

Kirtland's Warbler Banding Activities in Wisconsin 2014

Joel Trick, Ron Refsnider and Sarah Warner

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INTRODUCTION

The first known nesting attempt of the Kirtland's warbler (*Setophaga kirtlandii*) in Wisconsin was in 2007 (Trick, et. al. 2008), with the first known successful nesting in 2008 (Trick, et.al 2009). Beginning in 2008 and each year since, we have made an effort to capture and color-band all Wisconsin Kirtland's warbler males. Color banding allows for the identification of individual birds under field conditions, which greatly facilitates monitoring and documentation of movements within and between years, and has provided important information on survival and site use. Here we report on banding activities we conducted in Wisconsin in 2014, describing the results of those efforts and summarizing banding activities since 2008.

METHODS

The primary method of capture for color banding was targeted netting within the territory of each male Kirtland's Warbler. Birds were captured by erecting a 4-shelf, 12-meter long by 2.6-meter high black nylon mist net (36 mm stretched mesh size), and playing a recording of a Kirtland's warbler song through speakers placed on the ground or suspended low in the vegetation adjacent to the center of the net (Figure 1).



Figure 1. Typical net setup with mist net open, showing narrow cleared lane within dense red pine and jack pine habitat. Adams County, WI. Photo by Joel Trick

Males respond to the recording to defend their territory and are caught in the net. Much less frequently, the mate of the territorial male responds and is caught. However, we did not target females, and we avoided netting in close proximity to the locations of known active nests to minimize disturbance to nesting females.

Each bird captured was banded with a USGS aluminum band and a unique combination of three color bands. Color combinations were coordinated with other banders through the Kirtland's Warbler Recovery Team to avoid duplication. Birds were sexed and aged using plumage and other external characters. Additional data recorded for each adult bird included mass, wing chord length, tail length, fat score, and plumage notes (Figure 2). Detailed data were not collected from nestlings in order to minimize handling time out of the nest. For a complete description of adult banding methods, see Refsnider, et al (2009).



Figure 2. Ron Refsnider weighing a male Kirtland's warbler during the banding process. Bayfield County, WI. 10 June, 2014. Photo by Joel Trick

In 2014, our initial banding effort at the Adams County nesting site was conducted on 30 May. We targeted two unbanded males known to be present, and also attempted capture of several males banded in previous years. We attempted the capture of previously banded birds to take plumage notes and advance our knowledge about age-related plumage changes and facilitate accurate aging of birds. On 10 June, we visited the Adams county site to band two additional unbanded males that had recently arrived, and then we traveled to Bayfield County to target an unbanded male that had recently been found at that site.

Prior to 2014, we had avoided banding any Wisconsin Kirtland's warblers before fledging out of concern for increasing the risk of nest mortality. Following careful planning, in 2014 we conducted pre-fledging banding at two separate nests at the Adams County breeding site on 24 June and 5 July. Prior to banding, we created a nestling banding protocol to guide our banding procedures, which can be found in Appendix 1.

RESULTS

In 2014, we captured and color-banded a total of five male Kirtland's warblers, captured one male and one female that were previously banded, and incidentally captured two unbanded females which we also color-banded. We also banded a total of six nestlings from two separate nests. With the exception of one male banded in Bayfield County, all Kirtland's warblers were banded at the Adams County nesting site. All birds were released in healthy condition at the location of capture, adults after being held for 30 minutes or less (most under 20 minutes) and nestlings for 16 minutes or less. A complete description of color combinations, band numbers, date and location for all newly banded birds, as well as capture information for all previously banded birds captured in 2014, is presented in Appendix 2.



Figure 3. Color-banded male Kirtland's warbler prior to release. Shown here is AIYP, a second year bird. Adams County, WI. 10 June, 2014. Photo by Joel Trick.

DISCUSSION

For the period 2008 through 2014, we banded a total of 60 Kirtland's warblers in Wisconsin, including 44 adult males, 6 adult females, and 10 hatch year birds of unknown sex (Table 1). All females banded were incidental captures in the course of banding males. The majority of birds were banded in Adams County (52 of 60), with five males banded in Marinette County, two in Bayfield County, and one in Douglas County.

YEAR	MALE	FEMALE	HY-U*	TOTAL
2008	8	-	-	8
2009	6	1	3	10
2010	9	-	-	9
2011	6	1	-	7
2012	7	-	1	8
2013	3	2	-	5
2014	5	2	6	13
TOTAL	44	6	10	60

*HY-U = Hatch Year, Sex Unknown; includes fledglings and nestlings

Of ten hatch year birds banded during the period, four were fledglings that had left the nest, and six were nestlings banded in the nest prior to fledging. The three fledglings banded in 2009 were the result of a focused effort targeting recently fledged young, and were captured by hand and in a mist net shortly after fledging. The single hatch year bird captured in 2012 was banded as a result of a passive netting effort in the nesting area in late July to early August after the end of the nesting season (Trick & Refsnider 2012). In 2014 we banded a total of six nestlings at two separate nests at the Adams County breeding site (Figure 4). Post-banding monitoring at these two nests confirmed that all nestlings survived to fledging.



Figure 4. Dorsal and lateral views of Kirtland's warbler nestling, approximate age 5-6 days. Adams County, WI. 24 June, 2014. Photo by Joel Trick

ACKNOWLEDGEMENTS

This project would not have been possible without the assistance of a number of individuals who provided critical assistance. In 2014, Kirtland's warbler monitors Ashley Hannah and Jonathan Stein greatly facilitated our banding by locating Adams County territorial males and nests, and Nick Anich located the Bayfield County bird. For all years, Kim Grveles of the Wisconsin Department of Natural Resources facilitated coordination with Kirtland's warbler monitors to provide similar support, including past monitors Jennifer Goyette, Nick Anich, Nick Walton, Paul Schilke, Sam Jonas, Caitlyn Nemec, Shaun Hilgart, Emily Lind, Valarie Michel, and Daryl Christensen. Similar field support has also been provided throughout the years by a number of volunteers at sites other than Adams county, most notably by Jack Swelstad in Marinette County.

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LITERATURE CITED

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Appendix 1

Protocol for Color-Banding Nestling Kirtland's Warblers in Wisconsin in 2014

Kirtland's Warbler nestlings will be color-banded in Wisconsin to obtain natal site fidelity, dispersal, and longevity data for young that are produced by the pioneering Kirtland's warbler population. Color-banding will also allow the tracking of maternal and paternal lines when the parents of the brood are known. This is intended to be a pilot effort in 2014 to assess the feasibility of color-banding nestlings and to judge the additional risk it may impose on the nestlings and the parents.

1. Color-banding will be initiated only if there is a high probability that the cooperating state and federal agencies and/or NGOs will conduct intensive Wisconsin field checks in the following nesting season so it is likely that color-banded Kirtland's warbler males returning to Wisconsin will be detected and identified.
2. During this first year of nestling banding, the effort will be limited to a maximum of 3 nests. Nests that are associated with a Kirtland's warbler male known, or suspected, to have more than 1 mate or more than 1 territory will not be banded.
3. Nestlings will be banded 2, or preferably 3, days prior to the estimated fledging date for each specific nest (i.e., 8, or preferably 7, days after hatching). This will minimize the possibility that the nestlings will prematurely fledge when the banding crew attempts to remove and return them to the nest, and it will avoid banding nestlings that are too young. If the fledging date cannot be estimated with reasonable certainty for a given nest (based on egg-laying, incubation initiation, and food carrying observations), those nestlings will not be banded.
4. Banding will include 1 USGS numbered aluminum band and 3 color bands (celluloid or Darvic), using color combinations coordinated with the Kirtland's Warbler Recovery Team and other Kirtland's warbler color-banding operations. Color band combinations and USGS band numbers will be provided to the Wisconsin DNR, the USFWS, the Recovery Team, and the Bird Banding Laboratory, as is done with the color combinations used on adults.
5. Nests will be approached and left via separate paths to avoid leaving a dead-end scent path at the nest. On the day of banding, insect repellents and sun screen products will not be used by the individuals who approach the nest or handle the nestlings or the bands. Food and other scented items will be kept away from the nests and banding locations to avoid attracting predators and scavengers to the vicinity.
6. Nestlings will be removed from the nest on the first "pass" by one person to minimize scent and vegetation disturbance, and they will be placed in a padded and covered container. Nestlings will be banded at a temporary banding station a short distance from the nest (>10 meters) to avoid excessive scent deposition and disturbed vegetation at the nest. Nestlings will be returned to the nest on a second pass, by the same individual. However, depending on nest characteristics, it may be better to have one person individually remove and replace each nestling while a second person carries and monitors the container with the nestlings. The larger nestlings will be replaced back in the nest first, followed by the smaller nestlings. If the nestlings are excessively agitated when returned to the nest, a hand, leaf, or other vegetation will be held over the nest for at least 30 seconds to calm them down. Behavior of the nestlings will be monitored

as the individual slowly leaves the nest vicinity.

7. For the first year, processing will be limited to applying the bands and taking photographs during the banding. Weight, measurements, other routine data collection elements will be skipped to minimize processing time. The goal will be to process each nestling in 4 minutes or less. A maximum of 15 minutes will be allowed for processing a complete brood. Banding activities will be terminated at a nest if not completed in 15 minutes.

8. The banding crew members will exercise their best judgment to evaluate local conditions and to determine if they should delay or cancel planned banding activities. Examples of such conditions are unusually cold temperatures or a high probability of rain during or shortly after banding. The presence of known nest predators, such as blue jays or ground squirrels, in the immediate area and which seem to be paying attention to the banding crew, will also cause banding to be delayed or cancelled at that nest site. If nest predators appear after banding has begun, the banding will be completed, and then one person will distract the predator by noisily leaving the area, while the second person quietly returns the nestlings to the nest