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Summary

The Wisconsin Department of Natural Resources coordinated a survey for the Kirtland's warbler (Dendroica kirtlandii), a federally endangered species, to determine its current status in Wisconsin. Over 100 jack pine (Pinus banksiana) stands were surveyed in June 1988. Kirtland's warblers were found in 5 stands. Eight singing males were recorded, two of which were mist netted and banded.

In a 1978 survey coordinated by the Wisconsin Department of Natural Resources, two unmated males were discovered. The 1988 survey confirms the continued presence of Kirtland's warblers beyond their traditional nesting grounds in Michigan. A continued survey effort should be implemented to determine if these pioneering males return to the same location and are they accompanied by any females.

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HISTORIC DATA FROM WISCONSIN

Prior to the 1978 survey there had been only 9 verified records of Kirtland's warbler in Wisconsin. The 1978 survey discovered two unmated males in Jackson County. One bird was recorded from the same area in 1979 and 1980. Thereafter this bird could not be relocated by birders, with no further sightings until the 1988 survey.

SURVEY METHODS-HABITAT DELINEATION

The Kirtland's warbler breeding habitat is most specific where it is found in Michigan. Therefore, locating and delineating potential nesting areas in Wisconsin was the first component of the organizational process for the 1988 statewide survey. Based upon the previous statewide survey done in Wisconsin, three major criteria were used to identify potentially suitable Kirtland's warbler breeding habitat. These criteria were: forest type, soils and topography. A brief description of these criteria follows.

Forest Type: In nearly all cases in Michigan, the Kirtland's warbler breeding habitat was situated in 8 to 20 year-old jack pine stands of at least 80 acres in size. In addition, the jack pines are occupying at least 60 percent of the growing space. The

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Soils: Nearly all the nesting habitat in Michigan is found on Rayling Sands, which are extremely well-drained soils found on alluvial outwashes or lake plains. The Wisconsin soils most similar are Plainfield loamy sands and Vilas, Omega and Hiawatha sands. These soils were formed as deposits associated with glacial lakes and outwashes.

Topography: The habitat in Michigan is characterized by a generally level to gently undulating topography. The sandy soils which support the large jack pine forests of Wisconsin are found on the same level to gently undulating conditions.

In order to locate potentially suitable breeding habitat for the Portland's warbler, state and county reconnaissance records from the Wisconsin DNR - Bureau of Forestry were used. The assistance of County Liaison Foresters was also used in those counties where habitat was likely to be found. The guideline to determine potential habitat was that given for Forest Type as stated above. Both natural stands and plantations were among the stands selected.

Once the data from the reconnaissance records were computed, county maps were drawn up giving exact location and delineated approximated stand locations. Reconnaissance records identified 66 stands of potential habitat located in 8 counties. The stands identified for each county were Bayfield (7), Burnett (18), Douglas (10), Jackson (27), Juneau (26), Marinette (5), Washburn (20) and Vilas (6). Although Adams, Clark, Eau Claire, Monroe and Oneida counties had searches conducted in 1978, there were no potential stands which met the criteria in 1988. (Map 1)

SURVEY METHODS-ORGANIZE AND CONDUCT SURVEY

In order to have a successful statewide survey for 1988 the help of volunteers and other professionals were enlisted. Volunteers were solicited from persons experienced in bird surveys. Among the groups solicited for volunteers were State Universities, the Wisconsin Society for Ornithology, Wisconsin DNR Wildlife Managers, and various environmental organizations with member interest in bird surveys. The volunteers were notified of the survey and asked to give preferred counties or areas which they would like to survey. They were then mailed appropriate maps and instructions for conducting the survey. (Appendix A)

The surveys were conducted from June 3 through June 19, 1988 from sunrise to 11:00 a.m. The days were to be clear, free from precipitation with wind not exceeding 12 m.p.h. Listening

ng was played for 30 seconds. The surveyor(s) then listened for response for two minutes. The procedure was repeated before moving to the next station. If a Kirtland's warbler was heard, a positive visual identification of the bird was to be made. Upon positive identification, the site was to be marked and the location identified on a map. The Bureau of Endangered Resources was to be notified immediately. Once the surveys were completed, the survey forms and cover maps were sent to the Bureau of Endangered Resources. In the event a Kirtland's warbler was identified, the U.S. Fish and Wildlife Service had directed Mr. Wesley Jones to capture, measure, weigh and band the bird(s) with colored bands issued by the USFWS.

RESULTS

116 potential stands were assigned to be surveyed. One hundred four of these identified stands were surveyed in 1988. In addition, 20 additional stands which were known to or discovered by participants were also surveyed. These were primarily in Douglas and Bayfield counties. Twenty participants were involved in the 1988 survey. Nine professionals surveyed 64 stands and 11 volunteers surveyed 60 stands.

Eight male Kirtland's warblers were found in the 1988 survey. Two birds each were located in Douglas and Washburn Counties. Although in different counties one bird from Douglas County and one bird from Washburn County were located within one mile of each other. Four birds were also found in Jackson County, with three birds seen on the same day within a two mile stretch.

Another surveyor in Jackson County had responses to taped songs at two separate locations far removed from the other Jackson County sightings. In both cases a response was elicited upon playing of the tape of the songs continued for a substantial time. However, in both cases a bird could not be visually identified.

Two birds were netted and banded with colored leg bands. Wesley Jones captured and banded one male in Douglas County on June 3, 1988 and one male in Jackson County on June 18, 1988.

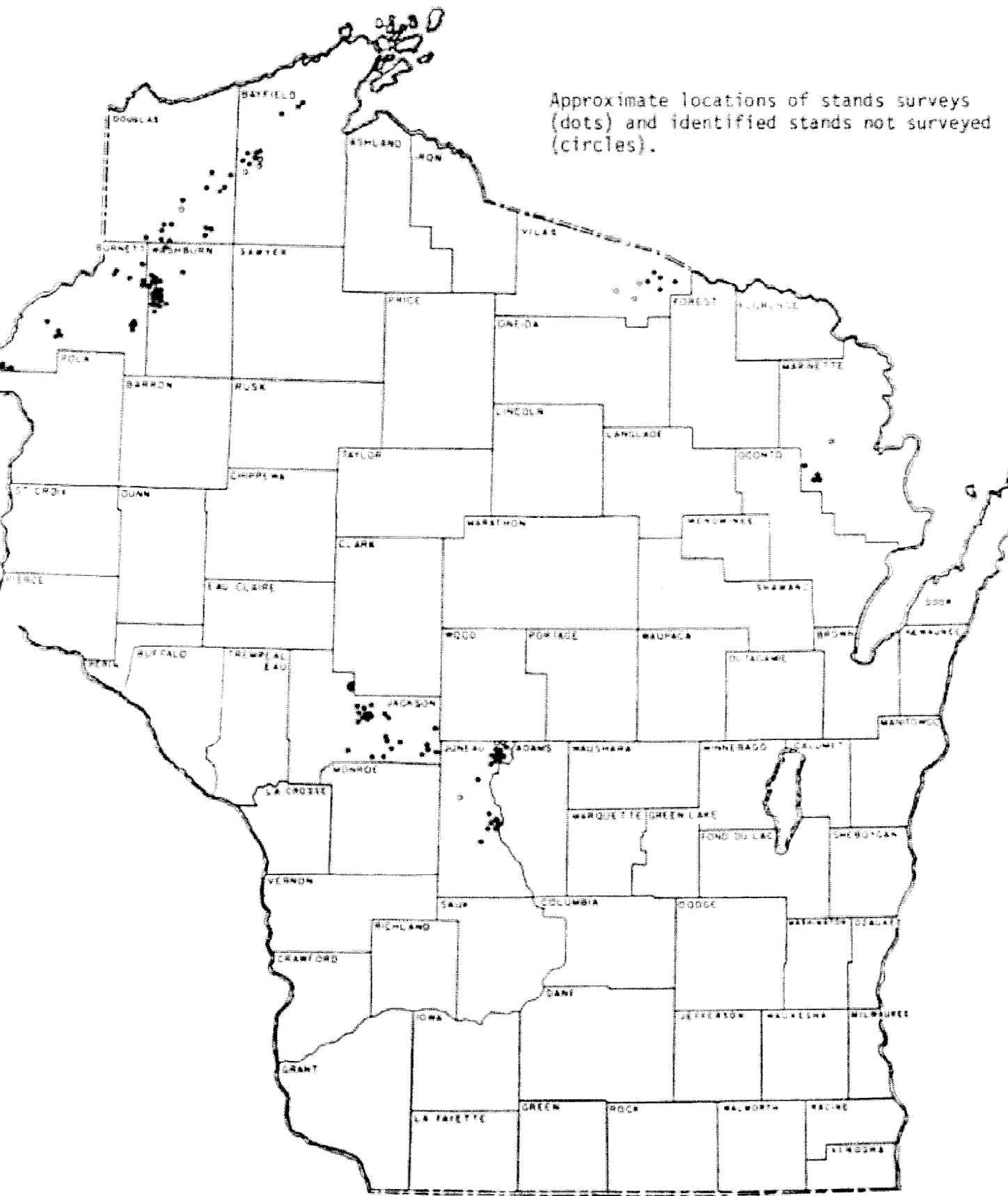
DISCUSSION

The 1978 survey provided insight into the dispersal patterns of the Kirtland's warbler. This 1988 survey provides additional information valuable in determining where Kirtland's warblers go. The fact that eight confirmed male birds found in widely separated locations is encouraging and intriguing.

While the results of the survey were gratifying, several items of concern arose during the summer. These concerns concentrate mostly on logistics: 1) Foremost is the need to get the bander to the site as soon as possible after a sighting. 2) The need to give professional participants more lead time to alleviate scheduling problems. 3) Recruitment of more volunteers is needed. 4) A survey of all of the stands is a priority.

Further surveys are needed to determine: 1) Which stands birds may not return to. 2) To get complete banding coverage to allow tracking of individuals. 3) And to monitor very closely and intensely any singing male's territory for the presence of females.

Approximate locations of stands surveys (dots) and identified stands not surveyed (circles).



INSTRUCTIONS

Look up Kirtland's warbler in your bird guide. Note the clear yellow breast with black streaking on the sides, the split white eye ring, the dark streaking on the head and back (not visible in dim light), the slate-grey or bluish-grey back, and the black face mask of the male. Do not confuse with magnolia warbler, Canada warbler, prairie warbler, or yellow-rumped (myrtle) warbler.

The Kirtland's warbler is large for a warbler, being the size of a small sparrow. It is relatively tame, wags its tail, is strongly territorial, and nests on the ground (be careful where you walk). Calls can be heard 1/4 mile on a still day.

Habitat characteristics: Young jack pine stands usually 40 acres or more, but may be as low as 30 acres. Trees that are 5 to 20 feet in height. Trees in dense clumps interspersed with many open areas. Trees with live branches to the ground. Dry, well-drained sites with sparse ground cover on sandy soil. Sometimes uses Norway pines.

One or more observers may make a survey run. Two are desirable for safety or if one is not sure of identification ability.

Conduct surveys anytime between sunrise and 11 a.m. DST during the period June 3 through June 19. Weather should be clear and calm if at all possible. Discontinue surveys if winds exceed 12 m.p.h. or it rains.

Make a 5-minute listening stop near the center of each 40-acre block of habitat. If walking or driving along a straight line, listening stations should be located 1/4 mile apart. Make use of roads whenever possible to reduce survey time. When walking survey lines, use a compass and pacing to locate stations.

At each listening station, play the recording of the Kirtland's warbler song for 1/2 minute and then listen and look about for 2 minutes (Kirtland's warblers often approach without singing). Repeat this procedure before moving to the next station.

If a Kirtland's warbler song is heard, observers should try to locate and identify the bird. Identifications must be positive. The location of the warbler should be marked with several pieces of flagging tape. The approximate location should be marked on the cover map of the stand. Continue to the next station.

If a Kirtland's warbler song is heard, do not continue to play the song tape at that location as it may harass the bird.

in addition to the numbered stands for which you are scheduled. It is desirable to cover as many areas as possible that have potential for Kirtland's warblers. For new (un-numbered) stands, enter your estimate of the stand acreage in the "Stand No." column of the form.

When surveys have been completed, mail the completed forms and cover maps to the DNR, Bureau of Endangered Resources, at the address on the data form. Be sure to fill out all the sections on the form, including any unusual birds seen or heard.

If Kirtland's warbler is located and identified, telephone the Bureau of Endangered Resources IMMEDIATELY at 608-266-