

LCMR Work Program 1993

I. Project Title: Deer Critical Habitat Survey - Koochiching County

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Agency Affiliation:	Koochiching County		MNDNR - Wildlife
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A. Legal Citation: M.L. 93 Chpt.172, Sect.14, Subd.12(g)

Total Biennial LCMR Budget: \$75,000 Balance: \$00.50

Appropriation Language as drafted 7/27/92: This appropriation is from the future resources fund to the commissioner of natural resources in cooperation with Koochiching County to conduct an intensive survey of deer winter cover in Koochiching County to identify critical habitat for deer for improved timber management and for deer population management. This appropriation must be matched by \$5000 of nonstate funds.

The project is extended to December 31, 1996; on that date the appropriations cancel and no further payment is authorized. Minnesota Laws 1995, Chap. 220, Sec. 19, Subd. 19.

B. LMIC Compatible Data Language: During the biennium ending June 30, 1995, the data collected by the projects funded under this section that have common value for natural resource planning and management must conform to information architecture as defined in guidelines and standards adopted by the information policy office. Data review committees may be established to develop or comment on plans for data integration and distribution and shall submit semiannual reports to the legislative commission on Minnesota resources on their findings. In addition, the data must be provided to and integrated with the Minnesota land management information center's geographic data bases with integration costs borne by the activity receiving funding under this section.

C. Status of Match Requirement:

Match Required: \$5000

Funds Raised to Date: \$5042.20

II. Project Summary:

The overall goals of the deer critical habitat survey in Koochiching County are to identify which of the many coniferous stands are actually being used by deer for winter cover, map them and write management plans for each one. During the winter, due to deep snow and severe cold, deer leave much of their summer range and migrate to areas known as deer yards or wintering areas. These areas are

typically white cedar, jack pine, balsam fir or white spruce and are very important to long term survival of deer in northern Minnesota.

The project will use aircraft to find the general areas followed by ground crews to determine the exact boundaries and draw maps. The field maps will be digitized and entered into a GIS database. Plans for specific management techniques (e.g. timber harvest, browse regeneration) will be written for each area.

This project has long term significance because increased timber harvest has started to impact the amount of cover available to deer in the winter. Through identification and management, adequate wintering areas can be guaranteed for many years. This project can also serve as a pilot for other similar projects across northern Minnesota.

III. Statement of Objectives:

- A. Determine which coniferous timber stands in Koochiching County are critical for overwintering white-tailed deer.
- B. Integrate the data collected into current forest inventory and Geographic Information Systems (GIS).
- C. Develop winter cover management objectives and guidelines and make this information available to the appropriate resource managers.

IV. Research Objectives:

A. Title of Objective: Determine which coniferous timber stands in Koochiching County are critical for overwintering white-tailed deer.

A.1. Activity: Select stands to be checked by air.

A.1.a. Context within the project: It would be expensive and inefficient to fly the entire county. This step will allow us to narrow our search area to those stands that have the potential to provide winter cover.

A.1.b. Methods: A detailed stand by stand inventory (Phase II) is available for state and county lands. A computer will be used to sort the Phase II database. Initially, any stand containing any combination of white spruce, northern white cedar, jack pine or balsam fir that is >9.9 cords/acre will be selected. If this yields too many stands, a higher cords/acre will be used. These stands will be drawn on a USGS topographic map (1:24,000 scale) for use by the aerial observer.

Aerial photographs will be used to survey the private lands in the county for potential winter cover. Stands containing the conifers mentioned above will be mapped on the USGS maps. Priority for flying will go to those stands adjacent to ones selected on state or county lands.

Minnesota Department of Natural Resource records will be reviewed for known deer wintering areas. These will be added to the USGS maps.

All potential areas will be drawn on a 1/2" = 1 mile scale county map for use by the aerial observer.

**A.1.c.Materials:** All materials needed in this section are currently available. These include databases, hardware and software for sorting, aerial photographs, stereoscopes, USGS maps and county maps.

**A.1.d.Budget:** \$8200      Balance: \$7507.05

**A.1.e.Timeline:**

	7/93	1/94	6/94	1/95	6/95
Select stands for aerial inventory	*****				

**A.2.Activity:** Aerially survey selected stands to determine which are used by deer.

**A.2.a.Context within the project:** This part of the project will define those areas to be ground checked and mapped. It is the most efficient way to minimize the amount of labor intensive field work needed for ground checking.

**A.2.b.Methods:** A Cessna 180, 182 or 185 airplane with a STOL converter will be used. An airplane like this can fly from site to site rapidly and still slow down enough for good observation when at the site. It also has a good cruising radius. The crew will consist of a pilot and an observer/recorder. Both crew members will aid in navigation.

The survey will start each year when there is at least 10" of snow on the ground, but no earlier than December 15. This should assure that deer have moved to the wintering areas. Each day's flight will start no earlier than 2 hours after sunrise and end no later than 2 hours before sunset. This helps eliminate some of the shadows from the low sun angle and maximizes visibility. The crew will use the 1/2" = 1 mile scale county maps to get to the sites and then use the USGS maps to roughly map the boundaries of the wintering area. While surveying each site the plane's altitude will be 100-200', and the crew will stay on site as long as it takes to roughly identify the boundaries of the area. The observer will then record the data on the USGS map for use by the field crew.

**A.2.c.Materials:** The only materials needed for this are the maps prepared in activity A.1 and an airplane.

**A.2.c.Budget:** \$9100      Balance: \$3155.95

**A.2.d.Timeline:**

<del>7/93</del>	<del>1/94</del>	<del>6/94</del>	<del>1/95</del>	<del>6/95</del>
Aerial Survey	*****		*****	
<u>7/93</u>	<u>6/94</u>	<u>6/95</u>	<u>6/96</u>	<u>12/96</u>
	***	***	**	

**A.3.Activity:** The sites identified in activity A.2 will be checked by a ground crew and mapped.

**A.3.a.Context within the project:** This step in the process is one of the most important. The definitive maps generated here will be the basis for future management decisions.

**A.3.b.Methods:** The field crew will first take the maps generated by the aerial crew in activity A.2 and transfer that information to acetate overlays on the aerial photographs of Koochiching County. These black and white photographs were taken in 1988 and are 9" x 9" with a scale of about 4" = 1 mile. The scale varies somewhat across the county.

On state and county lands the ground crews will have to go to each site, walk the area with the aerial photos and map the boundaries of the area being used by deer on the acetate overlays. A forest inventory has already been completed and will be utilized on these sites.

On private lands the procedure will be different. The crew will first have to obtain permission to enter the land. Once that is obtained, the crew will first map the boundaries of the area used by deer on acetate overlays. Since money is limited, we have decided to streamline the data collection on private ownership. A standard DNR Forestry inventory form would take too much time and money to collect and enter the data into the system. The crew will be given a modified form to collect subjective data on each private site. No data collection plots will be established. The crew will determine if the site is upland or lowland, record the 3 most common overstory tree species in order of abundance, record the 2 most common understory tree species in order of abundance and record the 3 most common shrub species in order of abundance. If the private land is adjacent to state or county land, and if the adjoining timber types are similar, we will use the inventory information from the public land and the crew will not collect any forest data.

**A.3.c.Materials:** This phase will require pickups, snowmobiles, snowshoes, aerial photos and data collection forms.

**A.3.d.Budget:** \$50,000      Balance: \$-12,112.50

**A.3.e.Timeline:**

<del>7/93</del>	<del>1/94</del>	<del>6/94</del>	<del>1/95</del>	<del>6/95</del>
Field mapping	*****		*****	
<u>7/93</u>	<u>6/94</u>	<u>6/95</u>	<u>6/96</u>	<u>12/96</u>
	***	***	***	

**A. Status:**

**Problems:** There were no problems in the last six months.

**Progress:** We have identified about 41,000 acres of winter cover. We have completed 23,845 acres of ground mapping. This is over half of what we identified from the air. The field mapping has been more expensive than estimated, but the aerial survey and the stand selection costs were less than expected.

**B. Title of Objective:** Integrate the data collected into current forest inventory and Geographic Information Systems (GIS).

**B.1.Activity:** All winter yards that were mapped on acetate overlays in Activity A.3 will be digitized. They will then put onto a separate layer within the state and county inventories.

**B.1.a.Context within the project:** This part of the project is important for management, because this information will be permanently mapped for any land managers to use in making decisions. It will be used immediately in the DNR Forestry regional planning effort, the DNR Wildlife deer management information system (DMIS) and the Koochiching County land management plan.

**B.1.b.Methods:** The methods for this are quite simple. A contract will be written with a qualified company or agency (LMIC) to do the digitizing, downloading, merging and error correction necessary for incorporation of this information into the state and county systems. DNR employees with expertise in writing these type of contracts will be called upon to help with this process to insure a quality product.

**B.1.c.Materials:** The only materials needed for this will be acetate overlays drawn by the field crews. All other materials will be provided by the contractor.

**B.1.d.Budget:** \$12,700      Balance: \$6450.00

<b>B.1.e.Timeline:</b>	<del>7/93</del>	<del>1/94</del>	<del>6/94</del>	<del>1/95</del>	<del>6/95</del>
Digitizing		*****		*****	
	<u>7/93</u>	<u>6/94</u>	<u>6/95</u>	<u>6/96</u>	<u>12/96</u>
			***	*****	

**B. Status:**

**Problems:** There are no problems at this time.

**Progress:** This work was less expensive than originally thought, so we used the extra funds to do more field inventory. The matching monies will be used to complete the digitizing from this extra field inventory.

**C. Title of Objective:** Develop winter cover management objectives and guidelines and make this information available to the appropriate resource managers.

**C.1.Activity:** A management plan will be written for each wintering area. These plans will be discussed with affected resource managers and private landowners both one on one and in group settings.

**C.1.a.Context within the project:** These plans are the final part of this project, but the beginning of better decision making ability in the future.

**C.1.b.Methods:** The plans will be written in a standard format. Each plan will have the date of survey, a legal description, ownership, a local name, total acres, a cover type map, individual stand information on state and county land, general stand information on private land, and management prescriptions. The management prescriptions may include but are not limited to timber harvest, total protection, shrub regeneration, shrub planting, tree planting, easements or purchase.

As plans are written, they will be discussed with whoever manages, owns or has interest in the land. This will include MNDNR foresters, Koochiching County foresters, private timber company foresters, private individuals and interested groups. Some of the discussions will start in group settings that explain the process, but ultimately will center around implementation of the management recommendations.

**C.1.c.Materials:** Only word processors and paper are needed.

**Budget:** This part is funded internally by DNR Wildlife.

<b>C.1.e.Timeline:</b>	<del>7/93</del>	<del>1/94</del>	<del>6/94</del>	<del>1/95</del>	<del>6/95</del>
Write plans.		*****		*****	
	<u>7/93</u>	<u>6/94</u>	<u>6/95</u>	<u>6/96</u>	<u>12/96</u>
			*****		

**C: Status:**

**Problems:** There are no problems at this time.

**Progress:** We have developed a standard format and are working on plans. This work will speed up with the completion of the data entry and digitizing of maps.

**V. Evaluation:** The success of this project will be measured in a variety of ways. First, the collection of new information to aid in resource management decisions is a success in itself. With the current interest in a more holistic view of forest management, all information is invaluable. In addition, the delineation and digitization of known deer yard areas will provide databases that are currently nonexistent. Finally, resource managers will be informed of the results of the management recommendations at workshops and through written information.

**VI. Context Within the Field:** Wildlife managers throughout the northern forests of Minnesota, Michigan and Wisconsin have been identifying, mapping and trying to manage deer winter cover for many years with a variety of success. Much of northern Minnesota, including Koochiching County, has not been adequately surveyed. The incorporation of GIS and the

detailed management plans make this project one of the most advanced in the field today.

VII. **Benefits:** This project has a variety of benefits. First of all, these wintering areas are critical to the survival of deer in northern Minnesota. By having management plans for these areas, we are responsibly managing an important wildlife resource. Also, involving both professional resource managers from a variety of agencies as well as private individuals in the management of natural resources is one of the first steps in initiating integrated resource management (IRM). Many resource professionals feel that IRM is critical to the future management of Minnesota's natural resources. Finally, the integration of this information into a statewide database so that it can be used by anyone interested in the state's resources is important.

VII. **Dissemination:** Objective C of this project discusses the presentation of this information to the affected resource managers and private individuals. In addition, the results will be presented to resource professionals in Minnesota and adjacent states with similar habitats through meetings and in writing.

IX. **Time:** The LCMR funds will be used up ~~within the biennium~~ by December 31, 1996, but since the original funding request was reduced we may request more funding in the future. Every effort will be made to utilize state, county and volunteer help to complete the project with the available funds. The MNDNR Wildlife plan writing may take extend beyond the ~~biennium~~ end of the funding.

X. **Cooperation:** There are currently no cooperators on this project.

XI. **Reporting Requirements:** Semiannual status reports will be submitted not later than Jan. 1, 1994, July 1, 1994, Jan.1, 1995, July 1, 1995, Jan. 1, 1996, July 1, 1996 and a final status report by December 31, 1996.