2001 Project Abstract
For the Period Ending June 30, 2004

TITLE: Restoring Minnesota's Fish and Wildlife Habitat Corridors - #CH-01
PROJECT MANAGER: John Ringle, Fish and Wildlife Program Director
ORGANIZATION: Leech Lake Band of Ojibwe, Division of Resource Management
ADDRESS: 6530 Highway 2 NW, Cass Lake, MN 56633
WEB SITE ADDRESS: None Available
FUND: Restoring Minnesota's Fish and Wildlife Corridors
LEGAL CITATION: ML 2001, 1st Special Session, Ch. 2, Sec. 14, Subd. 04(e)
$11,745,000 (Env. Trust Fund). Restoring Minnesota's Fish and Wildlife Corridors
APPROPRIATION AMOUNT: $76,910

Overall Project Outcome and Results

The Leech Lake Reservation has over 400,000 acres of lakes, streams and wetlands within its boundaries in the Mississippi Headwaters area of Northern Minnesota. Waterfowl production potential here has not been realized in recent decades due to poor brood feeding habitat resulting from high water levels. These high water levels have promoted increased fish competition for food and declines in wild rice abundance, also an important food source.

Work was performed by the Fish and Wildlife Department of the Leech Lake Band of Ojibwe on 18 impoundments within the Leech Lake Reservation, providing improved water level management on 500 acres of managed forested impoundments. This consisted of maintaining dikes by summer mowing, removal of beaver cutting debris, and replacement of rotted stoplogs. Additionally, a water control structure on 21 acre Brush Lake Impoundment was rebuilt in a cooperative project with Ducks Unlimited and the US Forest Service. Clemson Levelers were purchased installed in 6 locations and 304 acres of wild rice was seeded at 13 locations to establish or reestablish rice crops for food and habitat. Winter reverse aeration was conducted on Grass Lake and Mark Lake in an attempt to reduce dissolved oxygen and induce a winterkill. The ecological concept that small fish can limit waterfowl food abundance by overgrazing aquatic invertebrates has been demonstrated elsewhere. Reverse aeration has been used to eliminate fish through winterkill at other locations, but was not very successful at our northern forested sites.

Staff constructed 300 and placed 275 waterfowl nest boxes and performed cleaning and maintenance on over 350. By surveying eggshell fragments and feathers, a waterfowl occupancy rate of 55% annually was determined.

Project Results Use and Dissemination

All nest box locations, leveler installation sites, wild rice establishment acres and impoundment locations were GPS identified and included in the overall Habitat Corridors mapping project. Presentations have been made at the Great Lake Regional meeting of the Native American Fish and Wildlife Society. Projects have been featured in the 2003 and 2004 editions of "Circle of Flight" Tribal Waterfowl enhancement projects, published by the Midwest Regional BIA office at Fort Snelling in St. Paul, MN.

Although this was a management and not a research project, techniques developed will be shared with other resource agencies. It is important to note that all enhancement activities were completed on impoundments that are on public land and open to regulated hunting and other outdoor related activities.

Put in Date of Completion: August 15, 2004

LCMR Final Work Program Report

Date of Next Program Update: Final Report
Date of Work Plan Approval: July 24, 2001; Amendment Approved April 22, 2002; Amendment Approved July 12, 2002

Project Completion Date: August 15, 2004

LCMR Work Program Fiscal Year 2002
Title: Restoring Minnesota's Fish and Wildlife Habitat Corridors - #CH-01

I. Project Manager: John Ringle, Fish and Wildlife Program Director
Affiliation: Leech Lake Band of Ojibwe, Division of Resource Management
Mailing Address: 6530 Highway 2 NW, Cass Lake, MN 56633
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Total Biennial Project Budget: Leech Lake Reservation

Fund	Year	Approp	Liquid	Balance
Restoring MN F&W Habitat Corridors				
	Fiscal Year 2002	$38,455	$38,455	$0
	Fiscal Year 2003	$38,455	$38,454	$1
Grand Total		$76,910	$76,909	$1

Legal Citation: 04(e)M.L. 2001, 1st Special Session, Chapter 2, Section 14, Subd. 04(e) $11,745,000 (Env. Trust Fund). Restoring Minnesota's Fish and Wildlife Habitat Corridors

Carryforward Language: The availability of the appropriations for the following projects is extended to August 15, 2004: ML 2004, Ch.255,sec. 47, Subd.

Sec, 47. [MINNESOTA FUTURE RESOURCES FUND; ENVIRONMENT AND NATURAL RESOURCES TRUST FUND: APPROPRIATIONS CARRYFORWARD]
(c) The availability of the appropriation for the following project is extended to June 30, 2006: Laws 2001, First Special Session chapter 2, section 14, subdivision 4, paragraph (e), restoring Minnesota's fish and wildlife habitat corridors, and after June 30, 2004, the appropriation may be spent as provided in Laws 2003, chapter 128, article 1, section 9, subdivision 5, paragraph (a), restoring Minnesota's fish and wildlife **habitat corridors**-phase II.
[EFFECTIVE DATE.] This section is effective the day following final enactment.

II. and III. Final Project Summary:

The Leech Lake Reservation has over 400,000 acres of lakes, streams and wetlands within its boundaries in the Mississippi Headwaters area of Northern Minnesota. Waterfowl production potential here has not been realized in recent decades due to poor brood feeding habitat resulting from high water levels. These high water levels have promoted increased fish competition for food and declines in wild rice abundance, also an important food source.

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IV. Outline of Project Results:

Result #1: Provide better water level management on 18 impoundments totaling about 500 acres and located within the Leech Lake Reservation.

Cumulative: July 2001 – August 2004:

Performed work on all 18 impoundments. All 18 impoundments received thorough maintenance of vegetation. Beaver cutting debris is a major problem in all forested impoundments and requires continued maintenance. Water level was monitored and controlled and repair work completed on several water control structures.

Staff completed the Brush Lake Impoundment Water Control structure rehabilitation utilizing a cooperative agreement with Ducks Unlimited NAWCA small grant. This 21acre impoundment will serve a s a fully functional forested impoundment on the Chippewa National Forest within the Leech Lake Indian Reservation. This project was delayed due to the difficulties experienced by the Minnesota Waterfowl Association, who was initially a co-sponsor and cost-share partner. Problem arranging a cooperative agreement with the US Forest Service also delayed installation. Difficulty arranging cooperators was the sole reason for extension of this project completion date.

Brush Lake Impoundment - $8,000.00

Personnel (Labor) $ 2,464.26

Personnel $ 3,843.45

Result #2 : Install Clemson levelers and/or control beavers on five natural wetlands or lakes to enhance brood habitat.

Cumulative: July 2001 – August 2004:

Clemson levelers are an effective way to allow water passage through a beaver dam while tricking the beavers into thinking they have the water backed up. They prevent impoundment of water and subsequent flooding. Staff installed six Clemson Levelers; two on Raven's Flowage of Lake Winnibigoshish, and one each on Lucile, Cub, Third River and Pigeon Impoundments. All levelers continue to operate effectively.

The two levelers installed on Raven's Flowage have resulted in the restoration of the natural wild rice bed on Rabbit's Lake. Prior to installation, impounded water had flooded the rice crop in Rabbit's Lake. This bed is several hundred acres in size and the project was the most successful wild rice restoration we have ever undertaken.

Development - $ 3,900.00
$ 1,616.30

Personnel - $ 2,000.00

Personnel - $ 5,547.12

Result #3: Reseed wild rice where appropriate on up to 300 acres to reestablish beds.

Cumulative: July 2001 to August 2004:

Over two fall seasons we planted over 10,000 pounds of seed wild rice in 13 locations on a total of 304 acres of natural and managed sites. Rice seed was planted at a rate of about 30-40 lbs/acre. We feel that being able to manipulate water levels is probably the most important controllable variable in wild rice production.

On impoundments that were seeded, we were able to establish rice plots in almost all sites. Lost Lake, a bog lake adjacent to Leech Lake, which served as a staging site for ringneck ducks, formerly had a well established rice bed until about 15 years ago. High water in the early 1980's seemed to reduce the crop until no rice was left. Our reseeding efforts reestablished rice in Lost Lake and it can be viewed in aerial photos. Continued effort will be needed to allow this bed to be self-sustaining. Efforts in Grass Lake were not as successful, however, with little seeded rice taking hold. A study should be made as to what might constitute the best conditions of substrate, depth and water quality for reestablishment of wild rice.

Fall 2002

Personnel	$ 3,800.00
Development	$11,558.70 (seed purchase and transportation)
Total	$15,358.70

Fall 2001

Personnel	$998.49
Development	$3,251.70
Total	$4,250.19

Result #4: Monitor natural lakes and induce winterkill on two lakes to enhance brood feeding habitat.

Cumulative: June 2001 to August 2004:

. Many of the small shallow waterfowl lakes in the Mississippi Headwaters area, which includes Leech Lake Reservation, have fish present. These small minnows and bullheads compete with waterfowl for food items at certain times of the year, especially during spring return migration and at the broodling stage. This in turn can lead to undernourished juveniles and females in poor reproductive condition. Fish and Wildlife staff of Leech Lake Band of Ojibwe attempted to introduce fish winterkill on two lakes, Grass Lake in February of 2003 and Mark Lake in February of 2004 with the desired result of reducing food competition for invertebrates and zooplankton between duck broodlings and fish.

In May of both years, we sampled for fish and found that a complete kill did not occur, but we were successful in reducing the numbers of minnows. Oxygen levels were reduced but dissolved oxygen measurements were at 4-5 ppm prior to initiating aeration. Because of the relatively mild winters with little snow cover, it is questionable if the desired conditions could be achieved with the de-stratification equipment. It is necessary to get below 2 ppm lake-wide. Many of the lakes in our area are bog and marsh seepage lakes and reduction of dissolved oxygen to necessary levels is nearly impossible. We will continue to search for suitable lakes to utilize these techniques. Equipment is now available and staff has been trained for attempts in future years.

Personnel	$1,993.80
Development	$8,210.58
Total	$10,204.38

Result #5: Construct and install 250 nest boxes and maintain existing nest boxes.

Cumulative: July 2001 – August 2004:

Waterfowl nesting box construction and placement is probably the number one way that more ducks can be "put in the air" in the forested area of North Central Minnesota. Fish and Wildlife staff of the Leech Lake Reservation constructed 300 nest boxes, installation of 275 and maintenance of 327 nest boxes. An additional 50 boxes were provided for a US Forest Service project and 25 boxes were provided for the Longville, MN Boys and Girls club in conjunction with the State and Tribal Conservation Officers for installation on the Leech Lake Reservation.
We now have nearly 400 nest boxes installed, monitored and GPS positioned and mapped.

Net boxes should be checked and refurbished every two years. During routine maintenance, use surveys can be conducted. During the winter of 2002, approximately 127 nest boxes previously installed by our department were checked and refurbished with wood shaving nesting material and surveyed for past usage. It was interesting to note that 55% of boxes had evidence of waterfowl usage, as determined by egg shell remains, and 13% of the boxes were occupied by Goldeneye and 42% of the boxes were occupied by Wood Ducks (some were possibly mergansers).

Winter 2004

Personnel -	$ 2,227.92

Winter 2003

Personnel	$9,432.96
Development	$ 336.66
Total	$9,769.62

Fall 2002

Personnel	$5,700.00
Development	$2,026.80 (materials and supplies)
Total	$7,726.80

V. Total Project Budget

VI. Past, Present and Future Spending

VII. Dissemination

VIII. Location

IX. Reporting Requirements:

Progress reports for this work will be submitted to LCMR on January 30, 2002 May 31, 2002, November 30, 2002, March 30, 2003, November 30, 2003, June 30, 2004, and the Carryforward Extension Date of August 15, 2004 or by the completion date as set in the appropriation.

Attachment A: Budget Detail for 2003 Projects - Summary and a Budget page for each partner																
Proposal Title: Restoring Minnesota's Fish and Wildlife Habitat Corridors Phase I																
Project Manager Name: *John P. Ringle, Fish and Wildlife Director*																
LCMR Requested Dollars: $ 76,910																
2003 LCMR Proposal Budget	Result 1 Budget:	Amount Spent (August 2004)	Balance (August 2004)	Result 2 Budget:	Amount Spent (Nov. 2003)	Balance (Nov. 2003)	Result 3 Budget:	Amount Spent (Nov. 2003)	Balance (Nov. 2003)	Result 4 Budget:	Amount Spent (Nov. 2003)	Balance (Nov. 2003)	Result 5 Budget:	Amount Spent (Nov. 2003)	Balance (Nov. 2003)	
	2(e) Circle of Flight															
BUDGET ITEM																TOTAL FOR BUDGET ITEM
PERSONNEL: Staff Expenses, wages, salaries	38,008	38,008	$0													38,008
PERSONNEL: Staff benefits																
Contracts - MWA Coop Agreement for Brush Lake Impoundment	8,000	8,000	$0													8,000
Professional/technical																
Other contracts																
Space rental: NOT ALLOWED	X															
Other direct operating costs																
Equipment / Tools																
Office equipment & computers																
Other Capital equipment																
Land acquisition																
Land rights acquisition																
Printing																
Advertising																
Communications, telephone, mail, etc.																
Office Supplies																
Other Supplies Rice Seed, Winterkill induction supplies, nest box material	23,502	23,501	1													23,502
Travel expenses in Minnesota	3,500	3,500	$0													3,500
Travel outside Minnesota																
Construction - Heavy Equipment costs	3,900	3,900	$0													3,900
Other land improvement																
Other																
COLUMN TOTAL	76,910	76,909	1													76,910

Attachment B -- Habitat Corridors Partnership PHASE I -- Individual Work Program Summary
April 2004 Progress Report (For all completed activities thru 4/30/04)

					Proposed Accomplishments			Current LCMR Accomplishments								
Activity (Eg; 2(a) Hides For Habitat)	**Partner** (Eg; MDHA)	**LCMR Allocation**	**LCMR Expenditure**	**LCMR Balance**	LCMR Acres	LCMR Miles/ Shoreline	LCMR Lakes Restored	LCMR Acres	LCMR Miles/ Shoreline	LCMR Lakes Restored	Other Funds Committed	Other Funds Expenditure	Other Funds Balance	Other Funds Acres	Other Funds Miles/ Shoreline	Other Funds Lakes Restored
2(e) Circle of Flight	Bureau of Indian Affairs	76,910	76,909	1	300		19	304		26	50,000	50,000	0			

J. Ringle

Attachment C -- Habitat Corridors Partnership PHASE I -- Individual Work Program Summary by Project Area

January 2004 Progress Report (For all completed activities thru 1/31/04)

Work Program:	LCMR Funds						Other Funds					
Partner:	LCMR Dollars Expended	Acquisition Acres	Easement Acres	Restoration Acres	Shore Miles	Misc.	Other Funds Expended	Acquisition Acres	Easement Acres	Restoration Acres	Shore Miles	Misc.
PROJECT AREA 1												
Aspen Parklands												
PROJECT AREA 2												
Mississippi Headwaters	76909			304 acres seeded with		18 impoun	50000					Personnel
PROJECT AREA 3												
Border Prairie												
PROJECT AREA 4												
Central Lakes												
PROJECT AREA 5												
Lower St. Louis River												
PROJECT AREA 6												
Upper Minnesota River												
PROJECT AREA 7												
Alexandria Moraine												
PROJECT AREA 8												
Big Woods - North												
PROJECT AREA 9												
Des Moines River Valley												
PROJECT AREA 10												
Southern Lakes												
PROJECT AREA 11												
Mississippi Bluff Lands												

J. Ringle