

1.0 Kirtland's warbler - *Dendroica kirtlandii*

1.1 Background Information

Kirtland's warblers are present on the Hiawatha National Forest (HNF), breeding and foraging in stands of young jack pine. The HNF provides breeding habitat for the Kirtland's warbler (KW) in Michigan. The Kirtland's warbler was first listed as federally endangered on March 11, 1967. No critical habitat has been designated for this species. However, approximately 150,000 acres of essential habitat has been identified on public land in the northern Lower Peninsula of Michigan. Essential habitat is defined as "*that land identified as biologically appropriate and necessary for the development of nesting habitat for the Kirtland's warbler*" (Huber et al. 2001). No essential habitat has been identified for management on the HNF.

Key documents guiding Kirtland's warbler (KW) conservation on the HNF. On the HNF, KW conservation and management is conducted in consultation with the U.S. Fish and Wildlife Service (USFWS) and the KW Recovery Team and is guided by several documents:

- **The Kirtland's Warbler Recovery Plan** (KWRP) (Byelich et al. 1985). The *Kirtland's Warbler Recovery Plan* was completed in 1976 and revised in 1985.
- **Strategy for Kirtland's Warbler Habitat Management** (Strategy) (Huber et al. 2001). The *Strategy for Kirtland's Warbler Habitat Management* replaced the *Kirtland's Warbler Management Plan for Habitat in Michigan* (Management Plan) (USFS & MDNR 1981). The Strategy provides specific direction for land managers in the USDA Forest Service (USFS), Michigan Department of Natural Resources (MDNR), and USDI Fish and Wildlife Service (USFWS) on how to manage summer range for the Kirtland's warbler, and protecting individuals and their nesting habitat.
- **Correspondence letters between Kirtland's Warbler Recovery Team and U.S. Fish and Wildlife Service** (correspondence letters). Letter of January 12, 2002 from Kenneth Ennis, leader KW Recovery Team to William Hartwig, Regional Director, USFWS, outlining Recovery Team recommended updates to the existing KW Recovery Plan. Letter of June 21, 2005 from Robyn Thorson, Regional Director, USFWS, to Kenneth Ennis, leader KW Recovery Team, affirming the need to revise the current KW Recovery Plan and providing specific response's to the recommendations in the January 12, 2002 Recovery Team letter. The Recovery Team recommendations were based on the best available science for the species and address the need for more KW habitat based primarily on new information that shows a shorter duration of stand occupancy by KW. The correspondences also address the need to manage jack pine habitat in the Upper Peninsula of Michigan (U.P.) for KW Recovery and provide interim direction until the Recovery Plan can be updated.

- **1986 Hiawatha National Forest Land and Resource Management Plan (Forest Plan).** The Plan does not provide specific management guidelines for KW, but it does provide direction to: “Identify threatened, endangered, or proposed sensitive species habitat that require protection prior to implementing resource management activities (IV-41).” In addition, the Plan also directs that the Forest, “Identify habitat needs to meet population objectives and carry out National Forest responsibilities in recovery plans for threatened and endangered species (IV-41).”

1.2 Species Biology and Ecology

Kirtland's warblers migrate from their winter habitat in The Bahamas to their breeding habitat in Michigan in early to mid May. Their average arrival date in Michigan is May 12; the earliest known arrival is May 3.

Kirtland's warblers typically occupy jack pine stands greater than 80 acres in size, with several scattered small openings and a stocking density of 1089 or more trees per acre. Stands of 1,000 acres and larger have been found to improve nesting density and duration of stand use (Huber *et al.* 2001). Initial use may start when tree height reaches 5 to 7 feet or at an age of 6 to 10 years old, varying according to site conditions. Optimal breeding habitat structure begins to decline by the time the trees attain a height of 12 to 20 feet, or at an age of 16 to 21 years old, depending on the site. Kirtland's warbler populations begin to decrease when tree heights reach about 13.4 feet and the lower height of live foliage reaches about 3.2 feet (Probst and Weinrich 1993). Some evidence suggests that tree height and percent cover (i.e., stocking density) are the primary factors controlling habitat suitability for KW and that nest site habitat is not a limiting factor (Probst and Weinrich 1993). Warblers typically occupy a new nesting area in small numbers at first, gradually increasing for a few years until a peak or plateau is reached, and then decline for a few more years until the area becomes unsuitable and no warblers remain. Kirtland's warbler nesting habitat is dynamic and ephemeral. Warbler nesting locations move across the landscape through time as new jack pine stands become suitable and other stands age and become unsuitable. Kirtland's warblers are adapted to finding and using new breeding habitat. Their survival depends on continuous, uninterrupted regeneration of new breeding habitat throughout the northern Michigan jack pine forests.

The required habitat type is uncommon in Michigan and is restricted to poor, sandy soils of glacial origin. Areas of suitable nesting habitat are scattered and separated by areas of unsuitable habitat. Males occupy breeding territories which they appear to delineate by loud, persistent singing. Nests are constructed on the ground and by late May or early June clutches of 4 to 5 eggs are complete. Incubation requires about 14 days, and nestlings fledge in about 9 days (Walkinshaw 1983). Some KW pairs nest a second time.

Kirtland's warblers begin leaving the breeding areas for the migration south in mid August. They depart over a lengthy period, with the last birds leaving Michigan as late as early October (Sykes *et al.* 1989). Their migration path, based on sightings (Mayfield 1960), seems direct between Michigan and the Bahamas. USFWS research biologists visited several islands of the Bahamas

and Turks and Caicos in 1984 and 1985 in an attempt to study the birds' behavior and identify any adverse factors affecting their survival there (Mike DeCapita, pers. comm. with Paul Sykes). Sufficient warblers for a scientifically valid sample could not be located. Based on two individual warblers that were observed, as well as observations of availability of and likely threats to winter habitat, led the biologists to conclude that this species does not face significant adverse effects during winter (Mike DeCapita, pers. comm. with Paul Sykes). Research is currently ongoing in the Bahamas to identify preferred winter habitat, quantify habitat use and diet, identify factors affecting distribution, and quantify site fidelity and winter site persistence.

