

United States      Forest      Mio Ranger      401 Court Street  
Department of      Service      District      Mio, MI 48647  
Agriculture

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**Caring for the Land and Serving People!**

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**Reply to:** 2670 Kirtland's Warbler

**Date:** August 3, 1994

**Subject:** Forest Plan Amendment

**To:** Kirtland's Warbler Amendment Team  
HMNF Management Team  
Kirtland's Warbler Habitat Management Team

The Huron-Manistee National Forests and the Michigan Department of Natural Resources are currently in the process of revising the current Kirtland's Warbler Habitat Management Plan. According to the current plan, it is to undergo scrutiny for general revision every 10 years and was to be revised in 1990. Obviously, we are a few years behind.

The good news is all of our Kirtland's Management Areas are now in a GIS (geographic information system), and a new habitat management plan can be completed soon. The next task at hand is to schedule habitat development areas for the next 50 years, and make adjustments in designated Kirtland's warbler essential habitat using the best information we have available at this time. Recent census observations have made it apparent to biologists and other resource managers involved in KW management that our current habitat management strategy may not be the best we can do for the Kirtland's warbler, the jack pine ecosystem, and our limited budgets.

A Forest Service interdisciplinary team (Paul Erler, Rebeca Franco, Joe Gates, Phil Huber) was formed to address a number of critical issues (identified in **bold** letters) and develop a draft proposed action. **The draft proposed action follows the issues discussed below and is subject to modification based on your comments.**

Issues Related to the Kirtland's Warbler Habitat Management Plan Revision

***Stand Size is Important!***

A recent analysis of Kirtland's warbler biogeography (Probst and Donnerwright) suggests that warblers prefer larger stands (>500 acres), and duration of use of is much higher for larger stands.

Stand Size	Avg. Duration of Use
< 200 acres	3.6 years
200-500 acres	4.6 years
500-1000 acres	7.5 years
>1000 acres	8.3 years

**Under the current KW management plan, the current average stand size is approximately 260 acres. Stands in this category are likely to have lower densities of Kirtland's warblers and duration of occupancy is low.**

***HM Forest Plan Limits Stand Size...***

The current Forest Plan reads as follows (IV-142):

II. The following Standards and Guidelines apply only to the even-aged silvicultural system.

A. Create temporary openings by the application of the even-aged silvicultural system.

1) The height of reestablished stands in Kirtland's warbler management units should be 5 feet or higher before an adjacent block is cut.

2) Temporary openings created by even-aged management will be 40 acres or less, except that in jack pine stands managed for Kirtland's warbler will be 370 acres or less.

**Under the current standard and guidelines, adjacent stands will almost never be occupiable at the same time, and stands suitable for Kirtland's warbler occupancy will never exceed 370 acres. Therefore, no contiguous block of plantation habitat will ever be more than 370 acres in size.**

Following the Mack Lake Fire, annual habitat development goals on the Huron National Forest has shifted to the other 6 management areas. **Habitat development has accelerated in these areas and it is increasingly difficult, if not impossible to meet the adjacency requirement in the Forest Plan standards and guidelines.**

### **KW Management Plan Limits Stand Size...**

The current Kirtland's Warbler Management Plan divides each management area into management units. Each management unit is divided into five habitat development blocks. This strategy was originally designed to benefit the warbler by minimizing the potential for catastrophic losses of birds on the nesting grounds due to wildfire. However, **this strategy has created isolated "islands" of habitat for the KW, unlike habitat that would have been created by natural wildfires.**

### **Essential Habitat Adjustments are Needed...**

On the Huron National Forest, over 277,000 acres (64%) are classified as dry outwash sand plains. 53,500 acres (19% of outwash plains) are designated essential habitat for the Kirtland's warbler in the current Management Plan (see attached LTA/KWMA map). Most of the difference is either in red pine plantation or in jack pine not managed for the Kirtland's warbler.

After field verification of the original essential habitat, it was found that **some of the habitat is not on ecological land type phases suitable for the development of nesting habitat, while some non-essential habitat within the sand plains is suitable.** For example, the Tawas Kirtland's Warbler Management Area is made up of isolated islands of essential habitat and will most likely never provide a sustainable supply of good nesting habitat. **Some essential habitat in all 7 management areas needs to be relocated or better consolidated.**

### **There's More Habitat Out There...**

**An opportunity exists to increase and/or consolidate acres of essential habitat for the Kirtland's warbler. The Mack Lake Opportunity Area analysis recommended adding approximately 5000 acres of essential habitat as a direct result of the Mack Lake Fire. This and other essential habitat could be added with or without increasing the number of acres harvested and planted.** From an ecological perspective, additional acres could be identified as essential habitat to better manage the outwash sand plains in the future should our capacity to regenerate jack pine increase.

### **Draft Proposed Action Developed by the Interdisciplinary Team**

Develop nesting habitat in larger blocks, adjacent to each other where feasible. Habitat development in adjacent blocks should be approximately 5 years apart to create optimum nesting habitat for the Kirtland's warbler.

Specifically, amend the Forest Plan as follows:

Under 1900 Planning (IV-140),

#### **I. Vegetation Management**

A. Essential habitat is designated on appropriate ecological land type phases (ELTP's) as prescribed in the Habitat Conservation Strategy for the Kirtland's Warbler in Michigan. Essential habitat designation attempts to maximize other resource values including visual

quality, recreation, and fire prevention. Minor essential habitat adjustment can be recommended by an interdisciplinary team and approved by the District Ranger.

Under 2400 Timber Management (IV-142).

II. The following Standards and Guidelines apply only to the even-aged silvicultural system.

A. Develop nesting habitat using even-aged silviculture and reforestation techniques as prescribed in the Habitat Conservation Strategy for the Kirtland's Warbler in Michigan.

1) Design habitat blocks to best mimic the effects of natural wildfire as prescribed in the Habitat Conservation Strategy.

2) Temporary openings created by even-aged management in jack pine stands managed for Kirtland's warbler should be 500 acres or less, unless otherwise approved by the Forest Supervisor.

3) Blocks in Kirtland's warbler management areas should be reestablished (planted, seeded and regenerated, or naturally regenerated) before an adjacent block is sold.

These new standards and guidelines would have the following effect on the management program:

1) Average stand size would increase, significantly increasing the duration of Kirtland's warbler occupancy. Adjacent stands would both be occupiable for approximately 5 years, which could increase effective stand size up to 1500 acres. This large area complex could increase duration of occupancy from 4.6 to 8.3 years. However, past management will limit opportunities to increase stand size in the immediate future. Most blocks will still be under 370 acres in size. District rangers would still have the decision space to harvest less than 500 acres, for aesthetic or other reasons.

2) New standards and guidelines will allow harvest of some stands adjacent to blocks of habitat in the process of regeneration. This will allow managers to continue accelerated habitat development that is necessary as a result of the Mack Lake fire.

3) Minor adjustments would be made to better consolidate essential habitat.

The Habitat Conservation Strategy will provide more detailed information regarding essential habitat designation and nesting habitat development (visual considerations, leave strips, leave areas, snags, etc.).

Attached are notes from the first interdisciplinary team meeting. These notes identify issues, concerns, and opportunities related to the Kirtland's Warbler program.

Please send me your comments on this draft proposed action, along with issues, concerns, opportunities. Our next step is to develop a final proposed action and a scoping letter to send to the public. If you have ideas regarding this next step, we would appreciate those also.

Sincerely,

A handwritten signature in black ink that reads "Philip W. Huber". The signature is written in a cursive, slightly slanted style.

Philip W. Huber  
Wildlife Biologist

## KW PROPOSED PLAN AMENDMENT TEAM

March 22, 1994

In attendance: Paul Erler, Rebecca Franco, Phil Huber  
(Joe Gates could not attend)

### A. Proposal

1. Modify cutting strategy
2. Shift essential habitat acres
3. Adding essential habitat acres in Mack Lake to increase from 53,500 to 60,000 acres

### B. Purpose of the team to put together Proposed Actions and Issues/Concerns/Opportunities

### C. Phil went over management areas and current management strategy

### D. KW Research

1. Probst data supports the idea that the larger an area, the more likely the KW will inhabit it longer (see attached document)
  - a. KW's are colonial nesters
2. Consequently, it could save money by:
  - a. significantly increasing the length of time KW's use habitat
  - b. possibly increasing KW territories/acre? (check with Probst)
  - c. dealing with more acreage at one time rather than smaller units at different times

### E. Issues/Concerns/Opportunities

1. Are large clearcuts more or less visually impacting than a greater number of scattered cuts of the same acreage?
2. Could cut immature trees (ex. Mack Lake) on fewer acres, but timber industry might object to cutting younger trees: below cost sales, less revenue than current KW sales.
3. To increase occupiable acreage, sell adjacent acres every 5 years or so to achieve larger sizes (as soon as adjacent stand has been planted).
4. Cost for KW management is higher than return from timber sales: cannot cover planting costs
5. Fire would create habitat of different sizes which would be more natural: fire mgmt is an alternative or mechanically cut
6. Maintain current essential habitat at 53,500 acres or increase essential habitat up to 60,000 acres to incorporate additional acres as a result of the Mack Lake Fire, as recommended in the Mack Lake OA. Could increase essential habitat without increasing annual cut.
7. It is less costly to manage jack pine that has been excluded from essential KW habitat for timber or other objectives than to manage for the Kirtland's warbler.
8. Modern fire suppression is the cause of the natural KW habitat shortage
9. Red Pine was planted by the CCC's on jack pine sites that would have otherwise been suitable as essential habitat
10. Now that red pine is growing on jack pine sites, what do we do when it reaches rotation?

11. Should we convert some red pine areas to jack pine (ecosystem management?)?
12. Need to do a better job of providing habitat by changing the current KW management strategy (larger cuts, adjacent cuts)
13. Recreationist and adjacent landowners may object to visual impacts of larger cuts.
14. Recreation trails will have to be relocated more often because of larger and adjacent cuts?
15. Occupiable habitat will be closed to the public for a greater number of years if cuts are larger and adjacent to each other.

#### E. A Proposal Possibility

1. Shorten rotation age, using less acreage, improving visuals--would not be cost efficient

#### F. Preferred Proposed Action

1. Cut larger blocks adjacent to each other, and cut each adjacent block approximately 5 years apart to mimic a large fire (closer to ecosystem management).
2. Blocks adjacent to a proposed cutting unit should be planted before the cutting unit is sold.
3. Drop unit boundaries and manage areas as a whole
4. Do not increase the annual harvest in the near term
5. Remove 5 ft. limitation
6. Mitigate visual impacts by leaving areas or reserve trees (reserve trees and areas should not affect habitat) according to standards and guidelines.
  4. Cuts should generally not exceed 500 acres (two 500-acre adjacent cuts would maximize KW duration of occupancy).
  5. Stands should be delineated to natural features such as creeks, topographic features, etc. Roads are not natural features.
  6. Adjust essential habitat to occur on ecological land types suited to KW and will minimize impacts of social values including visual quality, recreation, fire hazard/risk, etc.

#### H. Next Steps

1. Circulate proposed action internally for comments
2. Check NFMA requirements
3. Talk to John Probst about other data to support proposal

Decision Notice  
and  
Finding of No Significant Impact

for

Kirtland's Warbler Habitat Management Amendments

USDA FOREST SERVICE  
HURON-MANISTEE NATIONAL FORESTS  
1755 S. MITCHELL ST., CADILLAC, MI 49601

This notice documents the decision for the Kirtland's Warbler Habitat Management Amendments to the Huron-Manistee National Forests' Plan. Public comments for this project were solicited by letters sent to interested groups and individuals on January 17, 1995. Subsequent to the letters, four local newspapers published articles describing the proposed action and solicited comments from readers. The public was notified by letter dated July 30, 1996 that the Environmental Assessment (EA) was available for a 30-day comment period. A legal notice, stating the same, was published in the Cadillac Evening News on August 8, 1996.

**Decision**

After reading the Environmental Assessment (EA) and in accordance with direction given in the Forest Land and Resource Management Plan and its Final Environmental Impact Statement, it is my decision to implement the **Proposed Action** as follows:

Amend the Huron-Manistee National Forests' Plan by:

- 1) adding a standard and guideline directing the design and configuration of treatment blocks that mimic the regeneration results of wildfire by harvesting and planting jack pine as described in the Kirtland's Warbler Habitat Management Strategy;
- 2) modifying an existing standard and guideline allowing treatment blocks (temporary openings or clearcuts) in essential habitat for the Kirtland's warbler to be up to 550 acres in size;
- 3) modifying an existing standard and guideline relating to the treatment of adjacent blocks. If the temporary opening created by adjacent treatment blocks exceeds 550 acres, one block will be stocked before the other is sold. A block is considered stocked when it is planted to a stocking density of 1600 or more trees per acre over 75% of the area. If a block is seeded or regenerates naturally, it will be considered stocked if it has a stocking density of 1600 or more trees per acre over 75% of the area after the third-year stocking survey.



4) adjusting the locations of ecologically-suited lands to be managed as essential habitat in Management Areas 4.2 and 4.5. The net effect will increase the amount of essential habitat to a minimum of 53,500 acres and a maximum of 68,000 acres. The proposed stand adjustments are illustrated on the maps in Appendix A, and listed in the tables in Appendix B of the environmental assessment.

The Proposed Action is described in detail in Section I.D, on pages 8 and 9 of the EA.

### **Reasons for the Decision**

My decision to implement the proposed action is based on its effectiveness in achieving the stated purpose and need, which improves management of jack pine essential habitat for the endangered Kirtland's warbler. In evaluating the effects of the proposed action and alternatives as stated in section IV of the EA, in my judgement, the proposed action is the most effective alternative to achieve the stated purpose and need for the action since it best accomplishes the following:

- 1) The proposed action meets the purpose and need for action while Alternative 1 (No Action) does not. Alternative 2 (Larger Treatment Blocks) meets the purpose and need for action, but could produce very large treatment blocks that are not as acceptable to the public.
- 2) The proposed action addresses all issues, concerns, and opportunities raised during the scoping process.
- 3) The proposed action improves management of the jack pine ecosystem by better mimicking the regeneration effects of wildfire.
- 4) The proposed action improves habitat for the Kirtland's warbler and other species of the jack pine ecosystem.
- 5) The proposed action improves management of the jack pine ecosystem by adjusting the locations of ecologically-suited lands to be managed as essential habitat.

In making this decision, I have taken into account public concerns and comments about the proposed project. I have evaluated the adequacy of the EA to resolve issues, formulate alternatives to the Proposed Action, determine mitigation or coordinating measures, and evaluate effects of the alternatives. I also took into account the disposition of issues raised during the notice and public comment period.

Based on all factors, it is my judgement that the proposed action provides for the greatest net benefit to the public. No single factor determined this decision.

## Alternatives Considered

Two alternatives to the proposed action were considered in detail:

Alternative 1 is the no action alternative. This alternative would not change the maximum clearcut size (370 acres) or adjacency requirement from what is currently in the Forest Plan. This alternative would not change the location or amount of essential habitat (53,500 acres) in Management Area 4.5 that was identified in the Kirtland's Warbler Management Plan.

Alternative 2 is the same as the proposed action except that the maximum clearcut size is increased to 1070 acres.

## Finding of No Significant Impact

I have determined that these actions are not a major federal action, individually or cumulatively, and will not significantly affect the quality of the human environment. Therefore, an environmental impact statement is not needed. This determination is based on the following factors:

1. Public health and safety are minimally affected by the proposed action;
2. There are no known significant irreversible resource commitments or irretrievable loss of timber production, wildlife habitats, soil productivity, or water quality (EA pages section IV);
3. The physical and biological effects are limited to Kirtland's Warbler Management Areas and adjacent areas. There are no unique characteristics of the geographical area that would be significantly affected by the actions of this project;
4. The effects on the quality of the human environment are not likely to be highly controversial;
5. There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks;
6. These actions do not set precedent for other projects that may be implemented to meet the goals and objectives of the Forests' Plan. These actions are not connected to future actions that may have significant effects;
7. There are no known significant cumulative effects between this action and other projects implemented or planned in the Kirtland's Warbler Management Areas or adjacent areas;
8. There will be no significant effects on cultural resources. Surveys for cultural resources are conducted prior to activities on National Forest lands. Any sites found will be protected;
9. All current and proposed federally threatened and endangered species will not be affected by the actions; and
10. The actions do not threaten a violation of federal, state or local laws imposed for the protection of the environment.

**Administrative Review of Appeal**

Appeal Rights : This decision is subject to appeal pursuant to the provisions of 36 CFR 217. A notice of appeal of this decision, pursuant to 36 CFR 217, must be submitted in duplicate to the Regional Forester within 45 days following the date of publication of this decision in the Cadillac Evening News at:

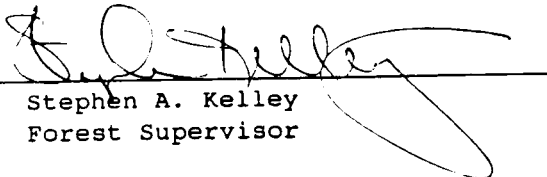
USDA Forest Service, Eastern Region  
ATTN: Appeals Deciding Officer  
310 West Wisconsin Avenue  
Milwaukee, WI 53203

If no appeal is received, implementation of this decision may not occur before 7 business days from the close of the appeal filing period.

Questions regarding this decision should be directed to the deciding officer:

Stephen A. Kelley  
Forest Supervisor  
Huron-Manistee National Forest  
1755 S. Mitchell St.  
Cadillac, MI 49601  
(616) 775-2421

10/16/96  
Date

  
Stephen A. Kelley  
Forest Supervisor

United States  
Department of  
Agriculture

Forest  
Service

Huron-Manistee  
National Forests

Manistee Ranger District  
401 Court Street  
Manistee, MI 49847

**Caring for the Land and Serving People!**  
**Telephone (517) 826-3252 TTY and Fax (517) 826-3179**

Date: January 17, 1995

Dear Friend of the Huron National Forest:

The Forest Service would like you to help us better manage the National Forest by providing input on some changes we are considering.

The Forest Service manages jack pine on the Huron National Forest for the Kirtland's Warbler, a federally endangered bird. Stands of mature jack pine trees are harvested by clearcutting and young trees are planted to provide nesting habitat. Without this type of management, the Kirtland's Warbler would likely become extinct.

#### **Background**

Prior to modern fire suppression, large natural wildfires frequently burned **thousands** of acres of jack pine forest on the dry sand plains. Most jack pine wildfires killed the older trees and caused millions of seeds to be released. In just a few years, these burned over areas were covered with young pine trees. These new stands<sup>1</sup> of young jack pine provided plenty of natural habitat for the Kirtland's Warbler. However, modern fire suppression has substantially decreased the frequency of wildfire, significantly reducing the amount of nesting habitat naturally produced for this bird.

While fire suppression is necessary to protect human life and property, it eliminates a natural disturbance factor from the jack pine ecosystem on which many species of animals, plants and insects depend. The Forest Service attempts to mimic the effects of natural wildfire by harvesting and planting jack pine. Management of National Forest system lands for the Kirtland's Warbler is guided by the Kirtland's Warbler Management Plan and the Huron-Manistee National Forests' Plan. **The Kirtland's Warbler Habitat Management Plan is more than ten years old and is presently being revised.**

#### **New Information**

Examination of our Kirtland's Warbler census data suggests that these birds prefer to nest in large stands (1000 acres +) of young jack pine. **It appears that birds nest in higher densities in larger stands, and these large stands are used for a longer period of time than smaller stands** (see Figure 1). The ecological attributes of large stands are more closely aligned with the habitat objectives of the Kirtland's Warbler Habitat Management Plan.

#### **Proposal**

Our current Forest Plan limits the size of jack pine clearcuts to 370 acres or less. In addition, two or more adjacent stands cannot be cut if their combined size would exceed 370 acres (see Figure 2a). These guidelines need to be changed to allow managers to best mimic the effects of natural jack pine wildfires and provide habitat that is best suited for all wildlife species of the jack pine ecosystem (Figure 3).

A proposed Forest Plan amendment was developed by a multi-disciplinary team to improve the design of Kirtland's Warbler habitat projects, with considerations for social values including visual quality, recreation, and fire protection. **We propose to amend the Forest Plan to allow a clearcut stand to be up to 500 acres. In addition, trees would have to be growing in this recently harvested stand before an adjacent stand is sold** (the actual proposed amendment can be found in Figure 2b).

To best manage the jack pine ecosystem, **we would like to reselect which stands are designated for Kirtland's Warbler management. In addition, we would like to designate additional stands of jack pine for Kirtland's Warbler management, while keeping the annual harvest level the same.** We have found that some of the stands that were originally proposed for Kirtland's Warbler management are not ecologically adapted to provide quality nesting habitat. These stands are better suited to grow tree species other than jack pine, or remain open as prairie. We would exclude these stands from Kirtland's Warbler management, while including others on the dry sand plains that are better suited for growing jack pine (Figure 4).

#### **What are the advantages/disadvantages of the amendment?**

The amendment would allow us to better simulate the effects of natural jack pine wildfires, significantly increasing use of this artificial habitat by the Kirtland's Warbler and other species of wildlife including the Upland Sandpiper, American Kestrel, and the

<sup>1</sup> A stand is an area of trees or other vegetation with similar characteristics.

Short-eared Owl. Large openings could provide an opportunity to bring back a significant number of Sharp-tailed Grouse. These birds were common in the northeast Lower Peninsula until the 1950s.

The amendment would provide us the opportunity to cluster acres, creating fewer but larger stands of nesting habitat. For example, instead of harvesting and planting five scattered 300-acre stands to attain 1500 acres of nesting habitat, we could harvest and plant three 500-acre stand in the same vicinity. Clustering clearcuts would reduce the number of scattered clearcuts (see Figure 3).

Designating additional stands of jack pine for Kirtland's Warbler management would give us a greater flexibility in the location and design of nesting habitat in the landscape. This would improve the productivity of nesting habitat, while providing for social values like visual quality.

The proposed amendment would not change the average 1100 acres harvested and planted each year on the Huron National Forest.

Visually, a clearcut of 500 acres won't look significantly different from a clearcut of 370 acres. Individual or clumps of large trees will still be retained to improve the visual quality of large clearcuts.

Purchasing and planting jack pine for the Kirtland's Warbler is costly. The Forest Service is attempting to create nesting habitat in an efficient and effective manner. Increasing the productivity of nesting habitat will greatly improve the economic efficiency of this program.

Warblers may use the improved nesting habitat for a longer period of time, potentially increasing the number of years an area is closed to public entry. If a stand of nesting habitat is occupied, it will be closed during the nesting season (May 1 to August 15 or September 10).

Larger jack pine stands, along with current efforts to restore dry sand prairies within the jack pine ecosystem, would improve implementation the Forest Service policy of ecosystem management.

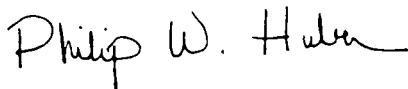
Each Kirtland's Warbler habitat project would still require site specific environmental analysis and documentation, which includes public involvement. Public involvement includes sharing your ideas on the specifics of each proposed project. Each project is then customized to best balance the needs of people, the Kirtland's Warbler and the jack pine ecosystem.

**We want your opinion and ideas!**

If you have any questions, please contact me or Connie Chaney (District Ranger) at the address above, or by telephone at 517-826-3252. You can also talk to Rex Ennis (Forest Biologist) at 1-800-821-6263. We are more than happy to meet with anyone interested in this proposal.

Thank you for taking the time to read about this project and I hope to here from you soon. We would like to have your responses back by February 17, 1995, so that we can move forward with this Forest Plan amendment and the revision of the Kirtland's Warbler Habitat Management Plan.

Sincerely,

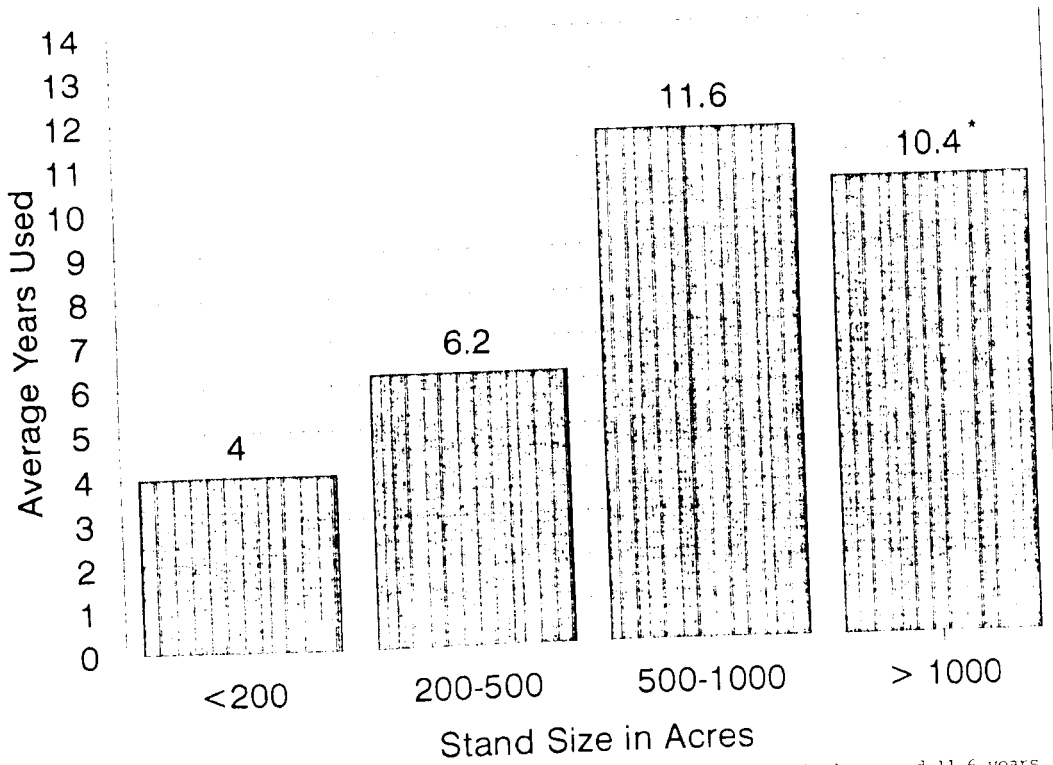


Philip W. Huber  
Wildlife Biologist  
Mio Ranger District

Enclosures  
PWH.pwh

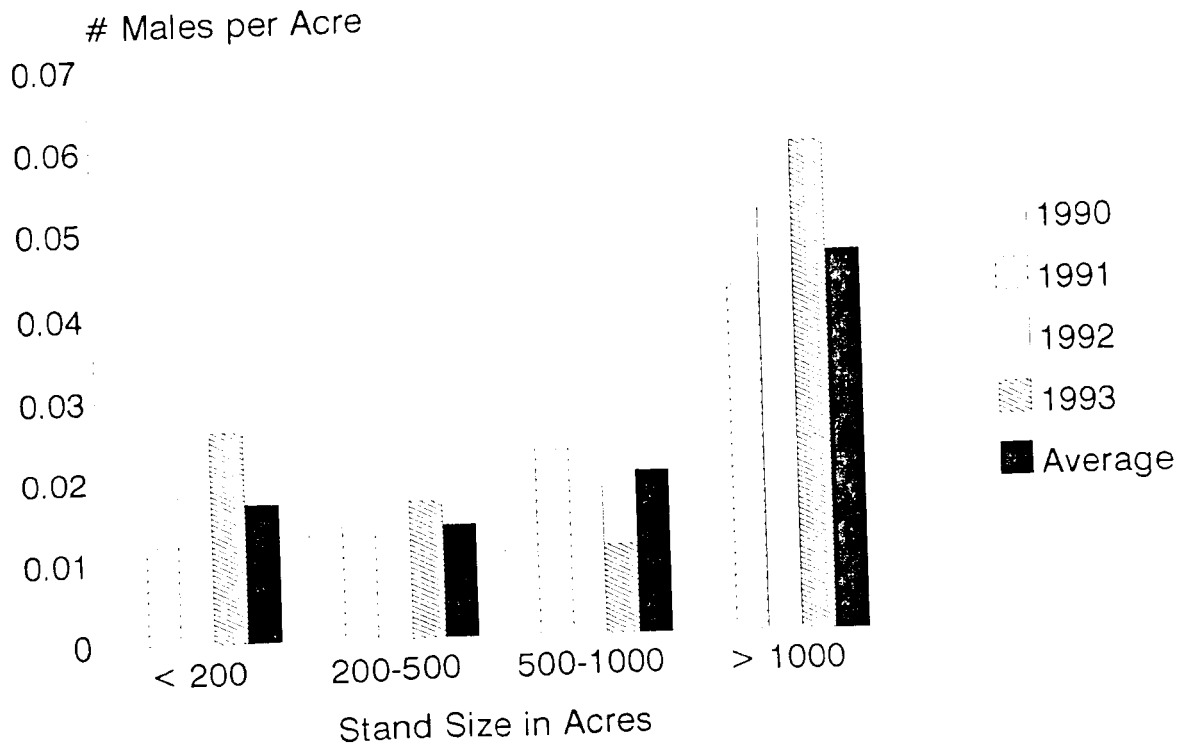
Figure 1.

# Kirtland's Warbler Stand Use



\* Stands in this category are currently occupied and will most likely exceed 11.6 years.  
 (Data from USFS, North Central Forest Experiment Station, Probst et. al.)

# Density of Kirtland's Warblers by Stand Size



**Figure 2. Current and Proposed Forest Plan Standards and Guidelines (IV-142).**

**Figure 2a. Current Forest Plan Standards and Guidelines (IV-142).**

- II. The Following Standards and Guidelines apply only to the even-aged silvicultural system.
- A. Create temporary openings by the application of the even-aged silvicultural system.
- 1) The height of reestablished stands in Kirtland's warbler management units should be 5 feet or higher before an adjacent block is cut.
  - 2) Temporary openings created by even-aged management will be 40 acres or less, except that in jack pine stands managed for Kirtland's warbler will be 370 acres or less.

**Figure 2b. Proposed Forest Plan Standards and Guidelines (IV-142).**

- II. The Following Standards and Guidelines apply only to the even-aged silvicultural system.
- A. Develop Kirtland's Warbler nesting habitat using even-aged silviculture and reforestation techniques as prescribed in the Habitat Management Strategy for the Kirtland's Warbler.
- 1) Design treatment blocks to replicate the effects of natural wildfire as prescribed in the Habitat Management Strategy.
  - 2) Treatment blocks will be 500 acres or less, unless otherwise approved by the Regional Forester.
  - 3) Treatment blocks will be reestablished (planted, seeded, or naturally regenerated) to 1000 or more trees per acre before an adjacent block is sold.

Figure 3 Various Configurations of Kirtland's Warbler Habitat

Figure 3a  
Natural Wildfire

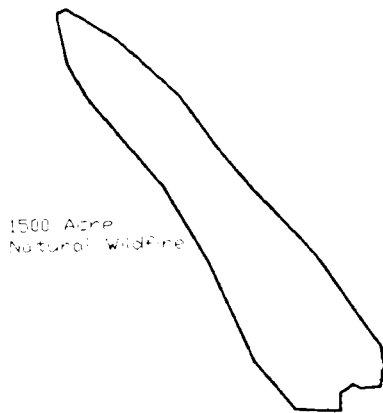


Figure 3b  
Inherent Management Scenario

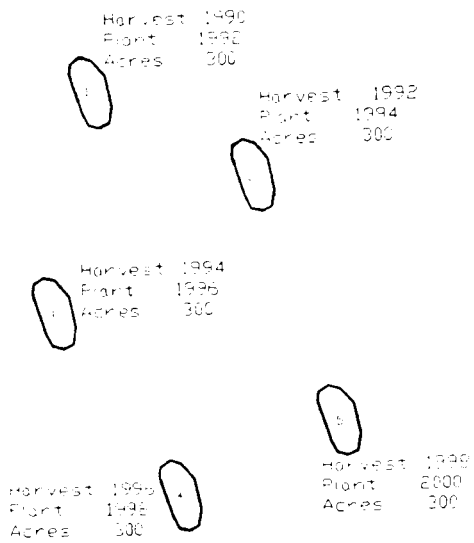


Figure 3c  
Proposed Management Scenario

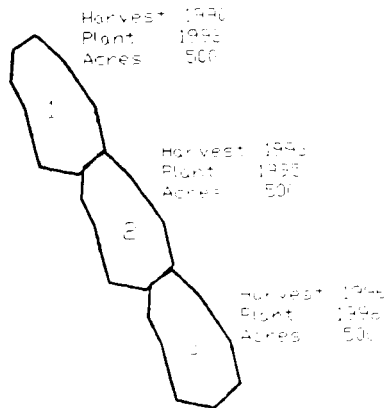
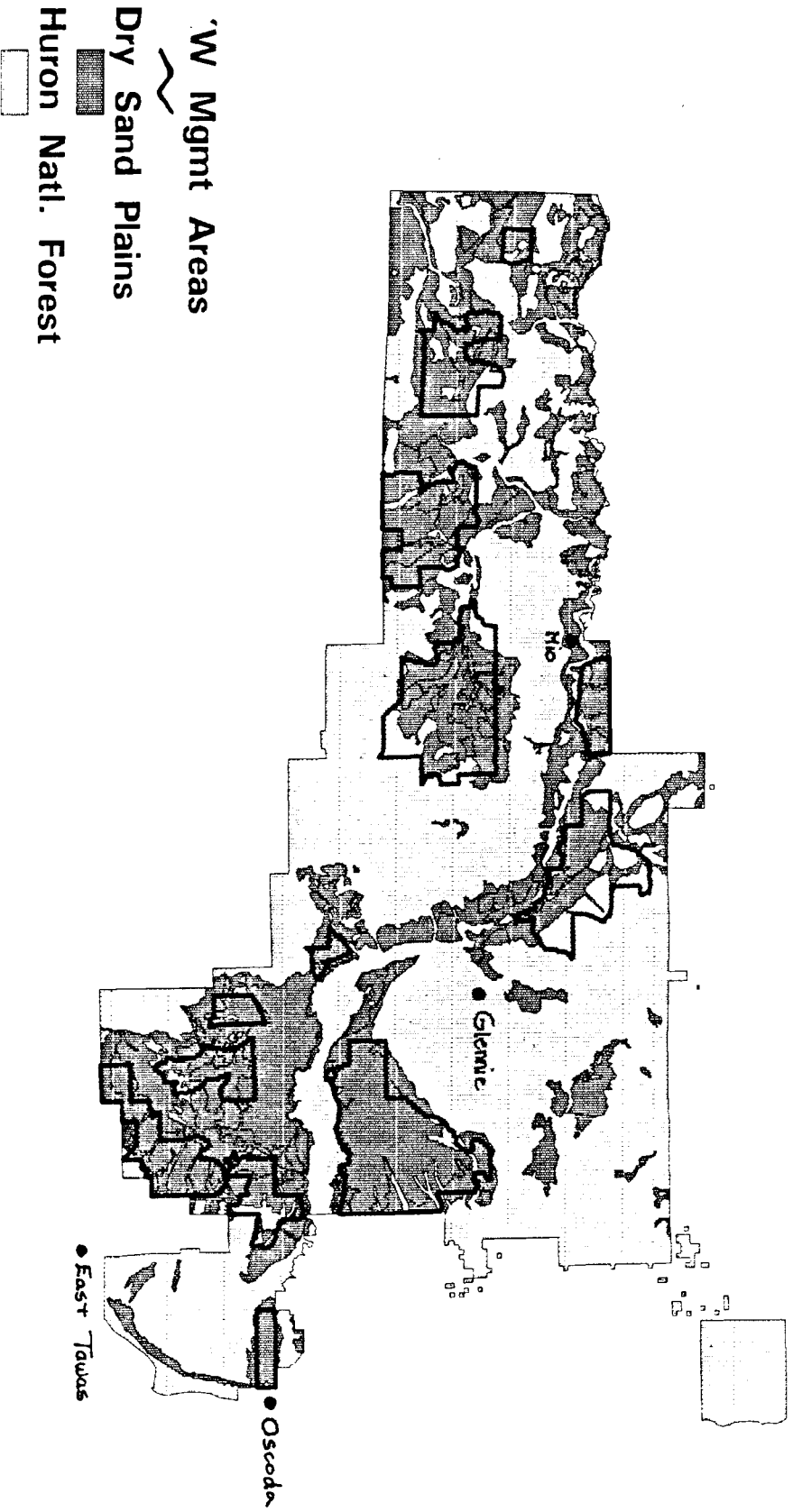




Figure 4. Kirtland's Warbler Management Areas and Dry Sand Plains on the Huron National Forest



ENVIRONMENTAL ASSESSMENT  
FOR  
KIRTLAND'S WARBLER HABITAT MANAGEMENT  
AMENDMENT  
HURON-MANISTEE NATIONAL FORESTS

Interdisciplinary Team Members

Philip Huber	Wildlife Biologist (Team Leader)
Sandy Caveney	Recreation Planner
Paul Erler	Timber Management Assistant
Joseph Gates	Soils Specialist

Huron-Manistee National Forests  
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# ENVIRONMENTAL ASSESSMENT

for

Kirtland's Warbler Habitat Management Amendments

Huron-Manistee National Forests

## ***I. PURPOSE AND NEED FOR ACTION***

### **A. Introduction**

The Forest Service manages jack pine within Management Area 4.5 of the Huron-Manistee National Forests' Forest Plan for the Kirtland's warbler (KW), a federally endangered bird. Stands of mature jack pine trees are harvested by clearcutting and young trees are planted to provide nesting habitat. Without management, the Kirtland's warbler may become extinct.

Prior to modern fire suppression, large natural wildfires frequently burned thousands of acres of jack pine forest on the dry sand plains in northeastern lower Michigan. Most jack pine wildfires killed the older trees and caused millions of seeds to be released. In just a few years, these burned areas were covered with young pine trees. These new stands of young jack pine provided natural habitat for the Kirtland's warbler. However, modern fire suppression efforts have substantially decreased the frequency and size of wildfire, significantly restricting the amount of nesting habitat naturally produced for this bird.

While fire suppression is necessary to protect human life, property and valuable natural resources, it eliminates a natural disturbance factor from the jack pine ecosystem on which many species of animals, plants and insects depend. The Forest Service attempts to mimic the regeneration effects of wildfire by harvesting and planting jack pine.

The following documents provide the foundation for the overall management of Kirtland's warbler habitat:

#### Kirtland's Warbler Recovery Plan (1976, revised 1985)

The primary objective of the Kirtland's Warbler Recovery Plan is to "reestablish a self-sustaining Kirtland's warbler population throughout its known range at a minimum level of 1,000 pairs." One of the secondary objectives is to "manage 127,600 acres of state and federal lands for the Kirtland's warbler" and to "develop and maintain 38,000 acres of breeding habitat at all times."

#### Kirtland's Warbler Management Plan for Habitat in Michigan (1981)

The Kirtland's Warbler Management Plan for Habitat in Michigan (Kirtland's Warbler Management Plan) identified 135,000 acres of essential habitat<sup>1</sup> on State and National Forest system lands. On the Huron National Forest, 53,500 acres of essential habitat were identified to be managed on a 50-year rotation; this amounts to an average of 1070 acres of to be harvested and planted annually.

In this plan, each management area was divided into management units containing between 1,000 and 2,000 acres of essential habitat. Units were subdivided into cutting blocks, with each block containing 200 or more acres of contiguous stands of habitat. By design, one block in each unit was to be developed as nesting habitat each decade.

#### Land and Resource Management Plan for the Huron-Manistee National Forests (1986)

Currently, the standards and guidelines in the Huron-Manistee National Forests' Plan provide direction for management activities in Management Prescription Area 4.5 - Kirtland's Warbler. The plan states that these management activities should "maintain and develop essential nesting habitat for the Kirtland's warbler in compliance with the provisions of section 7 of the Endangered Species Act (P.L. 93-205) and as outlined in the Kirtland's Warbler Management and Recovery Plans." The most significant direction in this plan relates to habitat development through timber management. Timber management standards and guidelines specifically limit the size of jack pine clearcuts to

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<sup>1</sup> Essential habitat - areas designated by the Regional Forester that meet the following habitat requirements for the Kirtland's warbler: relatively flat, grayling sand soils which are low in productivity; vegetative cover of young jack pine, northern pin oak, and a small component of red pine with a ground cover of blueberry, sedge, grasses and other forbs; and large expanses (greater than 160 acres) of breeding habitat consisting of 1600 trees per acre covering 75% of the area between 5 and 24 feet tall.

370 acres or less. In addition, the guidelines state that two or more adjacent stands cannot be harvested if their combined size would exceed 370 acres. Only after a stand reaches 5 feet in height can an adjacent stand up to 370 acres in size be harvested. As a result, adjacent stands are almost never occupiable nesting habitat at the same time (Figure 1a).

The plan also states that "wildfires will be suppressed" (page IV-50). Therefore, fire suppression inhibits development of nesting habitat through natural means.

## **B. Purpose and Need**

The purpose is to amend the Huron-Manistee National Forests' Forest Plan standards and guidelines, and to adjust Management Area boundaries in regards to providing essential habitat for the Kirtland's warbler. The need is based on the following new information:

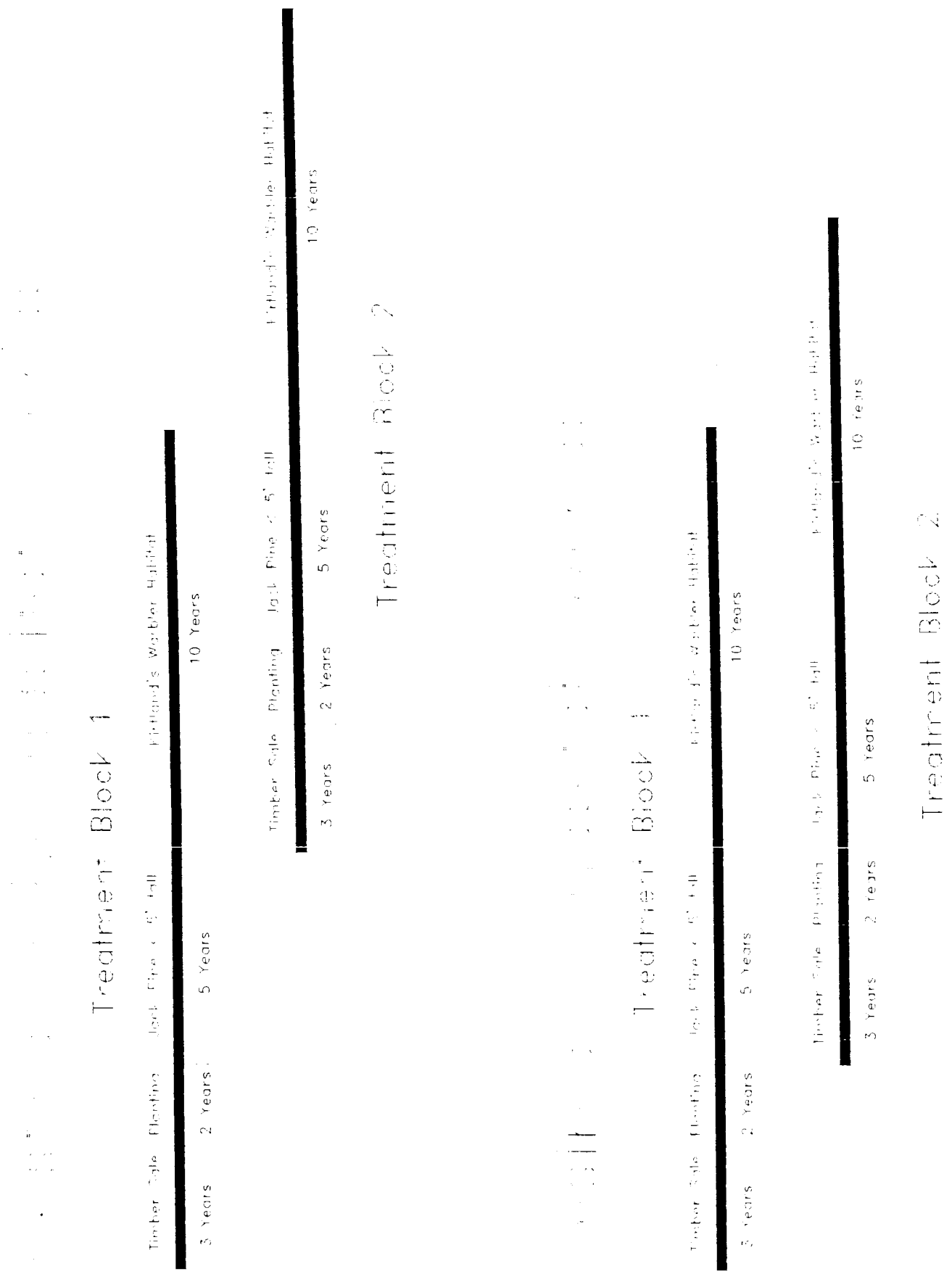
The Kirtland's Warbler Management Plan is now more than ten years old and is presently being revised in cooperation with the Michigan Department of Natural Resources, US Fish and Wildlife Service and the Department of Military Affairs at Camp Grayling. The new "Kirtland's Warbler Habitat Management Strategy" will incorporate an ecosystem management approach to managing jack pine for the Kirtland's warbler and many other species of animals and plants. Research results, data analysis, monitoring and evaluation has provided updated information on the biology of Kirtland's warbler:

Recent 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 (Figure 2). The current timber management standards and guidelines in the Forest Plan prevent managers from creating these large contiguous blocks of breeding habitat. The maximum clearcut size and adjacency requirements only allow managers to create blocks that are a maximum of 370 acres in size.

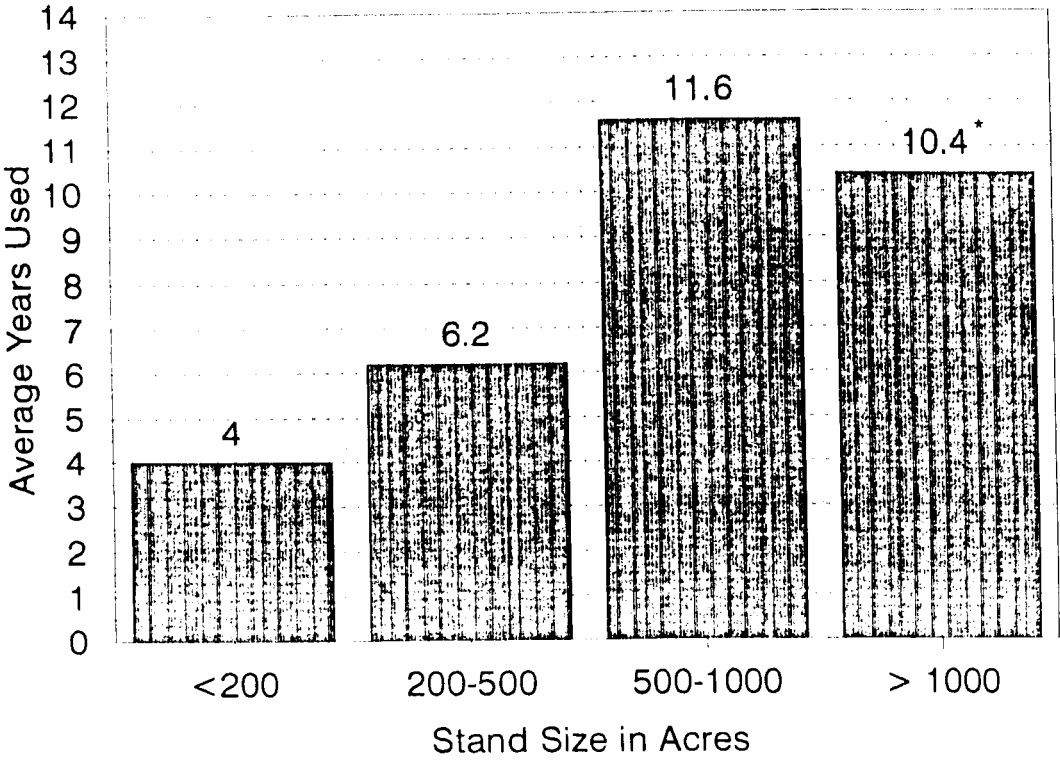
Managers now know that existing direction in the Kirtland's Warbler Management Plan tends to fragment nesting habitat into small scattered blocks, providing less than optimum landscape configuration for breeding warblers (Figure 3). Analysis of census results support this sentiment.

Some of the stands originally proposed for Kirtland's warbler habitat management need to be removed because they are not ecologically suited to provide quality nesting habitat. Some stands are too small or isolated to meet habitat

Figure 4.

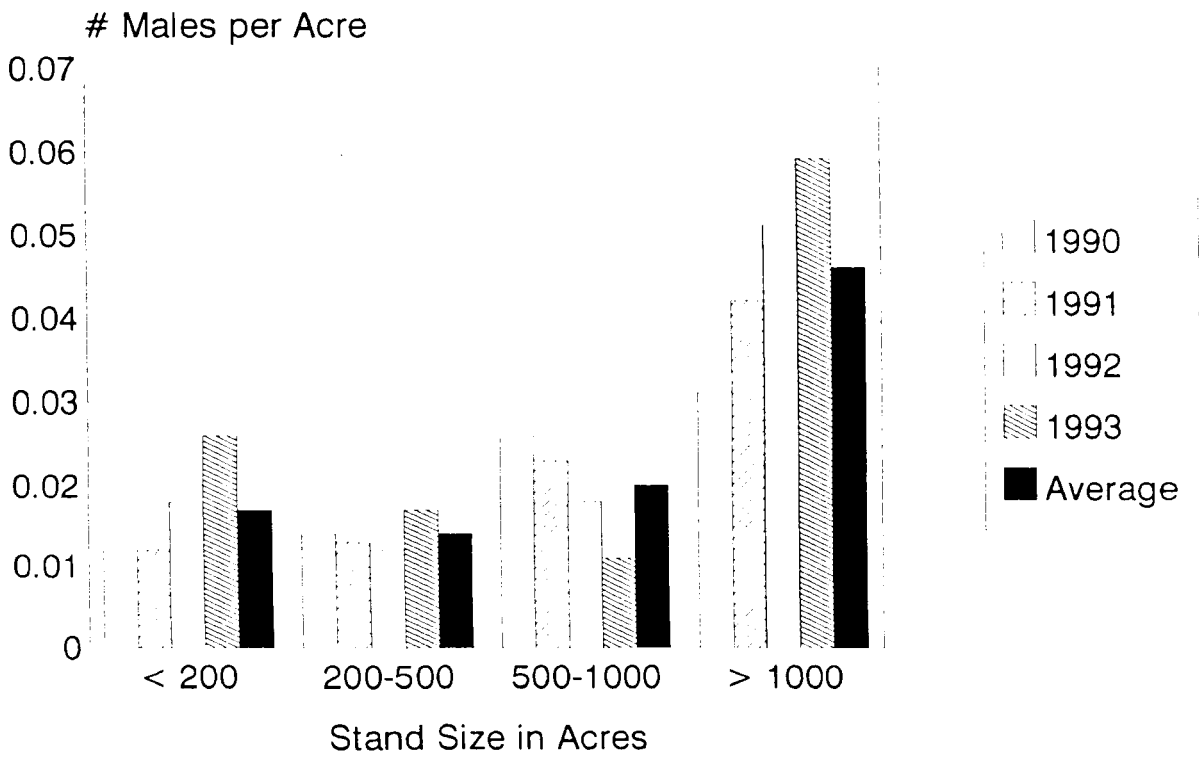


# Kirtland's Warbler Stand Use



\* Stands in this category are currently occupied and will most likely exceed 11.6 years.  
 (Data from USFS, North Central Forest Experiment Station, Probst et. al.)

# Density of Kirtland's Warblers by Stand Size



(Data from USFS, North Central Forest Experiment Station, Probst et. al.)



Figure 3. Various Configurations of Kirtland's Warbler Habitat

Figure 3a.

Natural Wildfire

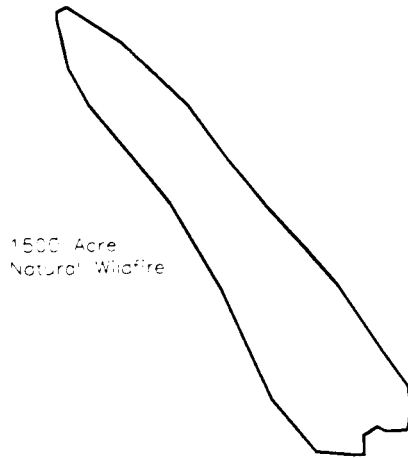


Figure 3b.

Current Management Scenario

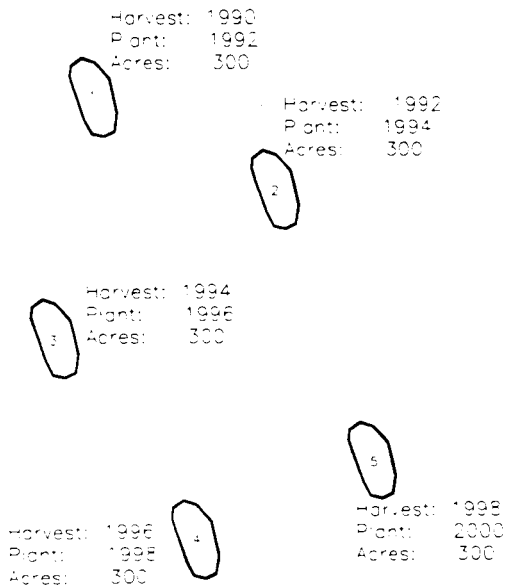
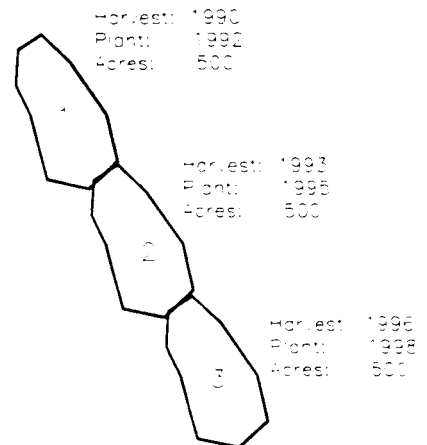


Figure 3c.

Proposed Management Scenario



management objectives and should also be removed from habitat management or expanded. Other stands that could provide prime nesting habitat were not included in the Kirtland's Warbler Management Plan and could be added.

As the current Kirtland's Warbler Management Plan and its acreage allocation is designed, every acre of essential habitat has to be managed to meet the annual habitat development objective. This leaves little flexibility to modify projects for visual or other objectives, which are a part of the plan's management direction.

### **C. Decision to Be Made**

The decision to be made is whether or not to amend the Forest Plan that increases the pool of essential Kirtland's warbler habitat, increases the size of the treatment block and allows for adjacent block to be treated as soon as they are regenerated to improve habitat conditions.

### **D. Proposed Action**

The following describes the proposed action:

Amend the Huron-Manistee National Forests' Plan by:

- 1) adding a standard and guideline directing the design and configuration of treatment blocks that mimic the regeneration effects of wildfire by harvesting and planting jack pine as described in the Kirtland's Warbler Habitat Management Strategy;
- 2) modifying an existing standard and guideline allowing treatment blocks (temporary openings or clearcuts) in essential habitat for the Kirtland's warbler to be up to 550 acres in size;
- 3) modifying an existing standard and guideline relating to the treatment of adjacent blocks. If the temporary opening created by adjacent treatment blocks exceeds 550 acres, one block will be stocked before the other is sold. A block is considered stocked when it is planted to a stocking density of 1600 or more trees per acre over 75% of the area. If a block is seeded or regenerates naturally, it will be considered stocked if it has a stocking density of 1600 or more trees per acre over 75% of the area after the third-year stocking survey.
- 4) adjusting the locations of essential habitat in Management Areas 4.2 and 4.5. The net effect will increase the amount of essential habitat to a minimum of 53,500 acres and a

maximum of 68,000 acres. The proposed stand adjustments are illustrated on the maps in Appendix A, and listed in the tables in Appendix B:

#### Mitigations Associated with the Proposed Action:

The following specific mitigation or coordination measures are included in the proposed action:

- 1) Site specific analysis is required of all Kirtland's warbler habitat management projects.
- 2) Ecological and field data is used to identify essential Kirtland's warbler habitat.
- 3) Treatment block boundaries on roads, trails, section lines, and property lines will be avoided.
- 4) ATV, motorcycle trails will be relocated or buffered to minimize conflict between endangered species and recreational uses. Trails in existing and proposed additional essential habitat will be relocated to areas outside of essential habitat where possible, and new trails will not be constructed in Kirtland's warbler essential habitat. Existing designated trails will remain in essential habitat, if they cannot be relocated outside of essential habitat without loss of riding opportunity or experience. To prevent potential adverse effects to breeding Kirtland's warblers, Kirtland's warbler nesting habitat will not be developed within 100 feet of trails that cannot be relocated.
- 5) If the demand for blueberry gathering is not being met in Management Area 4.5 due to Kirtland's warbler closures, blueberry gathering areas will be established and maintained.
- 6) The Forest Service will attempt to maintain a mix of small, medium, and large sales when preparing treatment blocks of essential Kirtland's warbler habitat for timber sales.

## ***II. SCOPING - ISSUES AND CONCERNS***

Scoping letters were sent to interested groups and individuals asking for their comments or concerns regarding the proposed actions. In addition, newspaper articles were published in four local papers. The articles explained the proposed actions and solicited public comments. The following are the issues, concerns and opportunities identified:

## **A. Public Issues within the Scope of this Assessment**

### Issue 1. Clearcutting

Clearcut size should be larger than 500 acres or no limit at all because research data indicates a higher density of Kirtland's warblers over a longer period of time. Others felt that larger clearcuts provide more effective fuelbreaks. Some people felt that the appearance of clearcuts was unacceptable. Snowmobilers are concerned about lack of snow cover on the trails and a danger of colliding with stumps.

### Issue 2. Expansion of Management Area 4.5

One person is opposed to further expansion of acreage dedicated to Kirtland's warbler. Another stated that medium and high site red pine, or oak should not be converted to jack pine. In response to this concern, these types of stands lack the characteristic of Kirtland's warbler essential habitat and are not proposed to be included as additions.

### Issue 3. Cost

Costs of planting program are too high.

### Issue 4. Blueberry Gathering

Prime blueberry areas are affected by Kirtland's warbler management.

### Issue 5. Operability of Timber Sales

500-acres treatment blocks limits the number of opportunities of operators to secure timber. A suggestion was made to break 500-acre treatment blocks into two or three separate sales.

## **B. Public Issues Beyond the Scope of this Assessment**

### Issue 1. Closure of Occupied Kirtland's Warbler Habitat

Some people find the nesting habitat closures unacceptable.

Current Forest Plan standard and guidelines calls for closure of occupied Kirtland's warbler habitat during the breeding season as outlined in the Kirtland's Warbler Management and Recovery Plans. Presently, closures are accomplished through Forest Supervisor closure orders. This annual review ensures that only those areas that are occupied by Kirtland's warblers are closed. This issue is beyond the scope of this assessment.

### Issue 2. Risk of Wildfire

Some residents are concerned about the risk of wildfire associated with jack pine.

The management of Kirtland's warbler habitat neither increases or decreases the risk of wildfire. However, management of essential habitat for the Kirtland's warbler results in reduced fuel loading and fire intensity. Large temporary openings (clearcuts) provide short term fuel breaks that help in the suppression of large wildfires. This issue is beyond the scope of this assessment.

### Issue 3. Kirtland's Warbler Management

One person is opposed to Kirtland's warbler management. Another person is opposed to "excessive" cutting in Pine River Kirtland's Warbler Management Area.

The Kirtland's warbler is a federally endangered species with a recovery plan and habitat management plan. These plans have identified a portion of the Huron National Forest that contributes to the recovery of the species, mandated by the Endangered Species Act of 1973. To maintain a sustainable supply of occupiable habitat for the Kirtland's warbler, the Forest Service is required to harvest and plant an average of 1070 acres of jack pine each year. This issue is beyond the scope of this assessment.

### Issue 4. Prescribed Fire

One organization advocates the use of controlled fire to manage this ecosystem because fire unlocks dormant seedbeds of herbaceous species.

Current Forest Plan standard and guidelines allows the use of prescribed fire in management for the Kirtland's warbler. At this time, the Forest Service has decided that the risk of prescribed burning mature stands of jack pine outweighs potential benefits. Prescribed burning of harvested treatment blocks does occur, but is constrained by limited number of safe burning days. This issue is beyond the scope of this assessment.

### ***III. ALTERNATIVES TO THE PROPOSED ACTION***

This section describes the alternatives that were developed by the interdisciplinary team in response to the issues related to the proposed actions. All alternatives with the exception of the no action alternative would move the management of essential Kirtland's warbler habitat towards meeting the purpose and need of this assessment.

#### **A. Alternative 1 (No Action)**

The no action alternative would not change the maximum clearcut size (370 acres) or adjacency requirement from what is currently in the Forest Plan. This alternative would not change the location or amount of essential habitat (53,500 acres) in Management Area 4.5 that was identified in the Kirtland's Warbler Management Plan.

#### **B. Alternative 2 (Larger Treatment Blocks)**

This alternative would amend the Forest Plan by:

1) adding a standard and guideline directing the design and configuration of treatment blocks that mimic the regeneration effects of wildfire by harvesting and planting jack pines described in the Kirtland's Warbler Habitat Management Strategy;

2) modifying an existing standard and guideline allowing treatment blocks (temporary openings or clearcuts) in essential habitat for the Kirtland's warbler to be up to 1070 acres in size;

3) modifying an existing standard and guideline relating to the treatment of adjacent blocks. If the temporary opening created by adjacent treatment blocks exceeds 1070 acres, one block will be stocked before the other is sold. A block is considered stocked when it is planted to a stocking density of 1600 or more trees per acre over 75% of the area. If a block is seeded or regenerates naturally, it will be considered stocked if it has a stocking density of 1600 or more trees per acre over 75% of the area after the third-year stocking survey.

4) adjusting the locations of essential habitat in Management Areas 4.2 and 4.5. The net effect will increase the amount of essential habitat to a minimum of 53,500 acres and a maximum of 68,000 acres. The proposed stand adjustments are illustrated on the maps in Appendix A, and listed in the tables in Appendix B.

#### Mitigations Associated with the Proposed Action:

The following specific mitigation or coordination measures are included in the proposed action:

- 1) Site specific analysis is require of all Kirtland's warbler habitat management projects.
- 2) Ecological and field data is used to identify essential Kirtland's warbler habitat
- 3) Treatment block boundaries on roads, trails, section lines, and property lines will be avoided.
- 4) ATV/motorcycle trails will be relocated or buffered to minimize conflict between endangered species and recreational uses. Trails in existing and proposed additional essential habitat will be relocated to areas outside of essential habitat where possible, and new trails will not be constructed in Kirtland's warbler essential habitat. Existing designated trails will remain in essential habitat, if they cannot be relocated outside of essential habitat without loss of riding opportunity or experience. To prevent potential adverse effects to breeding Kirtland's warblers, Kirtland's warbler nesting habitat will not be developed within 100 feet of trails that cannot be relocated.
- 5) If the demand for blueberry gathering is not being met in Management Area 4.5 due to Kirtland's warbler closures, blueberry gathering areas will be established and maintained.
- 6) The Forest Service will attempt to maintain a mix of small, medium, and large sales when preparing treatment blocks of essential Kirtland's warbler habitat for timber sales.

## **C. Alternatives Not Considered in Detail**

### **Size and Adjacency Determined at the Project Level**

This alternative would amend the Forest Plan by modifying the clearcut size and adjacency restriction, allowing an interdisciplinary team to determine size of clearcuts and adjacency at the project level based on Habitat Management Strategy recommendations and subsequent environmental analysis. Each Kirtland's warbler habitat project requires site specific environmental analysis and documentation, which includes public involvement. This was considered but is unacceptable because it would result in inadequate direction and standards and guidelines for creating essential habitat and inconsistencies due to changing personnel (decision maker and interdisciplinary teams).

### **Reduce Essential Habitat to 27,500 Acres**

This alternative would reduce the amount of essential habitat from 53,500 acres that were identified in the Kirtland's Warbler Management Plan to 27,500 acres. This alternative would also shorten the rotation age for jack pine in essential habitat from 50 to 25 years. Due to poor economics and potential adverse environmental impacts, this alternative was not considered in further detail.

## ***IV. ENVIRONMENTAL IMPACTS***

Below is a discussion of environmental impacts of the alternatives. The environmental impacts are summarized in Table 1.

### **A. Soil, Water, Air**

#### **Proposed Action**

Designing and configuring treatment blocks to mimic the regeneration effects of wildfire, increasing the maximum clearcut size to 550 acres, and modifying the adjacency requirement affect the *spatial arrangement* of treatment blocks and not the amount of timber harvested. Therefore, these components of the proposed action have no change to the direct and indirect effects on soil and air. These actions may increase water yield and change the timing of peak flows in the watershed that the clearcuts occur. The increased flows may increase the transport of sediment. Watershed analysis will be completed in stages as needed for environmental analysis of all Kirtland's warbler habitat development projects. Effects will be assessed and mitigated at that time.



The proposed action would make adjustments to location of essential habitat to sites that are suited as Kirtland's warbler breeding habitat. The adjustments would also increase the number of acres of essential habitat to 68,000 acres. Generally, these sites have little or no topography. Consequently, soil erosion or potential soil movement into streams as a result of timber harvest activity is minimal. Increasing acres give managers added flexibility to move habitat development projects out of areas that may adversely affect water quality. Depending on location, essential habitat adjustments may increase or decrease water yield and change the timing of peak flows in a watershed. Changing water yield and the timing of peak flows could have a positive or negative effect on streams.

The essential habitat adjustments would increase the period between treatments on any given site to an average of 61 years compared to the current 50-year period. Therefore, the proposed action would have a positive indirect effect on soil and water because most sites would have a longer period between harvests and a longer time for soils to recover nutrients.

### Cumulative Effects

This alternative only changes the design, configuration and location of treatment blocks. The number of acres treated would stay the same as what was described in the Forest Plan. Therefore, the proposed action has similar cumulative effects on soil, water or air as described in the Final Environmental Impact Statement.

### Alternative 1 (No Action)

This alternative is discussed in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 2 (Larger Treatment Blocks)**

Designing and configuring treatment blocks to mimic the regeneration effects of wildfire, increasing the maximum clearcut size to 1070 acres, and modifying the adjacency requirement affect the *spatial arrangement* of treatment blocks and not the amount of timber harvested. Therefore, these components of the proposed action have no change to the direct and indirect effects on soil and air. These actions may increase water yield and change the timing of peak flows in the watershed that the clearcuts occur. The increased flows may increase the transport of sediment. Watershed analysis will be completed in stages as needed for environmental analysis of all Kirtland's warbler habitat development projects. Effects will be assessed and mitigated at that time.

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#### Cumulative Effects

This alternative only changes the design, configuration and location of treatment blocks. The number of acres treated would stay the same as what was described in the Forest Plan. Therefore, the proposed action has similar cumulative effects on soil, water or air as described in the Final Environmental Impact Statement.

## **B. Visuals**

Some members of the public have expressed concern about the appearance large clearcuts. Kirtland's warbler management areas (MA 4.5) have the lowest sensitivity level in the Forest Plan, allowing maximum modification of the landscape. New national direction using the Scenery Management System encourages the management of ecosystems to best mimic the effects of natural disturbance. Large treatment blocks are an attempt to mimic the effects of wildfire in the jack pine ecosystem. Effects on visual quality would be dependent on project design and viewing location.

Negative visual impacts can be minimize by treatment block design, as stated in the mitigating measures. The effects of large clearcuts on visual quality are temporary, but may last up to 10 years.

### **Proposed Action**

Designing and configuring treatment blocks to mimic the regeneration effects of wildfire, increasing the maximum clearcut size to 550 acres, and modifying the adjacency requirement could affect visual quality in both positive and negative ways. It must be emphasized that there are few opportunities to treat up to 550 acres in one location due to past harvest patterns in Kirtland's warbler essential habitat. The proposed action could improve visual quality in some instances because fewer treatment blocks would occur (ex. one 550-acre block instead of two 275-acre blocks). Visual quality at a treatment block between 370 and 550 acres in size may be degraded for a short period of time (less than 10 years) because the resulting temporary opening would be larger and the visible tree lines at the edge of the cut would be smaller. However, existing topography and timber sales design can be used to reduce the visible size of a large treatment block.

Treatment blocks could occur adjacent to each other, resulting in temporary opening up to 1650 acres in size. The landscape would appear less fragmented. Adjacent treatment stands would also have less age difference which would reduce the contrast between stands as long as their adjacent borders are visible. Therefore, this alternative could have either a positive or negative direct effect on visual quality, depending on viewing location and project design.

The proposed action would make adjustments to the location of, and increase the number of acres of essential habitat. In most cases, essential habitat would be moved from areas that are visually sensitive to areas that have less visual sensitivity. This would have positive direct and cumulative effects on visual quality because managers would have greater flexibility to design Kirtland's warbler habitat projects. Managers would be able to drop areas from essential habitat if it is determined they are not needed for Kirtland's warbler management and can better meet visual management objectives. Therefore, this alternative would have positive indirect effects on visual quality.

#### Cumulative Effects

The proposed action only changes the design, configuration and location of treatment blocks. The number of acres treated would stay the same as what was described in the Forest Plan. Therefore, the proposed action has similar cumulative effect on visuals as described in the Final Environmental Impact Statement.

### **Alternative 1 (No Action)**

This alternative has no direct, indirect and cumulative effects on soil, water and air. The effects of this alternative are addressed in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 2 (Larger Treatment Blocks)**

Designing and configuring treatment blocks to mimic the regeneration effects of wildfire, increasing the maximum clearcut size to 1070 acres, and modifying the adjacency requirement could affect visual quality in both positive and negative ways. It must be emphasized that there are few opportunities to treat up to 1070 acres in one location due to past harvest patterns in Kirtland's warbler essential habitat. The proposed action could improve visual quality in some instances because fewer treatment blocks would occur. Visual quality at a treatment block between 370 and 1070 acres in size may be degraded for a short period of time (less than 10 years) because the resulting temporary opening would be larger and the visible tree lines at the edge of the cut would be smaller. However, existing topography and timber sales design can be used to reduce the visible size of a large treatment block.

Treatment blocks could occur adjacent to each other, resulting in temporary opening up to 3210 acres in size. The landscape would appear less fragmented. Adjacent treatment stands would also have less age difference which would reduce the contrast between stands as long as their adjacent borders are visible. Therefore, this alternative could have either a positive or negative direct effect on visual quality, depending on viewing location and project design.

This alternative would make adjustments to the location of, and increase the number of acres of essential habitat. In most cases, essential habitat would be moved from areas that are visually sensitive to areas that have less visual sensitivity. This would have positive direct and cumulative effects on visual quality because managers would have greater flexibility to design Kirtland's warbler habitat projects. Managers would be able to drop areas from essential habitat if it is determined they are not needed for Kirtland's warbler management and can better meet visual management objectives. Therefore, this alternative would have positive indirect effects on visual quality.

### **Cumulative Effects**

This alternative only changes the design, configuration and location of treatment blocks. The number of acres treated would stay the same as what was described in the Forest

Plan. Therefore, this alternative has similar cumulative effect on visuals as described in the Final Environmental Impact Statement.

## **C. Economic/Social**

### **Proposed Action**

The proposed action could have positive indirect economic and social effects because new configuration of larger treatment blocks would provide better fuelbreaks, decreasing the risk of catastrophic wildfire and loss of private and public assets. Conversely, increasing treatment block size could have a slightly negative indirect social effect because they would improve warbler habitat and increase the duration and number of acres closed to people during the breeding season.

The proposed essential habitat adjustments could have both positive and negative economic social indirect effects, particularly if essential habitat adjoins private property. The location of essential habitat adjacent to private property could have social and economic effects on the landowner. The effects would largely depend on the attitude of the landowner or potential purchasers of this private property toward Kirtland's warbler management. The proposed action attempts to moves some essential habitat away from private property. This would have a positive social and economic indirect effect on adjacent landowners.

Socially, people may support or oppose the expansion or reduction of acres dedicated to Kirtland's warbler management. However, scoping shows no strong trends in public opinion either way.

The proposed action extends the harvest rotation of some stands, increasing the value of the timber products removed for both the Forest Service and timber purchasers. Acres currently classified as unsuited and not previously harvested would be more productive in the long term. These acres would be managed in younger age stands rather than allowing them to become overmature.

Mineral development may be affected by the proposed increase in acres of essential habitat. Placing new areas under the standard and guidelines for mineral exploration and development in Kirtland's warbler essential habitat could reduce short term revenues to the owners of the mineral rights. Almost all mineral ownership within essential habitat designation is either State of Michigan or federal ownership. Limited amounts of private mineral ownership exists. Mineral leasing and development would still be permitted in these areas, but may be delayed due to Forest Plan standards and guidelines. Private

mineral owners would not be required to follow the same standards and guidelines, but would be encouraged to do so. From a positive standpoint, the value of minerals generally increase with time. Therefore, deferring mineral development may not impact revenues to the owners of mineral rights over the long term.

### Cumulative Effects

The proposed action will create larger fuelbreaks, reducing the risk of economic and social loss on private and public lands.

Increasing the acres of essential habitat would place approximately 14,500 additional acres under the standards and guidelines for mineral exploration and development in Kirtland's warbler essential habitat.

### **Alternative 1 (No Action)**

This alternative has no direct, indirect and cumulative effects on economy/social. The effects of this alternative are described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 2 (Larger Treatment Blocks)**

This alternative could have positive indirect economic and social effects because new configuration of larger treatment blocks would provide better fuelbreaks, decreasing the risk of catastrophic wildfire and loss of private and public assets. Conversely, increasing treatment block size could have a slightly negative indirect social effect because they would improve warbler habitat and increase the duration and number of acres closed to people during the breeding season.

The proposed essential habitat adjustments could have both positive and negative economic/social indirect effects, particularly if essential habitat adjoins private property. The location of essential habitat adjacent to private property could have social and economic effects on the landowner. The effects would largely depend on the attitude of the landowner or potential purchasers of this private property toward Kirtland's warbler management. The proposed action attempts to moves some essential habitat away from private property. This would have a positive social and economic indirect effect on adjacent landowners.

Socially, people may support or oppose the expansion or reduction of acres dedicated to Kirtland's warbler management. However, scoping shows no strong trends in public opinion either way.

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#### Cumulative Effects

The proposed action will create larger fuelbreaks, reducing the risk of economic and social loss on private and public lands.

Increasing the acres of essential habitat would place approximately 14,500 additional acres under the standards and guidelines for mineral exploration and development in Kirtland's warbler essential habitat.

### **D. Vegetation**

#### **Proposed Action**

Larger treatment blocks (up to 550 acres) do not effect vegetation, since the proposed action addresses size and not quantity. The average number of acres clearcut annually (1070 acres) and the treatment remains the same.

Size of opening is not a critical factor for native plant species that inhabit the jack pine ecosystem. However, these species evolved with wildfire and continue to thrive under the conditions created by timber harvesting and reforestation. Some plants like the Hill's thistle may benefit from larger treatment blocks. This Regional Forester's sensitive species has poor seedling establishment and reproduces primarily when new rosettes are produced from adventitious buds. Larger treatment blocks could improve seed dispersal and establishment, while providing conditions that also favor vegetative propagation.

Likewise, timber harvesting and reforestation benefit other native species like blueberry, Alleghany plum and pale agoseris.

Some of the sites that were originally proposed for Kirtland's warbler habitat management are not suited to providing essential habitat. Managing these sites would not be good for the vegetation or the Kirtland's warbler. The proposed action would adjust the locations of essential habitat to areas that are suited for Kirtland's warbler habitat management. These adjustments would have a beneficial effect on the vegetation because appropriate management would occur on suitable sites. More than 14,000 acres would see the benefits of management by being added to essential habitat. Because annual harvest would remain the same, the amount of time between entries would increase for most stands, from 50 to 60 years. Approximately 68,000 acres would be managed over 60 years. This would ensure that more jack pine is regenerated to jack pine, which is more comparable to what would occur under natural conditions.

#### Cumulative Effects

The proposed action has cumulative effects on vegetation similar to those described in the Final Environmental Impact Statement for the Huron-Manistee National Forests Land and Resource Management Plan.

#### **Alternative 1 (No Action)**

This alternative direct, indirect and cumulative effects on vegetation as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

This alternative would make no adjustment to the locations of essential habitat. Some sites would be managed for the Kirtland's warbler, even though they are not suited to provide quality nesting habitat. This type of management would not be good for the vegetation or the Kirtland's warbler.

#### Cumulative Effects

This alternative has similar cumulative effects on vegetation as described in Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.



## **Alternative 2 (Larger Treatment Blocks)**

Larger treatment blocks (up to 1070 acres) do not effect vegetation, since the proposed action addresses size and not quantity. The average number of acres clearcut annually (1070 acres) and the treatment remains the same.

Size of opening is not a critical factor for native plant species that inhabit the jack pine ecosystem. However, these species evolved with wildfire and continue to thrive under the conditions created by timber harvesting and reforestation. Some plants like the Hill's thistle may benefit from larger treatment blocks. This Regional Forester's sensitive species has poor seedling establishment and reproduces primarily when new rosettes are produced from adventitious buds. Larger treatment blocks could improve seed dispersal and establishment, while providing conditions that also favor vegetative propagation. Likewise, timber harvesting and reforestation benefit other native species like blueberry, Alleghany plum and pale agoseris.

Some of the sites that were originally proposed for Kirtland's warbler habitat management are not suited to providing essential habitat. Managing these sites would not be good for the vegetation or the Kirtland's warbler. This alternative would adjust the locations of essential habitat to areas that are suited for Kirtland's warbler habitat management. These adjustments would have a beneficial effect on the vegetation because appropriate management would occur on suitable sites. More than 14,000 acres would see the benefits of management by being added to essential habitat. Because annual harvest would remain the same, the amount of time between entries would increase for most stands, from 50 to 60 years. Approximately 68,000 acres would be managed over 60 years. This would ensure that more jack pine is regenerated to jack pine, which is more comparable to what would occur under natural conditions.

### Cumulative Effects

This alternative has similar cumulative effects on vegetation as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

## **E. Threatened, Endangered and Sensitive Species**

A biological assessment has been prepared to complement this environmental assessment. It addresses federally listed endangered and threatened species, including the Kirtland's warbler. It also addresses Regional Forester's sensitive species. A complete discussion of the environmental consequences of the alternatives can be found in the biological assessment.

## **Proposed Action**

The proposed action has an effect on the Kirtland's warbler, but has no effect on the federally threatened bald eagle. No bald eagle nests or perches occur within Kirtland's warbler management areas.

The proposed action improves nesting habitat for the Kirtland's warbler, because larger contiguous overlapping habitats would attract and retain more warblers (Figures 2b & 3). It would allow managers to create large adjacent blocks of habitat that are preferred by the warbler. The average density of warblers would increase slightly, and the duration of use could increase substantially.

The proposed action provides better habitat for sensitive plant species. The alternatives affect Regional Forester's sensitive species, including Hill's thistle, rough fescue, Alleghany plum, pale agoseris by providing larger areas for seed dispersal.

The proposed action reduces fragmentation of northern goshawk habitat. Post-fledgling areas could be up to 1650 acres in size.

The proposed action would make adjustments to essential habitat locations, improving habitat for the Kirtland's warbler and sensitive species. Management would occur on sites that would provide quality habitat for the Kirtland's warbler and sensitive species of the jack pine ecosystem.

The proposed action would increase the number of acres of essential habitat for the Kirtland's warbler. It would give managers a larger "pool" of acres to choose from when developing habitat for the Kirtland's warbler. The Kirtland's warbler would benefit because habitat could be developed on sites that would be less risky to the warblers and their nests. Habitat management for the warbler would be more sensitive to other uses of the forest, and the Kirtland's warbler program would receive greater public support.

Bald eagle essential habitat and Kirtland's warbler essential habitat overlap in the McKinley Kirtland's Warbler Management Area. However, adding habitat for the Kirtland's warbler in this area will not affect the bald eagle because their habitats are compatible.

## Cumulative Effects

The proposed action only changes the design, configuration and location of treatment blocks. The number of acres treated would stay the same as what was described in the Forest Plan. Therefore, this alternative has similar cumulative effect on endangered,

threatened or sensitive species as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 1 (No Action)**

The no action alternative has an effect on the Kirtland's warbler in the Final Environmental Impact Statement for the Huron-Manistee National Forests. No bald eagle nests or perches occur within Kirtland's warbler management areas.

This alternative would continue to provide nesting habitat for the endangered Kirtland's warbler as described in the Final Environment Impact Statement for the Huron-Manistee National Forests'.

This alternative provides adequate habitat for sensitive plant species.

The alternative contributes to fragmentation of mature jack pine, potential habitat for the northern goshawk. As the jack pine in Kirtland's warbler management areas approaches rotation age, the trees are large enough to provide habitat for the northern goshawk. According to the Management Recommendations for the Northern Goshawk on the Huron-Manistee National Forests, post-fledgling areas for the goshawk should be 400-500 acres in size. This alternative creates blocks of jack pine that are less than 370 acres in size. Therefore, this alternative may limit the use of maturing Kirtland's warbler essential habitat by the northern goshawk.

Current Kirtland's warbler habitat was not always designated in the optimum location. This alternative would not change or improve habitat for the Kirtland's warbler. Habitat would continue to be located in less than optimum locations. It would not change or improve habitat for sensitive species, because many of the sites where these species occur would not receive the benefits of habitat management.

This alternative will not change the number of acres managed for the Kirtland's warbler. Managers will have no flexibility and have to manage all 53,500 acres to meet habitat management objectives. Sensitive species on these acres would continue to receive the benefits of management.

### Cumulative Effects

This alternative does not change the design, configuration and location of treatment blocks. The number of acres treated would stay the same as what was described in the Forest Plan. However, continuing to manage jack pine in small, scattered blocks will continue to fragment the habitat of endangered, threatened and sensitive species.

Therefore, this alternative may have a cumulative effect on endangered, threatened or sensitive species of animals and plants in the jack pine ecosystem.

### **Alternative 2 (Larger Treatment Blocks)**

Alternative 2 has an effect on the Kirtland's warbler, but has no effect on the federally threatened bald eagle. No bald eagle nests or perches occur within Kirtland's warbler management areas.

This alternative further improves nesting habitat for the Kirtland's warbler (Figure 3) over proposed action. This alternative provides even better habitat for the warbler. It would allow managers to create large adjacent blocks of habitat that are preferred by the warbler. The average density of warblers could more than double, and the duration of use could almost double (Figure 3).

This alternative provides better habitat for sensitive plant species by providing even larger areas for seed dispersal.

This alternative further reduces fragmentation of northern goshawk habitat. Post-fledgling areas could be up to 3210 acres in size.

This alternative would make adjustments to essential habitat locations, improving habitat for the Kirtland's warbler and sensitive species. Management would occur on sites that would provide quality habitat for the Kirtland's warbler and sensitive species of the jack pine ecosystem.

This alternative would increase the number of acres of essential habitat for the Kirtland's warbler. It would give managers a larger "pool" of acres to choose from when developing habitat for the Kirtland's warbler. The Kirtland's warbler would benefit because habitat could be developed on sites that would be less risky to the warblers and their nests. Habitat management for the warbler would be more sensitive to other uses of the forest, and the Kirtland's warbler program would receive greater public support.

Bald eagle essential habitat and Kirtland's warbler essential habitat overlap in the McKinley Kirtland's Warbler Management Area. However, adding habitat for the Kirtland's warbler in this area will not affect the bald eagle because their habitats are compatible.

## Cumulative Effects

This alternative only changes the design, configuration and location of treatment blocks. The number of acres treated would stay the same as what was described in the Forest Plan. Therefore, this alternative has no cumulative effect on endangered, threatened or sensitive species.

## **F. Wildlife and Fish**

The proposed action and alternatives have differences in effects on wildlife species in the jack pine ecosystem. Each native species has a specific niche, but all are adapted to large landscape changes like those caused by fire or clearcutting.

We know that stand size is limiting to some species, like the Kirtland's warbler, American kestrel upland sandpiper and sharp-tailed grouse. In every case these species all benefit from larger stand size, thus larger maximum clearcut size. Generally, the sharp-tailed grouse only inhabits openings greater than 640 acres, and the American kestrel only uses openings greater than 160 acres. Large clearcuts provide openlands habitat for these species for 5 to 10 years.

Habitat is constantly changing in space and time. Species like the white-tailed deer and ruffed grouse may not use an open clearcut, but will use the same area intensively once trees begin providing cover.

### **Proposed Action**

550-acre treatment blocks and a modified adjacency requirement will have a great benefit to the wildlife and plants associated with the jack pine ecosystem. The proposed action would improve habitat for most species of wildlife, except for sharp-tailed grouse. However, 550-acre treatment blocks may not be large enough to attract and retain sharp-tailed grouse.

The proposed action may increase water yield in a watershed. This increase may increase flow in local streams could have a destabilizing effect, causing sediment to move downstream. The overall effect may be beneficial or detrimental to fish habitat, depending on the how much the water yield increases. Therefore, watershed analysis will be completed in stages as needed for environmental analysis of all Kirtland's warbler habitat development projects. Effects on fish will be assessed and mitigated at this time.

The proposed habitat adjustments would have a beneficial effect on wildlife. Essential habitat would be located on appropriate ELTP's, and management of these areas would benefit the species of the jack pine ecosystem. Approximately 11,500 acres of additional jack pine would be managed, providing a full spectrum of age classes and habitats on these acres. Species of wildlife that prefer mature jack pine would benefit because the average rotation age would be extended from 50 to 60 years. This adjustments would have a favorable effect on fish because it would give managers flexibility to move habitat development projects away from streams.

### Cumulative Effects

The proposed action has similar cumulative effects on wildlife and fish as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 1 (No Action)**

In general, leaving the treatment block size and adjacency requirement the same is less beneficial to wildlife than the proposed action. This strategy tends to fragment habitats and does not benefit species like the sharp-tailed grouse.

Location of essential habitat would not change, and the species of the jack pine ecosystem would not benefit from the adjustments made in the proposed action. Thousands of acres of jack pine would go unmanaged, not providing a full spectrum of age classes and habitats. This alternative would have an unfavorable effect on fish because essential habitat near streams and in primary drainages would have to be managed.

### Cumulative Effects

This alternative cumulative effects on wildlife and fish as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan. Continuing to manage the jack pine ecosystem in the current manner does not optimize wildlife habitat and may result in a decline in some species.

### **Alternative 2 (Larger Treatment Blocks)**

1070-acre treatment blocks and a modified the adjacency requirement will have the greatest benefit to the wildlife and plants associated with the jack pine ecosystem, including the sharp-tailed grouse. It would create large contiguous blocks of habitat.

mimicking the effects of wildfire.

This alternative may increase water yield in a watershed. This increase may increase flow in local streams could have a destabilizing effect, causing sediment to move downstream. The overall effect may be beneficial or detrimental to fish habitat, depending on the how much the water yield increases. Therefore, watershed analysis will be completed in stages as needed for environmental analysis of all Kirtland's warbler habitat development projects. Effects on fish will be assessed and mitigated at this time.

The proposed habitat adjustments in this alternative would have a beneficial effect on wildlife. Essential habitat would be located on appropriate ELTP's, and management of these areas would benefit the species of the jack pine ecosystem. Approximately 11,500 acres of additional jack pine would be managed, providing a full spectrum of age classes and habitats on these acres. Species of wildlife that prefer mature jack pine would benefit because the average rotation age would be extended from 50 to 60 years. This adjustments would have a favorable effect on fish because it would give managers flexibility to move habitat development projects away from streams.

#### Cumulative Effects

This alternative has similar cumulative effects on wildlife and fish as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **G. Recreation**

#### **Proposed Action**

Designing and configuring treatments blocks to mimic the regeneration effects of wildfire, increasing the maximum clearcut size to 550 acres, and modifying the adjacency requirement could have minor effects on recreation. Recreational activities in Kirtland's warbler management areas include hunting, berry picking, bird watching, snowmobile and ORV riding.

Larger treatment blocks could be less desirable to hunters for approximately 10 years after harvest due to the lack of cover for white-tailed deer. However as a mitigating measure, individual leave trees, clumps and strips of leave trees will be left, somewhat reducing the impact on hunters. Some hunters could find larger clearcuts more desirable because they would be able to see game at greater distances.

The proposed action should not affect berry pickers. Treatment block size has no effect on blueberry production or the ability to pick berries.

Birdwatching may improve with larger treatment blocks. As block size increases, the number of avian species associated with large openlands increase. Species like the sharp-tailed grouse prefer 1000-acre openings over 550- or 370-acre openings.

Snowmobile riding could be affected by larger treatment blocks. Clearcuts allow more snow to reach the ground, but snow is more likely to blow and melt faster. Trail quality is more dependent on block design rather than size. Individual leave trees, clumps and strips of leave trees can be retained to reduce potential impacts. Blocks can also be designed in a way that minimizes clearcutting adjacent to snowmobile trails. Finally, snowmobile trail can be rerouted away from essential habitat where possible to reduce potential impacts.

Legal ORV riding is restricted to designated trails. Treatment block size is only a factor in ORV trail administration. As block size increases, it would become more difficult to relocate these trails away from larger stands when they become occupiable habitat.

The proposed action would increase the amount of essential habitat to approximately 68,000 acres, and with mitigating measures (#4), the impacts on recreationists should be positive. This measure minimizes conflict between trails and nesting warblers. The increase in acreage would give land managers greatest flexibility in location and design of harvest areas to meet the needs of recreationists and warblers.

### Cumulative Effects

The proposed action has similar cumulative effects on recreationas described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 1 (No Action)**

This alternative has direct and indirect effects on recreation which are described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### Cumulative Effects

This alternative has no cumulative effects on recreation.



## **Alternative 2 (Larger Treatment Blocks)**

Designing and configuring treatments blocks to mimic the regeneration effects of wildfire, increasing the maximum clearcut size to 1070 acres, and modifying the adjacency requirement could have minor effects on recreation. Recreational activities in Kirtland's warbler management areas include hunting, berry picking, bird watching, snowmobile and ORV riding.

Larger treatment blocks could be less desirable to hunters for approximately 10 years after harvest due to the lack of cover for white-tailed deer. However as a mitigating measure, individual leave trees, clumps and strips of leave trees will be left, somewhat reducing the impact on hunters. Some hunters could find larger clearcuts more desirable because they would be able to see game at greater distances.

The proposed action should not affect berry pickers. Treatment block size has no effect on blueberry production or the ability to pick berries.

Birdwatching may improve with larger treatment blocks. As block size increases, the number of avian species associated with large openlands increase. Species like the sharp-tailed grouse prefer 1000-acre openings.

Snowmobile riding could be affected by larger treatment blocks. Clearcuts allow more snow to reach the ground, but snow is more likely to blow and melt faster. Trail quality is more dependent on block design rather than size. Individual leave trees, clumps and strips of leave trees can be retained to reduce potential impacts. Blocks can also be designed in a way that minimizes clearcutting adjacent to snowmobile trails. Finally, snowmobile trail can be rerouted away from essential habitat where possible to reduce potential impacts.

Legal ORV riding is restricted to designated trails. Treatment block size is only a factor in ORV trail administration. As block size increases, it would become more difficult to relocate these trails away from larger stands when they become occupiable habitat.

This alternative would increase the amount of essential habitat to approximately 68,000 acres, and with mitigating measures (#4), the impacts on recreationists should be positive. This measure minimizes conflict between trails and nesting warblers. The increase in acreage would give land managers greatest flexibility in location and design of harvest areas to meet the needs of recreationists and warblers.

## Cumulative Effects

This alternative has similar cumulative effects on recreation as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

## **H. Transportation**

### **Proposed Action**

The proposed action has direct, indirect or cumulative effects on transportation as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 1 (No Action)**

This alternative has direct, indirect and cumulative effects on transportation as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 2 (Larger Treatment Blocks)**

This alternative has similar direct, indirect or cumulative effects on transportation as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

## **I. Cultural Resources**

### **Proposed Action**

The proposed action has similar direct, indirect or cumulative effects on cultural resources as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

The location of essential habitat alternatives do not affect cultural resources. Surveys for cultural resources are conducted prior to activities on National Forest lands. Cultural resources are protected regardless of their location.

### **Alternative 1 (No Action)**

This alternatives direct, indirect and cumulative effects on cultural resources are described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

### **Alternative 2 (Larger Treatment Blocks)**

The proposed action has similar direct, indirect or cumulative effects on cultural resources as described in the Final Environmental Impact Statement for the Huron-Manistee National Forests' Land and Resource Management Plan.

The location of essential habitat alternatives do not affect cultural resources. Surveys for cultural resources are conducted prior to activities on National Forest lands. Cultural resources are protected regardless of their location.

### **J. Irreversible and Irrecoverable Commitment of Resources**

Past actions include the management of jack pine for the Kirtland's warbler. The actions proposed here are not expected to have cumulative effects with these earlier actions. Expected future actions as a result of the implementation of these proposed actions is not expected to generate cumulative effects outside those discussed in Chapter 4 of the Forest Plan Environmental Impact Statement.

### **K. Civil Rights Impact Analysis**

The civil rights of residents, land owners, and other individuals would not be affected by the proposed action or the no-action alternative.

### **L. List of Preparers**

Philip Huber, Wildlife Biologist  
Sandy Caveney, Recreation Planner  
Paul Erler, Timber Management Assistant  
Joseph Gate, Soils Specialists

### **M. Consultation with Others**

## ***V. APPENDICES***

**Table 1. Summary of Environmental Im**

<b>Proposed Action</b>
550-acre Treatment
Adjacent Tr
68