



The Auger



November, 2004

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The Newsletter of the Minnesota Association of Professional Soil Scientists

President's Message

By Roger Berggren, PSS,
MAPSS President

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The end of the year is fast approaching and so is my term as MAPSS President. As others have found this year has gone by fast. I would like to thank the MAPSS Executive Committee members, Past President James Balogh, President Elect Dennis Fuchs, Secretary Laurie Brown, Treasurer Douglas Miller and our Executive Secretary Suzanne D' Souza. Their time and effort is greatly appreciated and has made my job a lot easier. I also would like to thank all the MAPSS Committees for their work and contributions.

MAPSS Summer Tour was held in Rochester this year and it was a great tour and a big Thank You to all the people responsible for the event. It was interesting and informative for all those attending. It is tours like this that show how important soils information can be when making land use decisions.

Our President Elect Dennis Fuchs has been working on the MAPSS Winter Meeting to be held in St Cloud. Dennis has put together a very interesting and educational program. The Business meeting will also be interesting as usual, a couple of items worth noting that have been worked on over the last year are: survey results from Jim Arndt will be available concerning the direction MAPSS should be going, an update on the Preponderance Test that the MAPSS ISTS Committee has been working on. These along with other committee reports should generate some good discussion.

The University of Minnesota – Department of Soil, Water and Climate together with the Board of

Water and Soil Resources are working together to establish a voluntary wetland delineator certification program. Review materials and testing criteria are being developed for certification. Further information will be available in the near future by contacting Dana M. Wilson at (612) 625 – 8206 or the website

http://www.bwsr.state.mn.us/wetlands/wca/wetland_delineators.pdf.

I have enjoyed this last year as MAPSS President and look forward to working with the Executive Committee in the coming year. Remember to vote for MAPSS President and Secretary in the upcoming election. As members of a professional organization we all need to take an active part and need to promote our profession and expand our membership.

Review of the MAPSS 2004 Summer Workshop by Peter Hartman, PSS

The 2004 Summer Tour was in Rochester. Topics were the Decorah Edge, a hydrologic system similar to the Decorah edge involving a dense till as the confining layer, nitrogen movement in soil and corn production, the origin and distribution of loess in southeast Minnesota, the use of automated piezometers on MLRA104 till soils, the Alaskan home waste treatment system and flood control structures protecting Rochester.

**Remember to vote for the
2005 MAPSS Executive
Committee Members &
Pay your dues for 2005**

Review of the MAPSS 2004 Summer Workshop: Continued

Terry Lee gave an excellent power point presentation on the Decorah Edge. The Decorah Edge is a hydrologic system with an upper limestone aquifer, a shale confining layer, and a zone of focused recharge into the underlying St. Peter Sandstone. In the Rochester area the Decorah Shale confining layer occurs on structural benches on valley sides. Ground water from the upper aquifer flows at the surface on these shale benches and then reenters the ground as a zone of focused recharge. Processes acting on the “ground water” exposed in wetlands on the bench dramatically reduce the nitrate content of the water. Thus the water that reenters the St. Peter Sandstone is cleaner. About half of the drinking water in the Rochester area recharges at the Decorah Edge.

With the rapid growth of Rochester, areas of Decorah Shale soils are being developed. This is not only a problem because of the impact on the ground water recharge system, but also because of the wet clayey nature of the Decorah Shale soils there is a increase cost in building and maintaining infrastructure.

We visited four sites along the Decorah Edge. At the first site we saw a poorly drained clayey soil exposed by a road cut. Water was flowing all around this site. At the second site we saw a fen on a shale bench. We examined the soil with a hand probe and identified some of the wetland plants growing there. At the third site we saw a lot for sale on a shale bench with water flowing across it. At the fourth stop we looked at a large cut in the St. Peter Sandstone and discussed how rapidly water can infiltrate into it.

Next we drove across town to an area where George Poch showed us a site with an upper aquifer in loamy to sandy sediments, a confining layer of old dense gray till, and a recharge zone of old alluvial soils. At a cut Howard Hobbs told us what he knew about this old gray till. Then we looked at a wetland organic soil created by perching the ground water on the old gray till. Finally we discussed the alluvial soils where the ground water was being recharged and George Poch told us how the local development

was trying to accommodate the wetland and recharge areas.

After a great lunch we headed east to the Lawler Farm. At long term study plots Dr. Gyles Randall presented research on the relationship between nitrogen fertilizer rates, nitrogen movement in soil, and corn yields. The research showed there is an optimum nitrogen fertilizer rate for corn production considering both profitability and environmental concerns. We also discussed the data on nitrogen movement resulting from the last two years of extreme weather – last summers drought and this summer’s deluge resulting in tremendous movement and loss of soil nitrogen.

Beside a backhoe pit dug into a beautiful loess soil Peter Hartman presented a theory on the origin and distribution of loess in southeast Minnesota. At the time of the last glacial maximum the Des Moines lobe was about 35 miles west of the Lawler farm. On the Iowan Erosional Surface east of the glacier 200 mile an hour winds were blowing both sand and silt to the east. When the saltating sand encountered the higher relief landscape of the dissected part of the Paleozoic Plateau it was trapped, initiating the deposition of the suspended silts that were moving with the sand. East of this dissected border thick loess was deposited.

Next the tour went to Chester Woods Park. First, John Beck gave a presentation on the use of automated piezometers (set to record every 6 hours) to monitor saturation in MLRA104 till soils. The automated piezometer data gave a more accurate and detailed picture of zones of saturation through time in the soil compared to weakly or monthly manually read piezometers.

Next Terry Lee showed us the Alaskan System at the park care taker’s house. This system uses worms to digest the household waste.

Finally, on the top of a high dam overlooking a scenic reservoir, Joe Goplen gave us the history of the flood control project for Rochester, and a detail account of the construction of the Chester Woods Dam.

We returned to the Izaak Walton League Cabin, held the MAPSS business meeting and had a good supper.

University of Minnesota Soil Judging Team 2004

By Terry Cooper, Ph.D., PSS,
University of Minnesota

The U of Minnesota Soil Judging Team wants to thank MCPR for their contribution to the Region V soils contest. This year the 2004 Minnesota Soil Judges were: Andy Dossdall ES senior from Minneapolis, Teddi Seibring ES Senior from Minneapolis, Tristan Beaster ES Junior from Grand Marais, and Kelsey Larson NRES Senior from Minneapolis.

We left on Sunday morning and arrived in Norfolk Nebraska around 6:00. We practiced Monday and Tuesday. In the afternoon of Tuesday we had a tour of Ashfall Historic State Park that has a dig of animals that lived 8 million years ago. They were preserved in volcanic ash and are unique fossil specimens. We practiced Wednesday after the filled in pits were re-dug. It seems that backhoe operator was confused on when to fill in the practice pits. After re-digging they only slightly matched the official descriptions.

Thursday - Contest Day

We moved out at 7:40 am in a ten car caravan. The contest sites were on the north end of the community college farm. They were both in the same field and the sun was warming the cool 50-degree morning temperatures. There were some problems with the signs at the pits as a mix up on the number of horizons each site was allowed to have was a problem. Also, some of the instructions the pit monitors used were confusing to the students. We straightened everything out and started grading papers around 10:30. The coaches did quick walk around the pits and took lots of pictures and checked out the sites to make sure they fit the official keys we were using.

The Auger is the newsletter of the Minnesota Association of Professional Soil Scientists. It is composed of articles by or submitted by the MAPSS membership.

If you want to contribute articles, contact the temporary editor: James C. Balogh at mnsoils@aol.com

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MAPSS Officers and Committees

2004 Officers

President	Roger Berggren, PSS
President Elect	Dennis Fuchs, PSS
Past President	James C. Balogh, Ph.D., PSS
Secretary	Laure Brown, PSS
Treasurer	Douglas Miller, PSS
Exec. Secretary	Suzanne D'Souza, PSS (<i>ex officio</i>)

Membership Committee:

Dennis Fuchs, PSS – Chair, Al Giencke, PSS

Election Committee - 2004:

Al Giencke, PSS – Chair, Tom Neuenfeld, PSS

Professional Practice Committee:

Jim Arndt, PSS-Chair, Tom Fair, PSS, Patricia Wright, Kelley Bopray, PSS

Scholarship & Funding Committee:

James C. Balogh, PSS-Chair, Al Giencke, PSS, Jim Anderson, PSS

ISTS Committee:

Robert Whitmyer, PSS-Chair, Terry Bovee, PSS, Mary West, PSS, Mike Rutten, PSS, Peter Miller, PSS, Mark Wespetal, PSS

Education Committee:

Peter Hartman, PSS-Chair, Thomas Jackson, PSS, Kim Steffan, PSS, Howard Hobbs, PG, Jorja DuFresne, PSS

Award Committee - 2004:

Steve Stark, PSS – Chair, Jorja DuFresne, PSS

Soil Judging Team: Continued

The judges were finished at 11:30 and we moved on to lunch at Hoskins (450 Pop.) at the community center. We had sloppy joes and salads. This was the second meal the host provided and both were sloppy joes. The students surmised that Nebraskans just like them sloppy joes. In Sioux City, Iowa, a dish of this type is called a "loosemeat sandwich." We arrived at to the three afternoon pits at 12:40 and were underway by 1:00 pm. I had made a lucky draw and Minnesota was paired with Nebraska as the team to do sites 1,2,3, and sit out last. After Minnesota completed the three team contest sites we were able to leave for the motel around 4:40 pm. It was a long day in the soil pits, but the weather held off and it was a beautiful day on Thursday. Friday, on the way home, the rain and wind would have made soil judging a real battle.

The students all indicated they had a good time and their soil description skills have vastly improved after looking at 16 northeast Nebraskan soils. They certainly know a lot more about Nebraskan soils now. It was a very good experience for all involved in the contest. The five contest sites were: 1) MWD Haplustoll formed from glacial till with scl and cl textures; 2) MWD Haplustoll formed from glacial till with fsl and cl textures; Team Sites 3) MWD Haplustoll formed from loess with sicl and sil textures; 4) WD Ustifluent formed from alluvium with sil and fsl textures; 5) SPD Haplustoll formed from loess with sil textures. All the contest pits were similar to soils we had visited but the descriptions used for similar soils did not always match the practice site descriptions in terms of the cambic, argillic, and none subsoil horizons.

Kansas State was first in the overall team judging with 2043 and South Dakota State was second with 2035. Iowa State finished first in the team judging with 740. Minnesota finished in 6th place with 1770 in the overall event and 6th with 644 in the team contest. The Minnesota Judges worked hard during the week and with a different interpretation of a mollic here or cambic there and dropping the argillic horizons they found would have allowed them to finish higher. Their textures and horizon designations were very good for the contest pits.

Next fall South Dakota State University is hosting the contest in the Black Hills region near Deadwood South Dakota.

MAPSS Summer Business Meeting Minutes: July 30, 2004 By Laurie Brown, PSS, MAPSS Secretary

Call to order at 4:45 p.m. by President Roger Berggren with a special thanks to Steve Lawler, John Beck and Peter Hartman for organizing and hosting the summer workshop at Rochester, Minnesota.

Winter Business Meeting Minutes (12-5-03) were approved.

Announcement of new MAPSS member: Mike Sharp

Secretary's Report: Searching for two "lost" members; Humphreys and Riley.

Treasurer's Report: Balance as of 7-30-2004 is \$18,684.37. This is a \$3000.00 increase from the same time one-year prior, due mainly to CEU's. All of this money is in the MAPSS checking account; there was a discussion as to whether or not some of this money should be placed into a CD. Motion: The Executive Committee should look into whether or not we should put some money into a CD in order to make a little money. Motion: Tom Fait
Second: Howard Hobbs
Motion passed.

With one correction to the Treasurer's Report it was approved.

Executive Secretary's Report: The main activity at the Board level this year was to reapply for licensing. There are currently 94 licensed Soil Scientists, down slightly from last year. Licensees are no longer listed on the AESLISID Board website. There was discussion on how this roster needs to be on the website and accessible. There will be a Soil Scientist position open on the Board later this year, as Dawn Tracy's term comes to an end. People are encouraged to apply for the position, contact the Board for information on how to apply. Jim Balogh and Dawn Tracy have both served in this position.

Committee Reports:

Scholarship and Funding: No report

Professional Development (Jim Arndt): 18 survey results have come in to date, more are needed. Input is needed so the executive committee can steer MAPSS in the direction desired by its members. Survey results will be forwarded to the EC as soon as they are in and a report will be made at the winter meeting.

ISTS (Terry Bovey): This committee met in March and has been working on the "Preponderance Test." They had a field day in July where they tested a draft form developed by the ISTS committee, MPCA & UM people. Overall there was support for the Preponderance Test, it was generally felt that such a test would lead to better consistency in the field. At this time the test is still in draft form and there are plans to try it

out in the Anoka sand plain, near Wilmer and also in northern MN. There may be a need for a different or modified set of rules depending on what part of the state you are working.

There was discussion on whether or not to design the Preponderance Test form so ISTS installers can use it. The general consensus was no, that would “dumb it down” too much. The Preponderance Test should be designed for use by Professional Soil Scientists and provide a consistent manner of describing redox features in the field. It should also tie observations to the landscape and how water moves through the landscape. There will be further discussion at the winter meeting regarding this topic.

This committee is also working with the MPCA in rewriting their redox rules as associated with ISTS. These rules need to be rewritten by 2006.

Membership (Dennis Fuchs): Dennis gave a MAPSS presentation to approximately 20 students at the International SWCS conference. He reported that interest is growing among students in agricultural and soils related careers. Dennis encouraged all MAPSS members to get involved with local groups and schools and promote MAPSS.

Dennis announced that the winter meeting would be held in St. Cloud on December 3rd. Everyone should bring a colleague to the meeting with them. Currently there are about 90-100 MAPSS members.

Education (Peter Hartman): In June the Big Back Yard at the Minnesota Science Museum opened. In the Big Back Yard (about 1.2 acres) there is:

1. The Science House – a 0 emission building, solar powered (photovoltaic roof) and heat pumps for addition heating or cooling. In the Science House there will be equipment like microscopes and digital microscopes which can be used to examine soil micro-fauna. The soils component in the Science House is still being set up.
2. A 9 hole golf course, 6 holes devoted to earth surface dynamics and 3 holes to watershed issues. (There is another project – The New Ulm Project that has a similar golf course theme with soils content – see www.puttinggreen.org .
3. Interactive sand and water activities including: a stream table with braided river, a flume with turbidity current, and a dam removal activity.
4. Prairie maze (planted in early June)
5. Panning for gems activity that has a sluice and people buy a bag of sand that contains different minerals and fossils.
6. 3 rain gardens and highland area
7. The landscape itself of the Big Back Yard will demonstrate Permaculture (permanent agriculture) for the urban areas and an Urban Food Web. There are plantings of fruit trees

(including apple and service berry), strawberries and blueberries.

There will be long term soils activities to monitor surface temperatures and soil development. The details of the soil monitoring activities are still being worked out. During this first year activities will be tried to see how they work out. The idea of displaying soil profiles is still being discussed. They would like to have a terrarium.

I encourage everyone to get over to the Science Museum and check out the Big Back Yard with the intent of seeing what other soil activities could be developed.

Jim Roe is looking for is pictures of soil microbes. If anyone has soil microbe pictures or knows of a good source, you can either contact me or Jim Roe 651-5015827, jroe@umn.edu.

Newsletter: Send any articles for the next newsletter to Jim Balogh by October 15th. We still need a new editor, if you're interested contact Roger Berggren.

Smithsonian Update: MAPSS will be involved in the final selection for a State Soil for the Smithsonian exhibit. Currently Lester is in the lead. MAPSS has met the \$1000 so we will have representation at the Smithsonian exhibit.

Old Business: Bylaw #2 and an Endowed Fund: get final comments to Jim Balogh. There will be further discussion at the winter meeting.

New Business: There is a new Wetland Certification program in the works based out of the UM. Greg Larson of BWSR and Jay Bell are heading it up. It is believed that the certification will eventually lead to licensing.

The summer tour of 2005 will be in the Duluth area. The Election Committee will be looking for people to fill the President and Secretary positions.

Soil Scientist of the Year Committee will be looking for nominations. Criteria for selection and other information will be in the fall newsletter.

Volunteer Needed for the Auger Editor

The Auger needs a new editor. James C. Balogh will act as temporary editor through the end of 2004. All of those interested in volunteering for this position should contact **Roger Berggren**, roger.berggren@co.mcleod.mn.us.

MAPSS: 2004 Winter Technical Workshop & Business Meeting

Managing Soil to Influence Environmental Outcomes

Friday, December 3, 2004
8:00 am – 4:30 pm

Best Western Kelly Inn, St. Cloud, Minnesota
University B Room

For soil scientists the learning process continues throughout their careers. We need to stay current with the latest research and strategies in soil science to provide the most accurate data to our clients.

- How to use remote sensing for soil loss determinations.
- Do modifications to agricultural drainage systems influence water quality?
- What are the implications from the changes in climate trends?
- Can you manage soil organic matter to improve water quality?
- Will geological mapping help protect groundwater resources?

Also, founding MAPSS members Dick Rust and Bud Finney will join us and share with us some of the history and past challenges of the organization.

Continuing Education Credits: 6.0

Topics & Speakers:

MAPSS: How it all got started!

Dick Rust & Bud Finney

Role Of Geological Mapping In Groundwater Management

Harvey Thorleifson
U of MN, Minnesota Geological Survey

On Climate Trends, Climate Detection, and Climate Prediction: What Are Some Implications?

Mark Seeley
U of MN - Department of Soil, Water and Climate

A Paired Watershed Approach to Improving Water Quality

Dave J. Mulla et al
U of MN - Department of Soil, Water and Climate

Airborne Laser Scanning for Riverbank Erosion Assessment

Satish Gupta
U of MN - Department of Soil, Water and Climate

Rethinking the Design and Management of Drainage Systems to Meet Water Quality Objectives

Gary R. Sands
U of MN - Biosystems & Agricultural Engineering

Managing Soil Organic Matter: The Key to Air and Water Quality

Donald Reicosky
USDA-Agricultural Research Service
North Central Soil Conservation Research Laboratory

A MAPSS business meeting will be held during the conference. All MAPSS members are expected to attend this session.

Registration

Detach this part of the brochure and return with fees to the MAPSS Treasurer Douglas Miller. Please register by November 19, 2004 to avoid a late payment and to help with planning.

Name: _____

Address: _____

City, State: _____

Zip code: _____

Telephone or e-mail: _____

Fees:

MAPSS Members: \$50.00 _____

Non-MAPSS Members: \$65.00 _____

Student Members: \$20.00 _____

New Member/First Meeting: \$0 _____

Late Reservation (after November 19, 2004)

MAPSS Members: \$65.00 _____

Non-MAPSS Members: \$80.00 _____

Optional CEU Fee: \$10.00 _____

See explanation of this optional fee on following page.

Total Enclosed: _____

Make checks payable to MAPSS

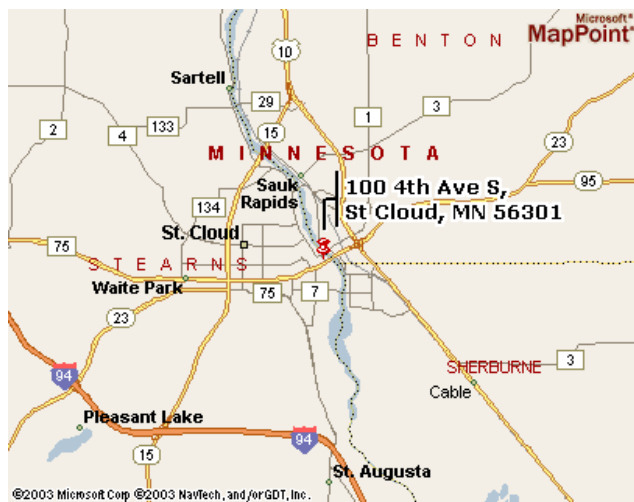
Send registration and check to:

MAPSS 2004 Winter Meeting
Mr. Douglas Miller
26850 Aberdeen Ave.
New Prague, MN 56071

Education Center Information

The MAPSS 2004 Winter Meeting is located at the Best Western Kelly Inn (University B room), St. Cloud, Minnesota.

The Best Western Kelley Inn is located on 100 – 4th Avenue South in St. Cloud, just east of the Mississippi River and north of Minnesota Highway 23. See map below:



Optional CEU Fee

CEU are obtained without paying the \$10 CEU fee. However, your attendance at the conference will be certified by MAPSS only by paying this fee. MAPSS will certify and maintain a record of your attendance, which will be provided to licensing boards upon your request. All other attendees must maintain their own records.

MAPSS will not certify your attendance without paying this fee.

Winners of the "Soil Scientists at Work" Contest

The two mystery soil scientists in the last issue of the Auger were Bob Whitmyer and Jim Balogh. Steve Stark, Gary Rathbun, Laurie Brown, Charles Saari, and Mark Wespetal correctly identified the "culprits." Spectrum Research, Inc will make a ten dollar donation in each winning contestants name to the Smithsonian Soils Exhibit.

Visit your MAPSS
Website at
www.mnsoilscientist.org

E-mail us your
comments and
suggestions at
mapss@mnsoilscientist.org.

MAPSS 2005
Summer Workshop

Duluth, Minnesota:
It's a Great Lake

SOIL SCIENTIST OF THE YEAR NOMINATION

MAPSS annually honors one of its colleagues who has made a significant contribution to the practice, enhancement, or understanding of soil science. A brief description to support the nomination is required.

Please send your nomination to: Steve Stark, c/o MAPSS, 2400 Childs Rd., St. Paul, MN 55106

Include with the nomination: 1) Your Name; 2) The Nominees Name; 3) A brief summary of the nominee's contribution or performance as described below.

I. SOIL SCIENTIST OF THE YEAR

MAPSS will annually recognize a member as "Soil Scientist of the Year". The individual will be honored for some special achievement of accomplishment during the previous year (Nov. 1 - Oct. 31).

The Awards Committee will review all nominations and make the selection per the rules and guidelines with final approval by the Executive Committee. Full members in good standing may nominate any member of MAPSS for this award.

Rules and Guidelines:

1. Eligibility - All MAPSS members - Full and Associate - in good standing with the exception of the current members of the Awards Committee and members named as Soil Scientist of the Year within the last 5 years.
2. Provide detailed information for items listed under Number 3 below and submit to the chairperson of the Awards Committee by November 20 of each year.
3. Provide reasons and supporting documentation for award:
 - Candidate name
 - Job title
 - Location
 - Principle duties
 - Special achievements or accomplishments (50-80 points). A statement of 300 words or less supporting the candidate's achievements in developing a better understanding of soil resources, enhancing better uses of soil resources, etc. should be included.
 - Service to MAPSS (10-20 points).
 - Professional/ technical society activities (5-10 points).
 - Continuing education (0-10 points).
 - Civil and humanitarian activities (0-10 points).
 - Awards and honors (0-5 points)

(Numbers in parenthesis are a point guide used in reviewing nominees.)
4. The candidate selected as Soil Scientist of the Year will be honored at the Annual Meeting of MAPSS.