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March 12, 1997

Mr. Greg Huntington
Environmental Manager
Michigan Department of Military Affairs
2500 S. Washington Ave.
Lansing, MI 48913-5101

Dear Mr. Huntington:

The U. S. Fish and Wildlife Service (Service) has reviewed the September 26, 1996, Department of Military Affairs (DMA) Biological Assessment (Assessment) for a proposed amendment to the Camp Grayling Kirtland's Warbler Habitat Management Plan for the Range 30 Complex in Crawford County, Michigan and for the proposed new plan for the West Camp area in Kalkaska County. The Assessment and your request for formal consultation and incidental take was received on October 7, 1996. Activities of the Michigan DMA are funded by and are an integral part of the U. S. Department of Defense (DOD) national defense program, thus DMA, a state agency, is consulting as an agent of DOD. This document represents the Service's biological opinion on the effects of the proposed action on the Kirtland's warbler in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended, (16 U.S.C. 1531 et seq.).

This biological opinion is based on information provided in the Assessment, telephone conversations, letters, and meetings specified below, and other sources of information. A complete administrative record of this consultation is on file in this office.

The Service concurs with the DMA determination that the Kirtland's warbler (*Dendroica kirtlandii*) and bald eagle (*Haliaeetus leucocephalus*) are the only federally listed species likely to be found in the vicinity of the proposed action. The Service concurs that the proposed action is not likely to affect the bald eagle and may adversely affect the Kirtland's warbler.

Consultation History

June 7, 1990. The Service issued a No Jeopardy Biological Opinion to DMA with incidental take statement for operational and construction activities on Camp Grayling which were likely to adversely affect the Kirtland's warbler. This opinion was the culmination of a consultation process which included DMA, the Service, and the Michigan Department of Natural Resources (DNR), and which resulted from a May, 1986 Cooperative Agreement between the DNR and DMA to implement a mutually beneficial Kirtland's warbler management plan on Camp Grayling.

July 9, 1993. A meeting of the Camp Grayling Integrated Resource Management Team was held at Camp Grayling, Michigan. The team consisted of Camp Grayling staff, representatives of DNR Wildlife, Forest Management, and Environmental Management Divisions, and Mike DeCapita of the Service's East Lansing Field Office. This meeting included a discussion of a DMA proposal to amend portions of the 1986 Cooperative Agreement with MDNR and terms of the 1990 biological opinion in which the parties agreed that DMA would destroy all potential or incipient Kirtland's warbler habitat on Camp Grayling before it could be occupied by the warbler. DMA believed Kirtland's warbler habitat and occupancy on selected areas of Camp Grayling could be allowed if certain conditions were met. The team agreed to pursue the amendment.

August 1993 - August 1996. Numerous meetings, phone calls, and individual contacts, especially between DMA and DNR, occurred to develop an amendment.

BIOLOGICAL OPINION

Description of the Proposed Action

The action area for the proposed action is Camp Grayling, Michigan. Camp Grayling is a National Guard military training facility located on State land in parts of Crawford, Kalkaska and Otsego Counties in north central lower Michigan. The facility's 147,600 acres are divided into 2 large segments, the 67,500 acre North Post and the 80,100 acre South Post, situated respectively northeast and southwest of the city of Grayling, Michigan. Grayling is located in Crawford County along U.S. Highway I-75 about 180 miles north-northwest of Detroit, Michigan. Vegetative cover on the camp is primarily oak and pine forest on relatively poor, sandy soils.

A brief history of events related to the presence of Kirtland's warbler on Camp Grayling is necessary to understand the proposed action. Approximately 23% of the facility consists of Grayling sand and jack pine forest which can and has often produced optimum Kirtland's warbler breeding habitat. Kirtland's warblers have occupied various sites on Camp Grayling for many years. No habitat management for Kirtland's warblers ever occurred on Camp Grayling, but habitat developed as a result of jack pine forest fires. Military maneuvers on Camp Grayling were often hampered by restrictions and closures placed on occupied habitat areas by the State of Michigan. The restrictions were made on the basis of protection provided the warbler by State and Federal Endangered Species Acts. In spite of restrictions, many intrusions by military personnel into occupied warbler habitat occurred. For safety reasons due to weapons firing on the facility, resource agencies often faced difficulties scheduling warbler monitoring and protection activities. The presence of unexploded ammunition posed a potential danger to resource agency personnel.

The DNR and DMA developed a Cooperative Agreement in 1986 to resolve the warbler related land use conflicts. The 1986 agreement incorporated a Kirtland's Warbler Management Plan for the Range 30 Complex (Plan) on Camp Grayling. The Plan included the following activities: 1) DMA would turn over primary management authority to the DNR for about 4,000 acres of Camp Grayling

land for the formation of a new State Forest Kirtland's Warbler Management Area (KWMA) known as the "Down River Road KWMA"; 2) DMA would leave in place 300 acres of suitably aged, potential, but unoccupied, Kirtland's warbler habitat on Camp Grayling outside the new KWMA, contingent upon Service issuance of an incidental take permit to disturb this habitat, should Kirtland's warblers occupy it, during normal, lawful military training activity; 3) on the remainder of Camp Grayling outside the new KWMA, DMA would destroy any potential jack pine Kirtland's warbler habitat before it reached suitable age and before it could be occupied by Kirtland's warblers. No habitat occupied by warblers could be destroyed.

The 1990 biological opinion resulted from consultation between DOD/DMA and the Service on 5 proposed construction and management activities on Camp Grayling that DMA determined would affect or would be likely to adversely affect the warbler. Two of the actions related specifically to items 2) and 3) above. The Service concluded that none of the actions would jeopardize the continued existence of the species, and provided an incidental take permit for activities that might adversely affect warblers in existing habitat described in item 2) above.

DMA in 1993 expressed an interest in changing their practice of destroying all potential Kirtland's warbler habitat on Camp Grayling per their 1990 agreement with DNR and the Service. Fires continued to regenerate jack pine, the cost of destroying potential habitat was high, and DMA believed habitat could be allowed to develop on some areas of the Camp provided they could be assured their normal operations would not be affected if Kirtland's warblers occupied such sites. They believed such an assurance should entail an agreement by the DNR not to close such sites occupied by warblers with DNR Director's closure orders, and an incidental take permit from the Service to protect DMA from violations of the Act resulting from accidental and incidental take during official military activities. The proposed action is a modified agreement and habitat management plan that would benefit the species and save public money.

The action proposed by DMA consists of two parts:

- 1) Amend the Plan to allow development of 1,500 acres of potential Kirtland's warbler habitat created on Camp Grayling North Post in Crawford County by the 1990 Stephan Bridge Burn. This potential habitat is in an area that receives little use for military training.
- 2) Amend the Plan to allow development of 600 acres of potential Kirtland's warbler habitat on Camp Grayling South Post in Kalkaska County which resulted from a 1988 fire. This area is used for TOW missile targeting training. Most training activity involves vehicles on existing roads and trails, but some infantry activity occurs.

If these areas are occupied by Kirtland's warblers, Camp Grayling, under agreement with DNR, would restrict use by its personnel to existing roads and trails. Beginning in 1997, Camp Grayling will close a portion of the Stephan Bridge Burn area to military and public use during summer operation of the nearby multipurpose firing range. DNR would not close the areas by Director's Order. DNR and the Service would be allowed access for warbler management

activities. Although DMA would agree to restrict military training in these areas, they request an incidental take permit through this consultation should the Service conclude that these activities and incidental take would not jeopardize the continued existence of Kirtland's warbler.

Status of the Species

The only federally-listed species that is likely to be affected by the proposed action is the Kirtland's warbler, which was first listed as endangered on March 11, 1967 (DOI 1967). No critical habitat has been designated for this species. A Recovery Plan was completed in 1976 (Byelich et al.) and revised in 1985 (Byelich et al.). The recovery goal is 1000 pairs. The entire known breeding range of the Kirtland's warbler is found in 9 counties in Northern Lower Michigan and 2 Upper Michigan counties. The majority of nests have been found in only 3 of the Lower Michigan counties. The species overwinters on islands of the Bahamas archipelago.

The Kirtland's warbler has been thoroughly reported on elsewhere (i.e., Mayfield 1960, Walkinshaw 1983, Byelich et al 1985 among many others), so there is no need for an extensive description of its life history here. The species is a member of the wood warbler subfamily Parulinae. It migrates between its Michigan nesting grounds and wintering grounds in the Bahamas. The Kirtland's is endangered for two primary reasons: it has a very narrow nesting habitat requirement, and it has been subjected to unusually high levels of nest parasitism by the brown-headed cowbird (*Molothrus ater*). The warbler requires for nesting large, dense, 6 to 24 year old stands of fire regenerated jack pine intermixed with grass or sedge openings. Modern fire control has curtailed the natural process of renewal for its habitat. The brown-headed cowbird, a grass or parkland species, was not a presettlement component of the warbler's northern Michigan nesting area. The cowbird first began to arrive there toward the end of the nineteenth century after logging and fires removed the climax forest that originally served as a barrier to cowbird expansion beyond its original grassland range. The cowbird began having a serious adverse affect on the Kirtland's, with parasitism reaching an average 70% by 1966-1972. Combined loss of habitat and cowbird parasitism reduced the warbler to 201 pairs in 1971.

The Kirtland's warbler population was first censused in 1951 by counting singing males (432 males). Total breeding adult population is assumed to be double the number of singing males counted. The next count in 1961 was 502 males, but the third count in 1971 declined 60% to 201 males. Between 1972 and 1989, the population remained somewhat stable, ranging from 167 to 214 males. Since 1989, the population increased annually (Figure 1), reaching record numbers in 1994 (633) and 1995 (765), before declining slightly in 1996 (692). The recent population increase is a result of habitat and cowbird population management by the 3 State and Federal resource agencies, as well as the creation of a large block of natural habitat by a 1980 wildfire.

Nesting habitat is found almost entirely on State and Federal public forest land. The U. S. Forest Service and the Michigan Department of Natural Resources began habitat management in the 1960s and together have dedicated 24

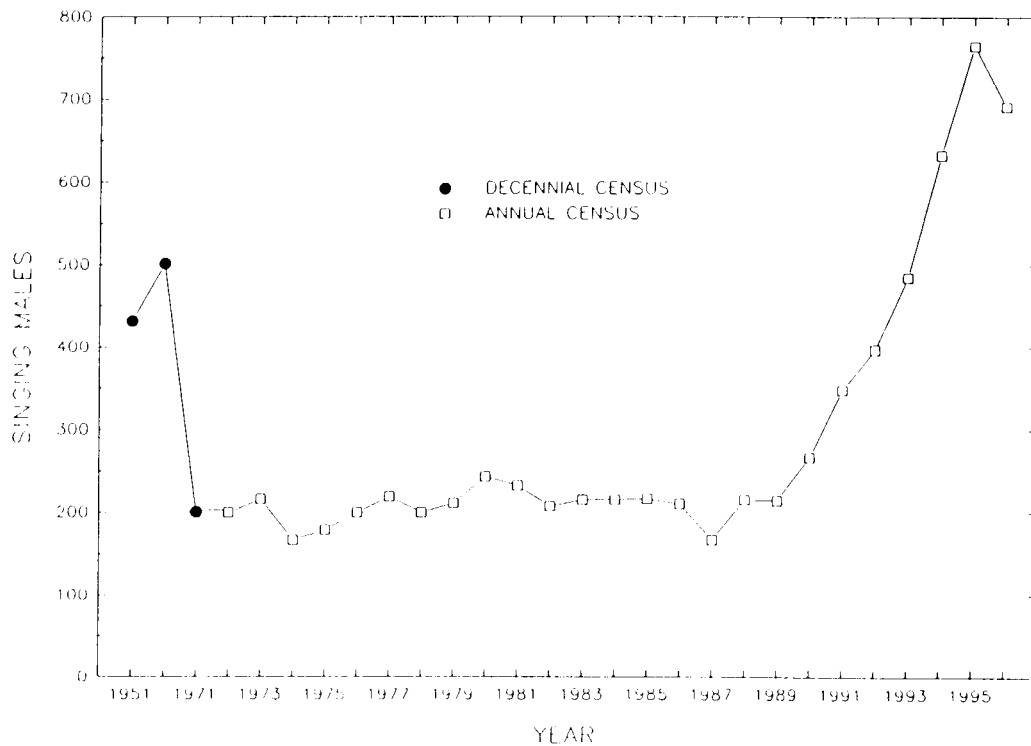


Figure 1. Singing male Kirtland's warbler census results, 1951 - 1996 (Weinrich 1996 and Michigan DNR 1996).

management areas on about 140,000 acres for the Kirtland's warbler. Habitat management consists of clearcutting 200 acres or larger stands of jack pine on a 50 year rotation followed by mechanical and hand planting of 2 year old jack pine seedlings. Approximately 2000 acres must be managed annually to provide about 35,000 - 40,000 acres of suitable habitat in any year. Occasionally, the clearcut areas are burned prior to replanting. Habitat management has been very costly but reasonably successful. In 1996 a record 63% of Kirtland's warblers nested on managed habitat.

In 1972 the Service began annual removal of cowbirds from warbler nesting areas. Cowbird removal essentially has eliminated warbler nest parasitism, but the removal program must be maintained annually for the foreseeable future. Walkinshaw (1983) documented a parasitism rate below 6% from 1972 - 1978, along with increased warbler clutch sizes and fledging rates. The population increase of recent years indicates that warbler reproduction and survival is healthy and that cowbird parasitism is under control.

Environmental Baseline

Status of the Species in the Action Area

Sixty-five singing male Kirtland's warblers were found on Camp Grayling during the first census of singing male warblers in 1951, and undoubtedly nested there before that time. Walkinshaw (1988) recorded 3 nests near Howe's Lake on Camp Grayling in 1938. Large Kirtland's warbler nesting colonies were located on Camp Grayling as recently as 1988. The most recent large colony was found in the Bald Hill Burn, which occupied portions of the Down River Road KWMA. This colony peaked with 53 singing males in 1988, and held only 2 birds in 1996. Another large colony (Artillery Range North) on Camp Grayling reached a maximum of 54 singing males in 1980, and was last occupied by 3 males in 1988. Use of the "Tank Range" portion of Camp Grayling North Post in Crawford County, which included the "Artillery Range" colony, by Kirtland's from 1951 - 1985 was detailed in Table 1 of the 1986 Plan. The camp has provided important habitat for warblers in the past, but in recent years, due in part to the management actions described, relatively few warblers have nested there. Table 1 provides a summary of numbers of singing male Kirtland's warblers found on Camp Grayling from 1992 - 1996 compared with the total census count.

Table 1. Total singing male Kirtland's warbler census results and Camp Grayling male counts with percentage of total, 1992 - 1996.

Year	1992	1993	1994	1995	1996
Camp Grayling singing males	16	11	5	13	10
Total population	398	485	633	766	692
Camp Grayling percent of total	4.0	2.3	0.8	1.7	1.5

Peak numbers of warblers on Camp Grayling in the past represented significant percentages of the total population. For example, In 1971, 66 males there were 33% of the total population of 201, 50 males in 1975 were 28% of the total 179, 54 males there in 1980 made up 22% of the total 243 males counted, 65 males in 1984 and 64 in 1985 were 30% of the total, and 53 males there in 1988 were nearly 25% of the total 215 males. More recently, available habitat in designated state and federal KWMA's has increased during the same period that unmanaged habitat on Camp Grayling decreased. The warbler population has been increasing since 1989 (Figure 1). It reached historic record high numbers in 1994 and 1995 while the percentage of birds on Camp Grayling has diminished markedly.

There are an estimated 31,600 acres of jack pine forest on Camp Grayling (DMA 1994). This area may represent a theoretical maximum habitat potential on the facility, but would be unlikely ever to be usable by Kirtland's at any one time because the cover type acreage is scattered rather than contiguous. Furthermore, none of the jack pine acreage on Camp Grayling outside the Down River KWMA will be managed for warbler use, and DMA along with DNR will maintain a vigorous fire suppression program which also will limit habitat

development. Although DMA proposes to allow limited warbler habitat to develop, habitat suppression will remain the primary policy on Camp Grayling, especially on areas critical for military training. Thus, Camp Grayling is not likely to provide significant warbler habitat in the future.

In 1996, there were approximately 2,200 acres of occupied or suitably aged jack pine habitat on the Camp outside the Down River Road KWMA. Of the ten singing male Kirtland's found on Camp Grayling in 1996, 7 were on unmanaged habitat within this acreage, including 4 on the South Camp TOW training site described in the Proposed Action section above. Three were on a small unmanaged North Post site not included in the proposed action, and three were on the Down River Road KWMA. The only other potential developing habitat (stand age less than 6 years) on Camp Grayling outside the KWMA is a 210 acre clearcut adjoining the 1990 Stephan Bridge Burn.

Effects of the Proposed Action

There are more than 140,000 acres of public land outside Camp Grayling set aside in 24 state and federal forest management areas specifically for Kirtland's warbler recovery. These acres should be sufficient to meet the recovery goal (Byelich, et al 1985) of 1000 pairs of Kirtland's warblers without use of Camp Grayling land, provided management plans are followed and annual habitat management goals are met. Current agreements between the Service, DMA and DNR allow for the destruction of all developing habitat on Camp Grayling. If that policy continues, no warblers will nest on Camp Grayling. The proposed action may be considered as providing for nesting habitat and warblers above and beyond what is planned for elsewhere.

In order to allow this "extra" habitat to develop and be occupied by warblers, DMA is asking that specified occupied habitat not be closed by DNR Director's order. Closure could preclude any use of such sites by DMA for military training. Lack of closure would constitute reduced protection for birds in the affected areas. Although DMA intends to avoid deliberate off road use to protect the specified areas, and to allow management agencies access for monitoring and cowbird control, past experience indicates that accidental intrusion by military personnel may occur. DMA and DNR seek to avoid violations of state law by agreeing not to close the areas, and to avoid violations of the Act by obtaining an incidental take permit from the Service. With the proposed action, DMA, DNR and the Service seek to provide for the existence of additional Kirtland's warblers while reducing public expense for habitat destruction in exchange for reduced restrictions on DMA use of occupied areas and reduced protection for the affected warblers.

Kirtland's warbler recovery and management has been planned for, has occurred and is expected to continue outside of and independent of Camp Grayling land. Allowing for the existence of additional warblers on Camp Grayling with reduced protection should provide a benefit to the species under the circumstances described. The beneficial aspects of the proposed actions could diminish if the total population of warblers declines significantly, and the proportion of the total population on Camp Grayling increases.

Cumulative Effects

Cumulative effects include the effects of future state, local, or private actions that will not be subject to Section 7 consultation in the area being considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not being considered in this biological opinion, since they would require a separate consultation pursuant to section 7(a)(2) of the Act. However, ongoing federal actions will continue outside but near the action area. These actions, which will be intended to benefit Kirtland's warbler, include U.S. Forest Service and U. S. Fish and Wildlife Service habitat and population management, protection and monitoring. The action area is all state land. State activities on portions of Camp Grayling included in the Down River Road KWMA will include habitat management, protection, and monitoring intended to benefit Kirtland's warbler. The same type of beneficial State activities will occur outside but near the action area. As mentioned above, all state and federal warbler management activities outside Camp Grayling have a bearing on the proposed action in that they are expected to provide fully for the survival of the Kirtland's warbler. No known cumulative effects other than those discussed in this opinion or considered in the 1990 biological opinion are reasonably certain to occur in the action area itself.

Conclusion

After reviewing the current status of the Kirtland's warbler, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Kirtland's warbler. No critical habitat has been designated for this species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The reasonable and prudent measures described below are non-discretionary, and must be implemented by the DMA in order for the exemption in section 7(o)(2) to apply. The DMA has a continuing duty to regulate the activity covered by this incidental take statement. If the DMA and/or its agents fail to comply with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or extent of incidental take

The Service anticipates that incidental take of Kirtland's warbler will be difficult to detect because the adults, eggs, nestlings and fledglings are small, the habitat it occupies makes detection of all individuals except healthy singing males difficult, the nests are well concealed in ground vegetation and difficult to detect, and finding a dead or impaired specimen is unlikely. However, because its habitat is easily delineated and its general presence in the habitat is easily determined, the Service anticipates that up to 2,100 acres of Kirtland's warbler breeding habitat could be taken annually as a result of this proposed action. Specifically, incidental take is anticipated of 600 acres at the South Post TOW training site, and of 1,500 acres at the North Post 1990 Stephan Bridge Burn site. Authorization for incidental take is specific for these two sites and expires when the sites are no longer occupied by or suitable for use by nesting Kirtland's warblers.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species.

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take of Kirtland's warblers during the proposed action.

1. Assure that Camp Grayling staff and visiting training units understand and implement actions to minimize take.
2. Protect occupied habitat sites from unauthorized public disturbance and/or destruction to the best of Camp Grayling's ability and authority.
3. Permit and facilitate resource agency actions that will minimize incidental take.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the DOD - DMA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. (a) Provide detailed briefings and instructions to Camp Grayling and DMA staff and all training units as to occupied habitat locations and specific

actions, such as remaining on designated roads or trails, to be taken to avoid harassing or harming Kirtland's warblers.

(b) Utilize knowledgeable Camp Grayling staff to monitor troop activities during critical egg laying, incubation and fledgling periods (May 15 - July 15) to ascertain compliance with 1(a).

2. Utilize Camp Grayling staff to monitor for public disturbance or destruction, inform those found in occupied habitat of the significance of the area and notify appropriate agency personnel when necessary.
3. Permit entry, by advance notice and scheduling if necessary for safety reasons, into occupied habitat areas as needed by Michigan DNR and Service personnel for Kirtland's warbler management activities such as pre-census, census, and cowbird control.
4. Disposition of individuals taken: In the unlikely event that individual Kirtland's warblers, nests or eggs are found that have been killed, injured or abandoned as a result of the proposed action DMA must a) immediately notify Field Supervisor of the Service's East Lansing Field Office; b) preserve dead birds by freezing; c) for sick or injured birds or damaged or abandoned nests, immediately contact the DNR District Biologist in Mio for instructions and assistance.
5. Report in writing to the Service East Lansing Field Office annually by December 31 the amount and extent of incidental take, dates of staff and unit briefings, military training activity in the specified sites, results of monitoring and any other pertinent information.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of the measures, the Service believes that no more than 2,100 acres of nesting habitat will be taken per year. If, during the course of the action, this minimized level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The DMA must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures. Changes to the incidental take will be considered upon written request accompanied by supporting documentation from DMA.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Increase benefit to Kirtland's warbler by allowing development of additional acreage of potential habitat wherever possible on Camp Grayling.

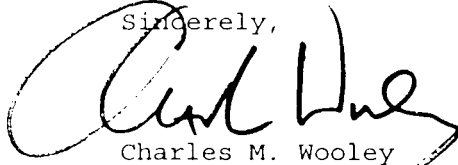
In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the actions outlined in the Assessment. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Should there be any questions, please contact Charles Wooley, Field Supervisor of the East Lansing, Michigan, Field Office, at (517)351-2555.

Sincerely,



Charles M. Wooley
Field Supervisor

cc: Regional Director, FWS, Twin Cities MN (ES/TE)
✓J. Hunt/L. Jacobs, Camp Grayling MI
T. Weise, MDNR, Lansing MI
R. Ennis, KWRT, Cadillac MI

LITERATURE CITED

- Byelich, J., M. E. DeCapita, G. W. Irvine, R. E. Radtke, N. I. Johnson, W. R. Jones, H. Mayfield, and W. J. Mahalak. 1985. Kirtland's warbler recovery plan. U.S. Dept. Interior, Fish and Wildlife Serv., Twin Cities, MN
- Byelich, J., W. Irvine, N. Johnson, W. Jones, H. Mayfield, R. Radtke, and W. Shake. 1976. Kirtland's warbler recovery plan. U.S. Dept. Interior, Fish and Wildlife Serv., Twin Cities, MN
- DOI (Department of the Interior). 1967. Federal Register Volume 32, Page 4001.
- Mayfield, H. 1960. The Kirtland's warbler. Bulletin 40. Cranbrook Institute of Sci. Bloomfield Hills, MI. 242pp.
- Michigan Department of Military Affairs. 1994. Final Environmental Impact Statement. Mission expansion/multiple construction: Camp Grayling Army National Guard Training Site, Michigan.
- Sykes, P.W., Jr. 1995. Personal communication. National Biological Service. Southeast Research Group. Athens, GA.
- Sykes, P.W., Jr., C. B. Kepler, D. A. Jett, and M. E. DeCapita. 1989. Kirtland's warbler on the nesting grounds during the post-breeding period. Wilson Bull. 101(4): 545-558.
- Walkinshaw, L.H. 1988. Nest observations of the Kirtland's warbler--a half century quest. Bound reproduction of Walkinshaw nest records. Univ. Microfilms International Dissertation Information Service. Ann Arbor MI. 358 pp.
- Walkinshaw, L.H. 1983. Kirtland's warbler: the natural history of an endangered species. Cranbrook Institute Sci., Bloomfield Hills, MI. 207pp.
- Weinrich, J. 1996. The Kirtland's warbler in 1995. Wildlife Division Rept. No. 3243. Mich. Dept. Nat. Res. Lansing, MI. 13pp.