

2005 Project Abstract (Submitted 03/19/08)

For the Period Ending December 31, 2007

TITLE: Soil Survey

PROJECT MANAGER: Greg Larson

ORGANIZATION: Board of Water and Soil Resources

ADDRESS: 520 Lafayette Road North

WEB SITE ADDRESS: www.bwsr.state.mn.us

FUND: Trust fund

LEGAL CITATION: ML 2005, First Special Session, Chap. 1, Art. 2, Sec.11, Subd. 8(b).

APPROPRIATION AMOUNT: \$ 500,000

Overall Project Outcome and Results

This appropriation continued the ongoing study of the state's soils by accelerating the completion of soil mapping and digitization of soils data.

To accelerate the completion of soil mapping, and the eventual digitization of soils data, mapping projects were initiated in Pine and Crow Wing Counties. During the project period, the NRCS established survey offices and hired the lead soil scientists and most of the assistant soil scientists for these counties. To characterize the landscape, geology and soil patterns, soil surveys begin with extensive field investigations and exploratory borings. To those ends, about 15 percent of the overall project has been addressed in Crow Wing County and about 10 percent has been addressed in Pine County.

Existing soil surveys for two counties, Beltrami and Aitkin, were fully digitized to USDA SSURGO (Soil Survey Geographic Database) Standards by staff employed with Trust Fund funding. These staff also contributed to USDA Natural Resource Conservation Service efforts to digitize additional published soil surveys in Minnesota. Additional soils data from a total of 28 counties were digitized during the funding period. These 28 counties brought the total number of counties digitized to 75 at the end of calendar year 2007. (An additional 6 project areas were done by the NRCS with 2007 funding, for a total of 81 survey areas having digital coverage).

It was during the 2005 funding period that NRCS fully implemented a WEB-delivered soil survey. Digital SSURGO soil surveys are the basis for the WEB Soil Survey. Consequently, the acceleration of digitization efforts means that the WEB Soil Survey is available in 81 soil survey areas. Built to complement the WEB Soil Survey, NRDSS (Natural Resource Decision Support System) was developed. This product allows users to perform multiple queries of soils data and download it in formats not currently available with the USDA WEB Soil Survey.

Project Results Use and Dissemination

Digital data through the WEB Soil Survey <http://soils.usda.gov/survey> is available for 81 project areas. Soils data from counties not yet mapped and digitized is available to the public on a request basis.

Date of Report: March 19, 2008

Project Completion Date: December 31, 2007

LCMR Final Work Program Report (for 2005 Funding)

I. PROJECT TITLE: Soil Survey

Project Manager: Greg Larson
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.Total Biennial Project Budget:	LCMR Appropriation:	\$500,000
	Balance:	\$ 0

Legal Citation: ML 2005, First Special Session, Chap. 1, Art. 2, Sec. 11, Subd. 8(b).

Appropriation Language: \$250,000 the first year and \$250,000 the second year are from the trust fund to the board of water and soil resources to accelerate digitizing of completed soil surveys for web based user application and for agreements with Pine and Crow Wing counties to begin soil surveys. The new soil surveys must be done on a cost-share basis with local and federal funds. This appropriation is available until June 30, 2008, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

II. and III. FINAL PROJECT SUMMARY:

Existing soil surveys for two counties, Beltrami and Aitkin, were digitized to USDA SSURGO (Soil Survey Geographic Database) Standards by staff employed with LCMR funding. These staff also contributed to USDA Natural Resource Conservation Service efforts to digitize additional published soil surveys in Minnesota. During the 2005 funding period, 28 counties were digitized. These 28 counties brought the total number of counties digitized to 75 at the end of calendar year 2007. (An additional 6 project areas were done by the NRCS with 2007 funding, for a total of 81 survey areas having digital coverage.) It was during the 2005 funding period that NRCS fully implemented a WEB-delivered soil survey. Digital SSURGO soil surveys are the basis for the WEB Soil Survey. Consequently, the acceleration of digitization efforts means that the WEB Soil Survey is available in 81 soil survey areas. Built to complement the WEB Soil Survey, NRDSS (Natural Resource Decision Support System) was developed. This product

allows users to perform multiple queries of soils data and download it in formats not currently available with the USDA WEB Soil Survey. To accelerate the completion of soil mapping, and the eventual digitization of soils data, mapping projects were initiated in Pine and Crow Wing Counties. During the project period, the NRCS established survey offices and hired the lead soil scientists and most of the assistant soil scientists for these counties. To characterize the landscape, geology and soil patterns, soil surveys begin with extensive field investigations and exploratory borings. To those ends, about 15 percent of the overall project has been addressed in Crow Wing County and about 10 percent has been addressed in Pine County.

IV. OUTLINE OF PROJECT RESULTS:

Result 1: Begin the Update of the Crow Wing County Soil Survey.

Final Status: To accelerate the completion of soil mapping, and the eventual digitization of soils data, a soil mapping project was initiated in Crow Wing County. During the project period, the NRCS established a soil survey office in Baxter and hired a project leader and one assistant soil scientist. To characterize the landscape, geology and soil patterns, soil surveys begin with extensive field investigations and exploratory borings. About 15 percent of the total project was addressed during this time period.

Final Budget Information for Result 1: **LCMR Budget: 150,000**
Balance: 0

Result 2: Begin the Initial Soil Survey of Pine County.

Final Status: To accelerate the completion of soil mapping, and the eventual digitization of soils data, a soil mapping project was initiated in Pine County. During the project period, the NRCS established a survey office in Sandstone and hired the project leader and two assistant soil scientists. To characterize the landscape, geology and soil patterns, soil surveys begin with extensive field investigations and exploratory borings. About 10 percent of the total project was addressed during this time period. In late 2006, the Pine County Board of Commissioners voted to end their contributions to the soil survey. This action resulted in a cessation of soil mapping activities and the NRCS removed their staff. Consequently, the accomplishments of the NRCS are lower than would be expected.

Final Budget Information for Result 1: **LCMR Budget: \$150,000**
Balance: 0

Result 3: Accelerate Internet Delivery of Soil Survey Data.

Final Status:
Existing soil surveys for two counties, Beltrami and Aitkin, were digitized to USDA SSURGO (Soil Survey Geographic Database) Standards by staff employed with LCMR

funding. These staff also contributed to USDA Natural Resource Conservation Service efforts to digitize additional published soil surveys in Minnesota. During the 2005 funding period, 28 counties were digitized. These 28 counties brought the total number of counties digitized to 75 at the end of calendar year 2007. (An additional 6 project areas were done by the NRCS with 2007 funding, for a total of 81 survey areas having digital coverage.) It was during the 2005 funding period that NRCS fully implemented a WEB-delivered soil survey. Digital SSURGO soil surveys are the basis for the WEB Soil Survey. Consequently, the acceleration of digitization efforts means that the WEB Soil Survey is available in 81 soil survey areas. Built to complement the WEB Soil Survey, NRDSS (Natural Resource Decision Support System) was developed. This product allows users to perform multiple queries of soils data and download it in formats not currently available with the USDA WEB Soil Survey.

Final Budget Information for Result 3: LCMR Budget: \$200,000
Balance: \$0

V. Total LCMR Project Budget:

All Results: Personnel: \$489,500

All Results: Office equipment and computers: \$6,500

All Results: Other: \$4,000

Total LCMR Project Budget: \$500,000 (see attachment A)

Explanation of Capital Expenditures Greater Than \$3,500: A server used for the ongoing soil survey projects was upgraded. The cost was shared with the University of Minnesota.

VI. PAST, PRESENT AND FUTURE SPENDING

A. Past Spending: The University-led research phase of “Updating Outmoded Soil Surveys”, focusing on four SE Minnesota Counties, ended June 30, 2003. Of the \$236,000 of LCMR funding for that project, none supported web delivery per se’, although all four counties in the SE project area will ultimately have digital WEB-delivered soil surveys. Crow Wing County provided about \$5,000 to the NRCS for soil investigations.

B. Current Spending: As indicated in Results 1 and 2, significant non-state contributions were part of results one and two. Crow Wing and Pine Counties provided \$33,000 and \$80,000, respectively. The NRCS provided \$467,000 and \$450,000, respectively, to Crow Wing and Pine Counties. For result three, various in-kind contributions were provided by the Board of Water and Soil Resources and the Natural Resources Conservation Service.

C. Required Match: As indicated in the appropriation, Results one and two required contributions from counties and the USDA NRCS. Contributions: Crow Wing County: \$33,000 county funds and \$467,000 NRCS. Pine County: \$80,000 county funds and \$450,000 NRCS.

VII. PROJECT PARTNERS: The project utilized a team with members from federal, state and local government agencies and private sector consultants. For the Crow Wing and Pine County soil surveys, Keith Pohl and Mary Kay Anderson, respectively, were the local project managers. Greg Larson, Professor Jay Bell, UM, and Joe McCloskey, NRCS were lead members of the project team. Except where noted on the budget detail, none of the project partners or team members received LCMR funds.

VIII. DISSEMINATION. Digital data through the WEB Soil Survey <http://soils.usda.gov/survey> is available for 81 project areas. Soils data from counties not yet mapped and digitized is available to the public on a request basis.

IX. LOCATION: This project specifically addressed Aitkin, Beltrami, Crow Wing and Pine Counties and complemented USDA NRCS efforts in 26 additional counties.

X. REPORTING REQUIREMENTS: Periodic work program progress reports were submitted January 6, 2006; June 30, 2006 and January 2, 2007. This document, the final work program report, and abstract was submitted March 19, 2008.

IX. RESEARCH PROJECTS: Not applicable.

Attachment A: Budget Detail for 2005 Projects March 19, 2008 (FINAL)

Proposal Title: Soil Survey

Project Manager Name: Greg Larson

LCMR Requested Dollars: \$ 500,000.

County contributions: \$113,000

NRCS contributions: \$917,000

2005 LCMR Proposal Budget	<u>Result 1 Budget:</u> <u>LCMR</u>	Amount Spent (01/11/08)	Balance (01/11/08)	<u>Result 1 Budget:</u> <u>LCMR</u>	Amount Spent (01/11/08)	Balance (01/11/08)	<u>Result 3 Budget:</u> <u>LCMR</u>	Amount Spent (01/11/08)	Balance (01/11/08)	
	<i>Begin Crow Wing County</i>			<i>Begin Pine County</i>			<i>Accelerate Digital Soils Data</i>			
BUDGET ITEM										TOTAL FOR BUDGET ITEM
A GIS professional (Salary, inc. fringe est at 30%= ~\$90,000)										
Student interns (2 or more = ~\$37,500)										
Saint Mary's University (\$65,000)										
Contracts (Through UM for the above GIS professional, student interns and <i>Saint Mary's</i>)							189,500	189,500	0	189,500
Other contracts (Contract with each County for NRCS costs)	150,000	150,000	0	150,000	150,000	0				300,000
Space rental: NOT ALLOWED	X			X			X			X
Office equipment & computers (<i>maintain, repair and upgrade existing hardware</i>)							6,500	6,500	0	6,500
Printing (plotter paper and cartridges)							2,000	2,000	0	2,000
Travel expenses in Minnesota							2,000	2,000	0	2,000
COLUMN TOTAL	150,000	150,000	0	150,000	150,000	0	200,000	200,000	0	500,000