, unobserved effect on Junco populations? Improved air and water quality, changes in climate, and other unknowns may also have contributed, and there is simply no sound way of knowing with currently available methods.

What the future holds for Ohio's breeding Juncos is completely uncertain. Climate change models do not have sufficient detail to understand or predict changes

in the very poorly understood or studied micro climates that provide the current niche for our population. The explosion in population over the past 30 years runs contrary to macro models. This is not to say those models are in any way flawed, only that they do not have the ability to see the detail required to predict what will happen in such a small area to a relatively small population. Again I point out that our lifespans are miniscule in natural terms. Our ability to observe and understand is also very limited and biased without controlled conditions.

In conclusion I would encourage readers to take time from their regular summer activities to visit our breeding Juncos. You will be rewarded not only by finding this bird, but also by a natural forest landscape of unsurpassed beauty. In the words of Apollo 15 Commander Dave Scott: There is something to be said for exploring beautiful places. It is good for the soul.

Notes:

- * Beech-Maple forest is a term coined by Williams in his study of forest secession. Kirtland used the term "Beech forest".
- ** The Western Reserve or Connecticut Western Reserve, which now consists of Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit, and Trumbull counties with contemporary Huron county being included as the Firelands, was reserved for those burned out by the British during the revolutionary war.

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Haans Petruschke, has been watching birds as he can remember, since the age of four. A former bird walk and trip leader, he now concentrates much of his birding time on ongoing breeding bird surveys and habitat monitoring as a volunteer for the Holden Arboretum. An Engineer by profession, he lives in Kirtland, Ohio.