April 2014

Protocol
for
Incidental Take Permit and Authorization

Kirtland's warbler (*Setophago kirtlandii*)

Note

If carrying out a given protocol is not feasible, or multiple listed species in a given management area pose conflicts, contact the Bureau of Natural Heritage Conservation (NHC) at 608-264-6057. Staff in NHC will work with Science Services staff, species experts and managers to establish an acceptable protocol for a given site that will allow for incidental take without further legal consultation or public notice

I. Species Background Information

A. Status

State Status: Endangered

USFWS Region 3 Species of Management Concern? Yes.

Breeding Distribution and Abundance in Wisconsin: Extremely localized breeder in the state. Species observed in Northwest Sands, Northeast Sands, Northern Highlands, and Central Sand Plains Ecological Landscapes, with breeding events recorded in Adams County and Marinette County. Very rare, not likely to occur in southern counties.

Global Range: Until 1995 breeding range was almost exclusively in the northern Lower Peninsula of Michigan. Since then range has expanded to the Upper Peninsula, Wisconsin, and Ontario. First nesting in Wisconsin recorded in 2007. In winter, the species occurs in the Bahama Islands, Caicos Islands, Dominican Republic, and rarely elsewhere.

B. Habitat

Requires dense, patchy jack pine interspersed with openings typically with a limited hardwood component that may include northern pin oak (*Quercus ellipsoidalis*), black oak (*Q. alutina*), apsen (*Populus* sp.), and black cherry (*Prunus serotina*). Optimal breeding habitat is characterized by jack pine densities of 7500 stems/ha (3035 stems/acre) with 35% to 65% canopy cover. Kirtland's warblers will colonize sites with lower tree cover

and stem densities, however, as long as the following habitat requirements are met: 1) tree age seven to 21 years; 2) tree height 1.5 to five meters (5-16 ft); 3) total tree density > 2000 trees/ha (> 809 trees /acre); 4) low live green branch height 10-30 cm (4-12 in); 5) large stand size, preferably > 40 ha (100 acres); 6) hardwood stems numbering fewer than jack or red pine stems; and 7) substrate consists of well-drained, sandy soil (e.g., sandy outwash plains). In Wisconsin, a red pine plantation with significant die-off of red pines and substantial natural jack pine recruitment has produced suitable Kirtland's warbler habitat.

Critical Habitat Features: Breeding habitat is characterized by dense clumps of jack pines (or jack and red pines) interspersed with numerous small, grassy openings, sedges, ferns, and low shrubs on well-drained, sandy soil. Jack pine stands are optimal for nesting when trees are about 5- 16 ft in height or about 7-21 years of age and at least 40 ha (100 acres) in size. Smaller (<40 ha) stands may be suitable if located within a larger forested landscape. For ground nest concealment, low vegetation, often with overarching tuft of grass from previous year's growth is needed. Lower, live branches of pines also used for nest concealment. Pine needles (used to line nest) and oak leaves provide important ground litter.

C. Life History

Territory Size/Home Range: Territories range from 0.6 ha to more than 10 ha In Michigan, 1 square mile may hold 6-22 males. Territory size may be affected by density of tree stand and is larger in thinner vegetation. Territories sometimes loosely distributed over terrain like a bunch of grapes, not always touching nor filling intervening spaces. Male sometimes leaves territory for brief periods.

Does Species Nest Colonially? Yes. Territories tend to be grouped in "colonies," each male within hearing of at least one neighbor.

Site Fidelity: Males nearly always return to colony in which they have nested. Return rates to breeding site in Wisconsin ranged from 57% to 100% with a mean of 77.4% over 5 years. Unmated strays outside normal nesting range also tend to return to territories occupied previous year, even though they did not obtain mates there. Females usually return to same colony but are more prone to change locations for short or long distances than males. These circumstances mean that new colonies tend to recruit more yearlings than older tracts. Populations in older tracts decline when they no longer recruit sufficient numbers of yearlings to replace losses.

Nest Location and Height: Nest is embedded in ground in porous sandy soils and is concealed by grass and other low vegetation, often with overarching tuft of grass from previous year's growth. Surrounding vegetation may include low shrubs {blueberry (*Vaccinium* spp.), sand cherry (*Prunus pumila*), bearberry (*Arctostaphylos uva-ursi*), sweet-fern (*Comptonia peregrine*)], grasses, sedges, and forbs, generally 10-30 cm high. Lower live branches of jack or red pine may also help to conceal nest access. Ground also littered with pine needles and oak leaves.

Number of Generations/Broods per Year: One, occasionally 2; If nest is destroyed or deserted, building of replacement may begin in 1–2 d. If first brood is fledged by 28 Jun, second nesting may be attempted.

Resident or Migrant? Entire population migrates from nesting ground in early fall to Bahama Islands and returns to Michigan in late spring. Most probably make the trip in one hop unseen, with only strays and stragglers observed.

Breeding Season Dates for Wisconsin:

Arrival in spring: Spring migration runs from early to late May.

Dates for nests with eggs: First eggs appear in last week of May, but most clutches not started until first week in Jun. Mean, 4 Jun.

Last known date for hatchlings: 23 July.

Peak nesting period (period with 70%-80% of active nests): unknown, but probably between 1 June – 5 July

Does Species Re-Nest after Failed First Nest Attempts? Yes.

Length of Breeding Cycle (cumulative time required for nest-building, egg-laying, incubation, and hatchling stages, to the time of fledging): 33 – 39 days. Young receive food up to 44 d after hatching, but by 23 d they appear to be gathering most of their own food.

II. Management Protocol For Authorized Incidental Take

For this species, no take is allowed under this protocol. Management for habitat is recommended, but should be scheduled such that take is avoided. Authorization for take must be obtained from U.S. Fish and Wildlife Service (USFWS). For more information on federal endangered species permitting, consult USFWS website at http://www.fws.gov/midwest/endangered/permits/hcp/index.html

A.-E. Burning, Mowing/Haying, Selective Brush/Tree-cutting, Grazing, and Herbicide Use:

1. If any of the above management activities are to occur at a site (see definitions below) between August 30 and May 1, take will not occur, however individuals conducting work within Kirtland's habitat during this time should contact USFWS and the DNR's Bureau of Natural Heritage Conservation (NHC; 608-264-6057) for further assistance. *Staff with the FWS and NHC will work with managers and other species experts to determine the best course of action for a given site.* The population level and portions of the management area that are critical to avoid jeopardizing the recovery of the species must be determined.

2. If any of the above management activities are to occur at a site between May 1 and August

30, then a federal endangered species permit must be obtained from U.S. Fish and Wildlife Service (see http://www.fws.gov/midwest/endangered/permits/hcp/index.html)

Definitions

Definition of "Site" for Kirtland's warbler: Any patch of habitat suitable for Kirtland's warblers (see habitat description above) and designated as a management unit, as well as any directly adjacent suitable habitat within a given property ownership, or across ownerships where survey and management agreements for the species are in place.