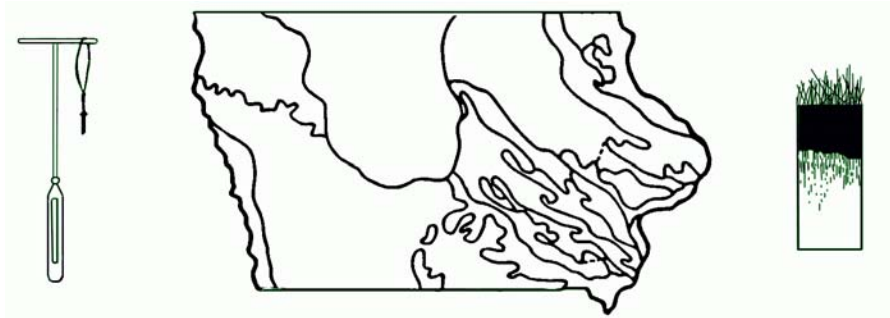


# THE PROFILE

PROFESSIONAL SOIL CLASSIFIERS OF IOWA NEWSLETTER

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## MESSAGE FROM THE PRESIDENT

Ryan Dermody

The Professional Soil Classifiers of Iowa will meet on Saturday, March 7, 2008, in the Agronomy Building at Iowa State University (Room 2104). The meeting will start at 10:00 am sharp! We will be electing new officers.

### Special thanks to Jim Carroll

At last fall's October 4th meeting of PSCI in Ames, Jim Carroll, an engineer with Iowa's USDA Rural Development, Community Development Department and private soil consultant, shared some of his experiences in working in the field of private septic systems as it relates to soils and soil interpretations. Iowa Public Health Departments have in the past relied mainly on percolation tests to determine a soil's ability to adequately filter sewage effluent. A few years ago Iowa began allowing the use of on-site soil evaluations to make that determination mainly due to the erroneous results collected from perc tests, particularly in loess soils with high fine silt contents and to some extent due to poor perc testing procedures. Some counties began using on-site soil evaluations, some exclusively and some along with the standard perc tests, but many counties lacked people properly trained to do on-site evaluations. It is my understanding that Iowa intends soon to require on-site soil evaluations in place of percolation tests and some training sessions have already been conducted. It would seem logical for our organization to have input into that training and we could offer soil tours and CEU's for continued soils training as we did at our SW Iowa meeting and field tour in September of 2007. This also provides an opportunity for our members to do private on-site soil evaluations for private septic systems.

A special thank you to Jim Carroll for enlightening us on this new opportunity.

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### Minutes of the Saturday October 4, 2008 Professional Soil Classifiers of Iowa meeting:

Meeting was called to order by President Ryan Dermody at 10:00 in Room 2104 of the Agronomy Building, Iowa State University, Ames, Iowa.

In attendance were Ryan Dermody, Tom Gust, Charles Fisher, Robin Wisner, Dr. Lee Burras, Jim Carroll, Dr. Gerald Miller, Jessica Veenstra, and Dr. Yu. G. Chendev and Mrs. Chendev.

There was no official secretary's report from the March meeting, however

Ryan Dermody presented a synopsis of that meeting.

Jessica Veenstra, Treasurer, provided a financial report of \$4067 in the checking account and \$3943 in the savings account. There has been very limited activity with the exception of the Iowa FFA finally cashing the \$400 check they received last year for the high school soil judging contest contribution from PSCI. Gerald Miller made a motion that the treasurer's report be accepted and Charles Fisher seconded that motion with all members approving. Lee Burras and Gerald Miller discussed the issuance of a new check in the amount of \$400 for the 2008 FFA funds for the national high school soil judging contest to be held in Oklahoma. The amount and continued direction of this contribution was approved by the PSCI members in 2007.

Ryan Dermody introduced Jim Carroll, USDA Rural Development, Community Development Section and also a private soil consultant for private septic systems. Jim presented information concerning the latest move by Iowa health departments and Iowa Code 69, to allow on-site soil evaluations for private septic systems instead of or in addition to percolation tests depending on individual county requirements. Jim reiterated the lack of confidence in the percolation test over time and extensive research as the reason for the change. Jim provided the format being used for on-site soil evaluations and the reasons for each step in the process and briefly discussed the most common types of systems being used in Iowa. Jim stated that most septic system failures are not the result of poor soil properties but rather such things as excessive household water usage, construction problems, sump pump discharge, etc. He also mentioned that as of July 1, 2009, all homes in Iowa will be required to have a "time of sale" inspection of the existing septic system. Inspection of the systems will require that individuals will need a half day training session to complete this type of inspections and Iowa DNR will provide that training. Training on on-site soil evaluations has been provided in many areas of the state by the DNR. Jim stated that many private consulting engineers are beginning to end their practice of doing percolation tests and not becoming involved in on-site soil evaluations because of the lowered costs of providing the information to clients. Jim said very few people are adequately trained to do on-site soil evaluations.

Dr. Burras introduced Dr. Yu. G. Chendev, Doctor of Geographical Sciences, Professor of the Department of Natural Resources Use and Land Cadastre, Belgorod State University of the western and southern area of Russia. Dr. Chendev is in the U.S. for about six months and is working with Iowa State University Agronomy Department and Mike Sucik USDA, NRCS on soil research, mainly in Johnson County. Dr. Chendev briefly discussed his transitional soils research involving Alfisols that become Mollisols over time with climatic and cultivation changes. Dr. Burras asked each member present to introduce themselves and our backgrounds so that Dr. Chendev could potentially utilize our field experience with the soils of Iowa.

Jessica briefly told the members about her doctoral program research in; how soil profiles have changed over the past 50 years by doing comparisons of known profile sites. She stated that overall, it appeared that depths to redoximorphic features have dropped by about 20 cm on average and the thickness of mollic epipedons has increased on average. She also added that the depth to carbonates has dropped significantly statewide. Ryan asked Jessica to make a presentation of her research to the PSCI members at next spring's meeting.

The need for supplying soil texture kits was discussed and the members encouraged to provide a list of purchasers and needed number of kits to Ryan so he can discuss the needs with Doug Oelmann.

Ryan stated that he will work on a newsletter "Profile" for next spring's meeting announcement and election of officers. Anyone willing to provide an article for that newsletter should contact Ryan.

Ryan Dermody closed the meeting at 11:20 AM. The members thank Dr. Miller for providing the meeting room.

Mark J. Minger  
Secretary

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## **TWENTY-SEVENTH ANNUAL SOIL JUDGING CONTEST HOSTED BY ISU:**

By Jerry Miller

The Diamond Trail FFA Chapter at Monroe beat 26 other high school teams to win the 2008 FFA State Soil Judging Contest October 11. This year's event marked the 27th year the soil judging contest was hosted by Iowa State. The second through fifth place teams were: Clarinda, Montezuma, Manson, and Orient. The top five teams are eligible to represent Iowa at the International Land Judging Contest next May in Oklahoma. The contest was coordinated by Gerald Miller, Iowa State University, and Alan Spencer, Iowa Department of Education. The judges for this year's contest included Jason Steele and Leland Camp, Soil Scientists, NRCS, Erik Christian, ISU Agronomy, and Richard Pope, ISU Entomology. Other Iowa State faculty and staff who helped with the contest included Tom Fenton, Angela Rieck-Hinz, Brad Miller and Brent Pringnitz, ISU agronomy. Matthew Streeter, a member of the ISU Collegiate Soil Judging Team assisted with the contest. In addition to the Professional Soil Classifiers of Iowa sponsorship other sponsors included the Iowa Corn Promotion Board, the Iowa FFA Foundation, the Iowa Department of Education, the USDA Natural Resources Conservation Service, the ISU agronomy department, the College of Agriculture and Life Sciences, and ISU Extension. PSCI sponsorship included a check for \$400 to support travel for the top five team's participation in the international contest.

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## **Collegiate Soil Judging Contest in northern Minnesota, fall 2008**

By Jonathan Sandor

The student soil judging team from Iowa State University brought home a first place finish from the fall 2008 American Society of Agronomy Region 5 Collegiate Soil Judging Contest held in northern Minnesota. Fifty two students from eight Midwest university teams participated in the contest. The overall win was buoyed by a first place finish in the team judging portion of the event and a second place finish by junior Nathan Anderson in the individual competition.

Soil judging contests allow students to gain direct experience with soils and land use in the Midwest and other regions. The 2008 regional competition was hosted by the University of Minnesota from September 21-26 at the Cloquet Forestry Center near Duluth. At practice and contest sites, students wrote detailed soil descriptions, classified soils according to the U.S. soil taxonomy, determined geological characteristics of the sites, made topographic and hydrologic measurements, and interpreted soil properties for agricultural and urban land use. The students studied a variety of glacial-derived landscapes and soils, and especially enjoyed working with Spodosols and a Histosol. They also learned a great deal from a lecture by Howard Hobbs of the Minnesota Geological Survey about the Quaternary history of the Lake Superior area.

The Iowa State team members are Nathan Anderson, Aurelia; Sara Linn, Correctionville; Jenny Richter, Afton; Leah Ruff, Farmersburg; Eric Schultz, Lake View; Matthew Streeter, Ottumwa; and Brad Yeager, Delta, Colorado. Jon Sandor, professor of agronomy, and graduate student Jessica Veenstra, coach the team.

The top four teams, including Iowa State University, Kansas State University, South Dakota State University, and the University of Minnesota, qualified for the National Collegiate Soil Judging Contest. The National Contest will be hosted by Missouri State University in Springfield, Missouri from March 29-April 3, 2009.



# Eastern Iowa's Flood of 2008

By Mark Minger  
Retired NRCS Soil Scientist

On August 8, 2008, Ryan Dermody, NRCS Soil Scientist, Waverly (then Fairfield) submitted a proposal for a Flood Plain and Stream Terrace Project for MLRA 108C and 109.3, based on the guidance of the National Soil Survey Handbook Section 618.7. Part of the purpose of this proposed project was to determine the extent of the 2008 flooding of the Cedar River and Iowa River through the MLRA's and its relationship to the soil map units that were subsequently flooded. It was assumed that many soil map units that were never previously flooded and did not appear on USDA soil interpretation tables as having flood potential, had been flooded to some extent by the June flood event, in both watersheds. It was also determined that flooding potential as well as flood duration for affected soil map units could potentially need amending and in some instances editing changes may need to be made to soil survey maps. As an ACES employee under contract with USDA NRCS and as a resident of Cedar Rapids hard hit by the 2008 floods, Ryan asked me, and I felt privileged to begin the field work for the proposed study. In the essence of time following the actual period of flooding which began during the week of June 8th, and in an attempt to support the need for this study, field work for this project actually began in mid-July 2008 and continued on a near weekly basis through November 2008.

Published soil survey reports were available for the entire area; however, many of the surveys were published in the 1970's and may be considered in need of a survey update. All of these soil surveys with the exception of Cedar and Iowa counties were surveyed on a county basis rather than the MLRA concept. Cedar County was recently updated and some soil map units reflect changes to soil interpretations for flooding and flood duration that were not available in the older soil surveys. The published soil surveys of each affected county were utilized as base maps to record flood extent. Soil interpretation tables from Web Soil Survey and the USDA eFOTG websites were utilized to develop a spreadsheet for current flooding potential and flood duration (when provided). Linn County and Johnson County purchased flood peak aerial photos of their respective counties which were beneficial in determining flood extent. Linn County provided a GIS layer to view flooded soil map units as derived from the aerial photos.

Data from all counties involved was mainly obtained from road and field observations of the flood extent. These observations began on the Cedar River watershed soon after the flood waters receded. Throughout most of the Cedar River watershed, cultivated crops were replanted as soon as field conditions allowed and new vegetative growth and periodic rainfall was already masking much of the evidence of flood extent. The observations on the Iowa River watershed began at the conclusion of the review of the Cedar River since the majority of the flood plain remained flooded for an extended period and crops were, for the most part, not replanted. Digital photos were taken, GPS readings and field notes were collected from throughout the study area and conditional use maps were created using DNR interactive maps as a base, to show the extent of flooding and flood patterns across the watersheds. The base maps for these conditional use maps were generated from the IA DNR Interactive Mapping website and provide supportive data that could be utilized to edit soil survey maps, as well as for continued study with this project. In addition, an excel spreadsheet was created to maintain a record of flooded soil map units within each watershed regardless of the flooding potential provided in the soil interpretations for that particular soil map unit.

Several field office staffs located within the watersheds provided their knowledge of the flood extent through their particular county. Some individual landowners and/or residents of homes along the rivers were interviewed to determine the flood extent at that location and to "hear their stories of the flood's affect on them". The forester for the Amana Society in Iowa County provided copies of his personal flood assessment of the Amana properties along the Iowa River. It may be noted that the Army Corps of Engineers controls the pool level of the Coralville Reservoir on the Iowa River and although the reservoir flooded about 5 feet above the designated peak pool level, the level of the reservoir prior to the flood of 2008 may have been instrumental in determining the final peak level.

The field observations of flood extent in both watersheds indicated a large number (55 percent) of the soil map units adjacent to the rivers had been considered to be non-flooded soils prior to June 2008. In addition, some strongly sloping to steep soil map units were flooded along their lower side slopes and foot slopes where the river valleys narrowed significantly between rugged loess covered uplands or limestone controlled landscapes. Those marginally flooded soil map units may need to be assessed prior to any changes to soil interpretation data because of their landscape position and the rarity of the 2008 flood event. In some instances improper line placement of the soil map unit on the compiled soil survey map may have contributed to the flooded observations of a particular soil map unit, and these map units would not normally flood even with this significant flood event. These soil lines may need editing to improve accuracy for all interpretations. Field notes were kept on as many of the accessible sites as possible.

Several observations can be made from the initial flood study:

1. The pattern of flooding was one of deep, rapidly moving flood waters through steep narrow loess or limestone controlled valleys followed by widespread flooding as the waters fanned out downstream from the constricted areas causing massive erosion and destruction of property. The pattern repeated itself no less than 6 times on the Cedar River between Cedar Rapids and Columbus Junction and no less than 3 times on the Iowa River between Iowa City and Oakville (Louisa County).
2. The natural as well as established wetlands that exist in both watersheds, particularly those on the Cedar River south of the Interstate 80 and those along the entire extent of the Iowa River absorbed a tremendous volume of flood waters. Had these wetlands not existed, the flooding would have been even more significant and destructive to the landscape. It can be assumed that the addition of new wetlands to the watersheds would greatly improve the absorption of water for future flood events, potentially reducing the devastation to the landscape.
3. The introduction of flood control measures such as levees as protective measures for urban areas such as Cedar Rapids, may have the potential to create additional constricted areas in the watersheds. These new levees could back deeper floodwaters into the areas upstream from the levee and in turn create increased velocity and flood coverage downstream from the levee. The addition of wetland areas upstream from urban areas may on the other hand be a viable alternative to reducing the amount of flow through the urban area.
4. It may be necessary to conduct soil transects across soil map units that were flooded but had not been evaluated as having flood potential prior to this flood event. Such transects could collect data needed to determine: (a) whether the soil type meets the criteria for the surveyed series or whether a new or different soil series needs to be correlated for the area, (b) whether additional components need to be correlated for the surveyed map unit, and/or (c) whether a change in map unit number would be sufficient to indicate to the survey user which soils have the potential for flooding in the watershed areas.

In summary, this initial study of the flooded map units of the Cedar and Iowa rivers may be the only collection of data of this type and may result in supportive data for use in future soil interpretations for selected soil map units. If similar data was collected on soil map units from other areas of the impacted MLRA's, it could potentially be entered into the NASIS database as reference material.

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## Next Newsletter

Please send your news items for the next newsletter to Ryan Dermody, P.S.C.I.,  
E-mail to [ryan.dermody@ia.usda.gov](mailto:ryan.dermody@ia.usda.gov).

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## DUES NOTICE

Please send your 2009 dues\* to Jessica Veenstra. Jessica's address is 1025 Agronomy Hall, Iowa State University, Ames, IA 50011. If you prefer, you can also pay your dues at the meeting. Otherwise, please fill out the attached form and return it with your payment.

Thank you in advance for your dedication and participation in the Iowa PSCI.

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Your Name: \_\_\_\_\_

\$10/person dues enclosed.