

BEHAVIOR AND HABITAT USE OF A KIRTLAND'S WARBLER ON FORT DRUM, NY

Jeffrey S. Bolsinger

Environmental Division, Public Works, Fort Drum, NY 13602

On 4 June 2014, while conducting bird surveys on Fort Drum, I found a singing male Kirtland's Warbler (*Setophaga kirtlandii*) in a young red pine (*Pinus resinosa*) plantation on sandy soil. This discovery was just three days after Andy Guthrie found New York State's first fully documented Kirtland's Warbler at Hamlin Beach State Park in western New York. The Hamlin Beach bird was a migrant seen one day only, but based on the Fort Drum bird's behavior, combined with the habitat it was in, I immediately thought it might be occupying a breeding territory. This male remained on territory for two weeks, finally departing sometime between 18 and 20 June.

When I first discovered the Kirtland's Warbler he was moving around the pine plantation singing persistently, sometimes while foraging and other times during extended bouts from treetop perches. While foraging he spent most of the time in the lower third of trees and on the ground, moving almost constantly while continuously pumping his tail. At times he approached me very closely, sometimes close enough that I was unable to focus on him with my binoculars, and seemed unconcerned by my presence. He moved around his territory in a somewhat deliberate manner, for instance he rarely flew straight to the top of a tree to sing, instead working his way up from the lower portion of one or more trees, gradually to the top where he would then sing for up to ten minutes at a time.

I checked on the Kirtland's Warbler every 1-3 days, and through 14 June I never saw him leave the pine plantation, nor engage in any behavior different from what I saw on 4 June. However, on 17 June while attempting to record his song I saw him fly up and out of the pine stand and into a nearby oak stand; something about this flight made me wonder if he was going to come back. On 18 June the warbler's behavior was quite different, as he made repeated flights of 200-300 meters out of the pine plantation in several directions, singing short bouts of song from widely scattered trees before returning to the pine plantation and then making another flight in a different direction. I took this behavior to indicate that he was soon to abandon his territory and try his luck at attracting a female elsewhere. I was unable to find the Kirtland's Warbler when next I visited this spot on 20 June, nor on any of several subsequent visits over the following two weeks.

Kirtland's Warblers have among the most stringent nesting habitat requirements of any North American songbird, requiring young, dense jack pine (*Pinus banksiana*) stands on sandy soils. Specifically, Kirtland's Warblers prefer large (preferably >80 ha but as low as 12 ha) stands of nearly pure jack pine that are 8 to 15 years old and 1.7 to 5 meters tall, with at least 2000 trees/ha and with

the highest densities of breeding warblers occurring in stands with greater than 7500 trees/ha (Radtke and Byelich 1963, Bocetti et al 2014). Although Kirtland's Warbler is generally considered to require jack pine for breeding, they occasionally nest in red pine plantations (Mayfield 1960, Anich et al 2011).

Aside from tree species, the plantation where the Fort Drum bird occurred differs from typical breeding habitat in several ways. This stand is only about 5-6 ha, far smaller than most stands where Kirtland's Warblers nest, and the trees in the stand are 18-20 years old, a few years older than the age at which stands normally lose their suitability for nesting. Although a few trees are taller, most are within the preferred range of 1.7 to 5 meters tall, so perhaps tree size and structure is more important than age. Tree density in the Fort Drum stand is only 750-1000 trees/ha, also much lower than at most nesting sites. A summary of red pine plantations in Wisconsin where Kirtland's Warblers have recently nested found that compared to jack pine, occupied red pine stands average slightly older and are less dense, with an average of 1876 trees/ha (Anich et al. 2011), but this density is still higher than that in the Fort Drum stand.

The Kirtland's Warbler is among the rarest bird species that breeds in North America, with breeding in the 20th century restricted to 13 counties in northern Lower Michigan (Bocetti et al. 2014). Prior to the early 1960s the nesting population was thought to be stable at about 1000 individuals, but declined to less than half that number by 1970, with the lowest documented abundance of 167 singing males (not quite 350 total individuals) in 1987. Brown-headed Cowbird parasitism and habitat loss were the main reasons for these declines. Aggressive cowbird trapping and habitat management reversed these population declines, leading to rapid increases in Kirtland's Warbler abundance during the 1990s, with numbers peaking in 2012 at 2090 singing males, or about 4180 individuals. As the population increased, Kirtland's Warblers expanded to Michigan's Upper Peninsula and Wisconsin (Probst et al. 2003), and in 2007 nesting was confirmed in Wisconsin (Anich et al. 2011) and Ontario (Richard 2008). Kirtland's Warblers have successfully nested in jack pine woodlands at Garrison Petawawa in Ontario during 2007, 2008, 2009, 2010 and 2012 (Richard 2013), a site that is about 185 miles north of Rochester, NY and nearly 400 miles east of the core Kirtland's Warbler nesting range.

Although the Hamlin Beach and Fort Drum Kirtland's Warblers represent the first and second well-documented records for New York State, several sight records together form a pattern of scarce occurrence that correlates broadly with changes in abundance in the overall population. Five sight reports from the Rochester area prior to 1960 (Taylor 1985) and one from Montezuma National Wildlife Refuge in 1952 (Sherony 2014) somehow were excluded from most accounts of the state's avifauna, but probably reflect what was the actual status of this species as a very rare migrant through at least western New York prior to the mid-century population crash. No Kirtland's Warblers were reported from New York again until after the nesting population recovered, starting with a bird seen by Betsy Potter in western New York in May of 2010 that NYSARC could

not formally accept on technical grounds, but which the committee felt was certainly legitimate (NYSARC 2012). With the Hamlin Beach and Fort Drum birds there are now three reports in a five year period, and given the healthy and expanding nesting population it seems reasonable to expect additional migrating Kirtland's Warblers to occur in New York in the future.

Given the great rarity of Kirtland's Warblers in the state, and the distance from the core breeding grounds, nesting in New York State certainly seems unlikely, although the presence of the territorial male on Fort Drum for a couple of weeks perhaps indicates that nesting is possible. As with many species that rely on ephemeral habitats, Kirtland's Warblers have high dispersal potential, with territorial males often appearing far from known breeding sites, and New York is no farther from Michigan than is the nesting site at Petawawa, Ontario. However, jack pine barely makes it into New York, primarily occurring in widely scattered, isolated stands in northern New York, and with the largest stands on sandstone pavement barrens in Clinton County. These barrens would seem the most likely area in New York for nesting Kirtland's Warblers to occur, if and where stands of suitable age and habitat structure are present, such as would occur following a fire. Elsewhere, territorial males could appear in jack or red pine plantations such as the one on Fort Drum, but it seems doubtful that many suitably large plantations with the appropriate age and stand structure occur anywhere statewide, and the prospect of a pair showing up at such marginal sites seems especially unlikely.

LITERATURE CITED

- Anich, N.M., J.A. Trick, K.M. Grveles, and J.L. Goyette. 2011. Characteristics of a red pine plantation occupied by Kirtland's Warblers in Wisconsin. *Wilson Journal of Ornithology* 123(2):199-205.
- Bocetti, Carol, I., D.M. Donner, and H.F. Mayfield. 2014. Kirtland's Warbler (*Setophaga kirtlandii*), *The Birds of America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/019>.
- Mayfield, H.F. 1960. *The Kirtland's Warbler*. Cranbrook Inst. Sci. Bloomfield Hills, MI.
- NYSARC 2012. Report of the New York State Avian Records Committee for 2010. *Kingbird* 60(3).
- Probst, J.R., D.M. Donner, C.I. Bocetti, and S. Sjogren. 2003. Population increases in Kirtland's Warbler and summer range expansion to Wisconsin and Michigan's Upper Peninsula. *Oryx* 37(3):365-373.
- Radtke, R. and J. Byelich. 1963. Kirtland's Warbler management. *Wilson Bull.* 75:208-215.
- Richard, T. 2008. Confirmed occurrence and nesting of Kirtland's Warbler at CFB Petawawa, Ontario. *Ontario Birds* 26(1):2-15.
- Richard, T. 2013. Seven years later: Kirtland's Warbler at Garrison Petawawa. *Ontario Birds* 31(3):148.
- Sherony, D. 2014. Kirtland's Warblers and New York State. *New York Birders* 43(4):1,9.
- Taylor, J. ed. 1985. *Birds of Monroe County*. Mongraph proceedings of the Rochester Academy of Science 16(1):1985.



Kirtland's Warbler, Fort Drum, *Jefferson*, 7 Jun 2014, © Jeff Bolsinger. See article pp. 301-303.



Kirtland's Warbler, Hamlin Beach SP, *Monroe*, 1 Jun 2014, © Andy Guthrie.