

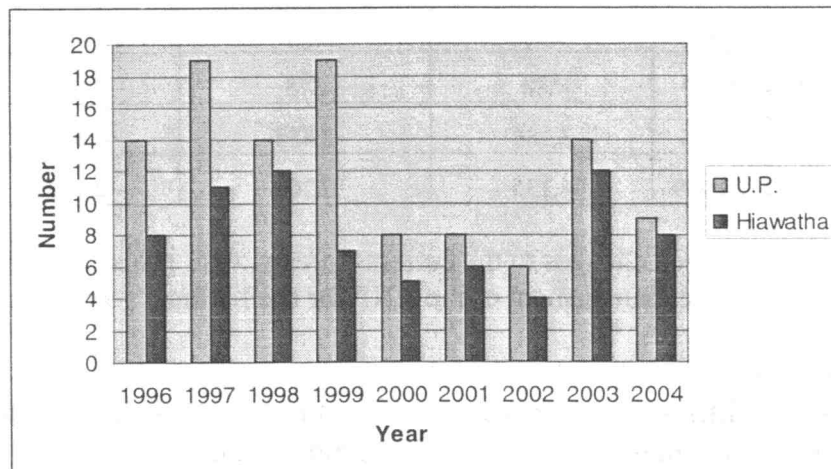
Planning for a Kirtland's Warbler
 Management Strategy for the Hiawatha NF
 4/27-28/2005

KW management provides benefits to the Hiawatha;

- Contribute to the recovery of an endangered species
- Multiple-use approach to resource management
- Support high volume and sustainable jack pine harvest
- Support Healthy Forest Initiative and fuels reduction objectives
- Benefits Hiawatha MIS and many other species of jack pine ecosystems

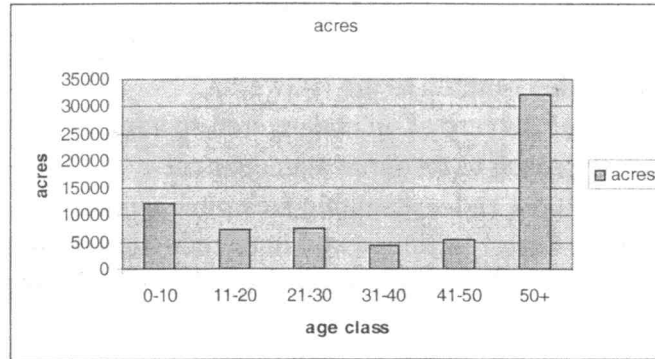
Essential habitat is defined as “that land identified as biologically appropriate and necessary for the development of nesting habitat for the Kirtland's warbler” (Huber et. al. 2001). No essential habitat has been identified for management on the HNF. The *Strategy for Kirtland's Warbler Habitat Management* (Huber et. al. 2001) provides specific direction for land managers on how to manage summer range for the Kirtland's warbler, and protect individuals and nesting habitat.

KW numbers in the UP were highest in the late 1990's due to several wildfires that occurred in the 1980's (Indian Lake Fire, 8-Mile fire, wildfires near Gwin, MI). Limited management efforts on the HNF, designed to create KW habitat, began in the early 1990's and have resulted in KW occupancy of a few managed jack pine stands.



There are four primary sand-outwash ecosystem landtype associations (LTA) on the Hiawatha National Forest; Whitefish Delta, Indian River Uplands/Steuben Outwash/Mint farm, Raco Plains, and Wetmore Outwash. The approximately 46,000 acres of jack pine in these LTA's encompass most of the 10-20 ecological landtype, are allocated to MA 4.2 and 4.4, and would be the most likely areas for KW occupancy (Table xx). There may be suitable KW habitat outside of the 4 outwash LTA's.

Current age class distribution of jack pine on the Hiawatha NF.



Approximate distribution of jack pine acres on HNF

Age Class	Approximate distribution of jack pine acres on HNF					
	Forest Wide	Raco Plains	Wetmore Outwash Plain	Indian River Uplands/Steuben Outwash	Mint Farm (adjacent to Indian River)	Whitefish Delta
0 - 10	12,040	6,964	1,225	1,224	113	1,178
11 - 20.	7,173	1,225	1,436	1,563	361	1,333
21 - 30	7,361	2,229	1,409	697	364	651
31 - 40	4,257	1,113	291	894	62	110
41 - 50	5,312	2,613	588	378	11	72
Over 50	32,123	9,836	3,186	2,450	2,033	375
Total	68,266	23,980	8,135	7,206	2,944	3,719

The following are proposed changes to the current Forests' Plan goals, objectives, Standards and Guidelines relevant to the management of the HNF for the Kirtland's warbler.

Kirtland's Warbler Goals:

- Provide for Kirtland's warbler management within forest-wide vegetation goals.
- Provide a minimum of 10,000 acres of jack pine in the 6 to 20 year age class, striving to achieve desired Kirtland's warbler stocking levels on ELT 10/20 in Management Area 4.4 (*Alternative 2 goal*).
- Provide a minimum of 5,000 acres of jack pine in the 6 to 20 year age class with desired Kirtland's warbler stocking levels on ELT 10/20 in Management Area 4.4 (*Alternative 2 goal*).

Kirtland's Warbler Objectives:

- Regenerate an average of 670 acres of jack pine per year in Management Area 4.4 on ELT 10/20 to provide Kirtland's warbler habitat.

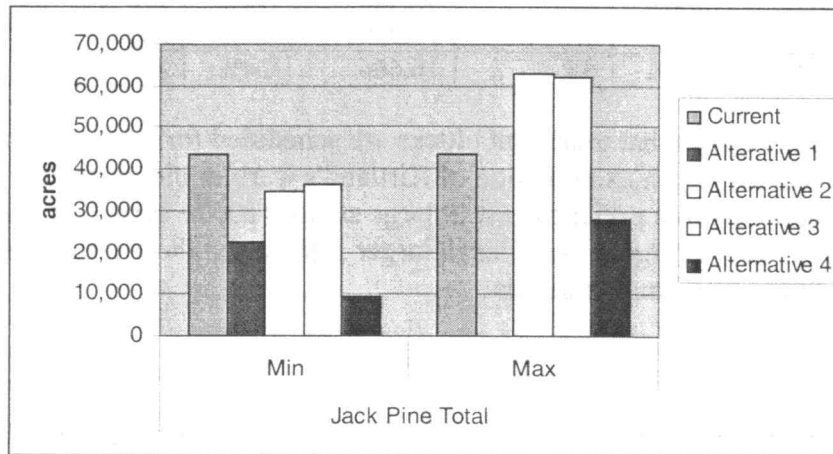
Kirtland's Warbler Guidelines:

- For Kirtland's warbler management, strive to regenerate jack pine stands with a target density of an average of 1,089 trees per acre with small non-forest inclusions.

- Pre-commercial thinning or release of jack pine less than age 20 should not occur in Kirtland's warbler management areas.
- The maximum size of temporary openings for sharp-tailed grouse and Kirtland's warbler management should not exceed 550 acres.
- Two to ten snags per acre should be reserved, except where additional snags would be beneficial to rare species or unless they present a safety concern or interfere with mechanical site preparation. Additional snags should be recruited from live trees where there are fewer than two snags per acre.
- In areas managed for timber production, whole-tree timber harvest methods should not be used on sites with inherently low fertility and low organic matter reserves (ELT 10/20, phase 0, 1 and 2; Grayling and Rubicon soil series). Slash will be left evenly distributed across the site.

Kirtland's warbler habitat under all alternatives is constrained by vegetation goals that limit the amount of jack pine habitat. The goals/objectives in Chapter 2 assume a 15 year duration of suitable KW occupancy (age 6-20). KW could be managed in any MA as long as vegetation goals are met. An initial reforestation effort would be made to meet KW stocking density. However, due to concerns about the economic cost of reforestation, follow-up reforestation efforts, if needed to assure KW stocking, would occur on a minimum of 1/2 of the acres. Acres that are not stocked to suitable KW stocking density would not be considered suitable habitat.

Vegetation goal summary by alternative for jack pine in MA 4.2 and MA 4.4, ELT 10-20



The goals for KW habitat vary by alternative. Actual KW habitat available at any one time could range between 0 and 15,000 acres, with the total amount managed for jack pine between 0 and 50,000 acres. The table column for "Minimum total jack pine managed with KW stocking assured" would represent the HNF contribution to the projected 39,000 acre minimum habitat shortfall.

KW management summary by alternative

Alternative	Goal for 6-20 year age-class, striving to achieve KW stocking	Minimum 6-20 year old jack pine with KW stocking assured	Goal for total jack pine striving to achieve KW stocking	Minimum total jack pine managed with KW stocking assured	Annual jack pine managed for KW stocking
1*	0	0	0	0	0
2	10,000	5,000	33,333	16,666	335-670
3	15,000	7,500	50,000	25,000	500-1,000
4	5,000	2,500	16,666	8,333	166-330

* Alternative 1 did not set goals and minimums but allows for an unspecified amount of KW habitat management as determined at the project level.

KW management summary by action alternative

Alternative	Minimum jack pine managed for KW	% of forest jack pine	Minimum KW breeding pairs	Minimum jack pine goal to be managed for KW	% of forest jack pine	Goal KW breeding pairs	Minimum contribution to 39,000 ac Recovery Team shortfall
2	16,666	24%	87	33,000	48%	173	16,666
3	25,000	40%	131	50,000	79%	263	25,000
4	8,333	13%	44	16,666	24%	87	8,333

Strategy direction suggests that treatment blocks are scheduled for regeneration close to other blocks in space and time. An examination of Kirtland's warbler biogeography (Probst et al, 1995) suggests that the birds prefer to nest in large stands (1000+ acres) of young jack pine. Kirtland's warblers nest in higher densities in larger stands, and these large stands are used for a longer period of time than smaller stands.

What about cost?

The Hiawatha must explore our approach to funding KW reforestation. The Huron-Manistee has over 40 years of experience in managing KW reforestation, most of it without the luxury of natural regeneration. They currently establish KW habitat with their planting program (about 1,070 acres per year). The Hiawatha can and should benefit from their experience. However, a fundamental ecological difference is the cooler climate, higher water table, and richer soils of the U.P. which make natural regeneration a cheaper option for establishing KW habitat in many Hiawatha stands (see stocking survey summary below).

This is an important distinction. Natural regeneration is cheaper than planting. Since natural regeneration technique and cost does not vary based on the tree-stocking goal, there is no additional cost for establishing KW habitat through natural regeneration. However, there is an additional cost for planting to KW stocking densities since trees

must be purchased. Jack pine seedlings currently cost about \$150/1000 seedlings, so trees for KW stocking (1089/ac) would cost about \$30/acre more than standard tree planting densities (900/ac). Regardless of stocking goal, there is more uncertainty when using natural regeneration since it tends to be less successful if done too long after harvest, or if done right before a dry period, or if done on stands with a lower water table.

Jack Pine Stocking Survey Summary for Raco LTA (from the 2004 east unit reforestation spreadsheet; "Red and Jack Pine Reforestation Activities in the Raco, Betchler and Brimley EA's.")

EA (years of stocking survey data)	Number of stands with stocking survey data	Number of acres with stocking survey data	Acres of fill-in plant	Acres of full plant*	Acres of natural regeneration	Average trees/acre with natural regeneration
1993 Raco EA (1996-2003)	18	808	114	81	645	1457
1996 Betchler EA (1999-2001)	13	608	0	26	594	5147
1997 Brimley EA (2000-2004)	25	1574	0	605	969	1948
Total LTA (1996-2004)	56	2990	114	712	2208	2851

*all plant acres had a seed prescription in EA

This stocking survey data indicates that on average, 75% of the Raco LTA jack pine reforestation effort since 1996 exceeds KW stocking goals, and has been completed at no additional cost, since natural regeneration was used. Over the last decade, existing stocking survey data shows that natural regeneration has provided an average of 2,851 trees/acre, over 2,208 acres. About 25% of the stands, mostly in the Brimley EA, have been planted even though the EA prescription called for natural regeneration. This may be due to a lack of jack pine seed, an excess of jack pine seedlings that needed to be planted, or other factors.

If we rely on natural regeneration for a portion of our program, then our costs should be less than the full-planting program of the Huron. Costs would be higher if you assume all KW acres will be hand planted. Not all KW stands need to be planted, and not all standard stocking stands are successful under natural regeneration. As shown in the reforestation table, KW stocking levels have been created on large portions of the Hiawatha without any additional cost, just by using natural regeneration techniques.

Potential additional costs are just one aspect of the issue. Seeking solutions and methods to pay any additional cost are just as important. There are proven ways to pay for the KW program which will meet timber, fuels and wildlife goals and not seriously impact the Forest's or any one program's budget.

Some possible solutions and approaches;

1. Favor natural regeneration over planting for KW. Timing of site-prep is very important (must prepare seed bed before seeds fall off slash in July/Aug). Little additional cost.
2. On KW planting sales follow the Huron-Manistee process and include red pine, hardwood or aspen in the sale to provide a species mix and help fund reforestation. Use separated sale area boundaries as necessary.
3. Meeting KW stocking levels is part of essential KV reforestation, based on NEPA decisions. KV handbook does not specify a stocking level but the NEPA decision does. Allows Forest to fund KW reforestation before pay salvage fund cost. Prioritize salvage fund payments on non-KW salvage sales.
4. On KW planting sales use stewardship contracting to reduce costs and improve natural regeneration (i.e., site prep performed by operator prior to sale closure reduces fuels and improves timing of jack pine regeneration).
5. Continue to use adaptive management to refine techniques and reduce costs. For example, try trench and hand plant (no chop-chain) to increase survival, lower cost and provide better habitat for other grassland birds due to slash retention. Try seed-tree method, with or without burn or mechanical scarification. Try natural regeneration then wait 1-2 years to see results before hand plant.
6. Agree to work on solutions. Specialists from silviculture, timber, reforestation, soils and wildlife work to develop an integrated KW reforestation program on the Hiawatha. Set up initial meeting to discuss solutions and view ongoing field work.