National Cooperative Soil Survey Newsletter

November 2001
Issue 17

In This Issue—

Editor's Note

Issues of this newsletter are available on the World Wide Web (www.statlab.iastate.edu/soils/soildiv). Click on NCSS and then on the desired issue number of the NCSS Newsletter.

You are invited to submit stories for future issues of this newsletter to Stanley Anderson, National Soil Survey Center, Lincoln, Nebraska. Phone—402-437-5357; FAX—402-437-5336; email—stan.anderson@nssc.nrcs.usda.gov.

The Battle of Holguin Hill

By Alan C. Terrell, Soil Data Quality Specialist, Natural Resources Conservation Service, MO9, Temple, Texas. Background information by Bill Johnson, Soil Scientist, MO8, Phoenix, Arizona.

Background

An e-mail message from Bill Johnson to Russel Barmore, Kenneth Adams, and Hayes Dye.

I just had to share this e-mail with you. It is classic Terrell. You need a little background information to fully appreciate it.

When the revised Thermic ORTHENTS were posted for peer review, "Young Bill" Svetlik questioned the classification of Holguin. He suggested it be classified as a HaploCAMBIDS. Terrell said that based on the $CaCO_3$ described it would probably make a HaploCALCIDS. Yesterday Lynn Loomis wrote Terrell an e-mail to say that he found some old lab data for Holguin and that it didn't have a calcic. I wrote Terrell and asked him if he was finally ready to concede that "Young Bill" was right. This e-mail is Terrell's response. Enjoy.

"Old Bill"

The Battle

An e-mail message from Alan C.Terrell to Lynn Loomis, Jerry Rives, Rusty Dowell, and Dale Sprankle.

Gentlemen (loosely speaking),

The classification of the subject soil series has come under attack. I'm marshaling the troops (you guys) to help in the battle that is brewing. The stakes are high. The outcome is uncertain.

Holguin is currently on a hill named *Torriorthents*. We have held this position for several years now, since 1997 to be exact. This hill has been attacked by battle-hardened, highly trained commandos from the west. They fired the first round in a surprise attack, and renamed the hill *Haplocambids*.

In a reconnaissance of the battleground, I found an opening, a weakness, in the armor of the attackers. I counterattacked and renamed the hill *Haplocalcids*.

Meanwhile, back at the field headquarters, General Loomis, the field general in charge, received some counterintelligence information from Headquarters in Lincoln. The calcium carbonate relied upon to sustain the battle and hold the hill was not sufficient to stave off an anticipated counterattack. I sent a communication out that things looked bleak on the front lines, and that holding Haplocalcids hill was going to be costly, and victory was not certain.

Our battle plans need revision, and we need reinforcements. General Loomis, I think that we should hold Haplocalcids hill, but to do so will require further intelligence and supplies. I suggest you send out a small, but elite group to the battlefield. Revisit the battle site, take notes, make observations, and bring samples from the hill back to the field headquarters. I would suggest you run local tests on the samples, paying particular attention to the calcium carbonate percentages. Call me at general Headquarters in Temple and we can covertly discuss sampling procedures, as these electronic lines of communication may not be secure.

Terrell gets reinforcements. All General Loomis could spare was part of a soldier, one rifle, and a box of Twinkies. (Photo courtesy of Intelligence Headquarters, Lincoln Nebraska).

With this newly gathered intelligence, we will either lay permanent claim to the hill, and declare victory, or retreat, living to fight another day. General Loomis, I know you have other battles to fight, and I leave timing to your discretion. However, a long delay just puts off the inevitable battle that must be fought.

Thanks for your help, and good luck men.

ACT ■

New Tool Provides Access to Soil Survey Maps and Data

From "USDA NRCS Technology News," September 2001.

The Soil Data Viewer (SDV) has been developed as a companion tool to the Customer Service Toolkit (CST). SDV provides access to the soil survey database for processing and displaying soil data and information through a list of interpretations, soil interpretive groups, and physical and chemical soil properties. It can be used as a stand-alone tool independent of CST and in either GIS or non-GIS mode.

SDV is an easy-to-use tool for geospatial analysis of soil information for resource assessment and management. An extension to ArcView, it allows the user to easily create tabular reports or soil-based thematic maps and offers several methods for processing map unit components. SDV shields the user from the complexity of the soil database and incorporates rules for the appropriate use of soil data.

Version 3.0 of SDV, to be released soon, uses the new SSURGO Version 2 data format, which includes soil data and interpretations generated by NASIS (National Soil Information System). States are beginning to generate and certify SSURGO data sets in this format.

For more information and technical assistance, contact:

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Soil Data Viewer 3.0

From "USDA NRCS Technology News," November 2001.

The NRCS Soil Survey Division is proud to announce the release of SOIL DATA VIEWER 3.0. A version of Soil Data Viewer designed for other agencies, partners, and public and NRCS non-CCE computers is available as a downloadable ARCVIEW extension or on CD-ROM. This version of Soil Data Viewer will install on Windows 95, 98, NT, and 2000 Professional operating systems. A Web-downloadable version and user guide can be found at: http://www.itc.nrcs.usda.gov/soildataviewer/updates.htm, under Stand-alone Soil Data Viewer 3.0.

Soil Data Viewer 3.0 is designed to work with the new SSURGO Version 2 data structure and will not work with previous SSURGO products. The new SSURGO data set includes SSURGO spatial data and the new SSURGO version 2 soil attribute data. Complete SSURGO version 2 data sets containing both the spatial and new attribute data are available on a limited basis. These updated SSURGO data sets will become more commonly available as previous versions of SSURGO products are reattributed and certified for distribution.

Users needing pre-certified SSURGO version 2 attribute data should contact the state soil scientist responsible for the respective area and request a NASIS 5.0 data export. The contact information for the NRCS state soil scientist can be found at http://www.statlab.iastate.edu/soils/soildiv/personnel/sodir.html. Upon receiving the data export, the user will link the spatial and attribute data using the procedures described in http://nasis.nrcs.usda.gov/products/updatedbf.htm. This process will create an interim SSURGO version 2 data set that can be used with Soil Data Viewer.

For more information and technical assistance, contact:

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Technological Change: The Psychology of Trying Something New

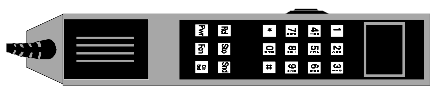
By Berman Hudson, Senior Soil Scientist, USDA, Natural Resources Conservation Service, Lincoln, Nebraska.

It took about 50 years for half the school districts in the U.S. to adopt kindergarten. In comparison, it took only 5 years for nearly all school districts in the U.S. to adopt the "new math." Some innovations are adopted much more quickly than others. Furthermore, differences in the acceptance rates for new technology are both understandable and predictable. Based on more than 50 years of study, researchers have identified five characteristics that determine how quickly a new technology will be adopted and if it ultimately will be successful. These characteristics are relative advantage, compatibility, complexity, trialability, and observability.

Relative advantage is the extent to which a new technology or idea is perceived to be more beneficial than the technology or idea it is designed to replace. Innovations that have a strong relative advantage, such as hybrid corn, will be adopted rapidly and soon will diffuse throughout a population. In contrast, innovations that have only a small relative advantage will be adopted slowly if at all. For example, a few years ago it seemed that watches with back-lighted displays might totally replace those with moving hands. However, that did not happen. A sufficient number of people simply did not see a relative advantage in having the time displayed numerically to the nearest second.

Compatibility is the degree to which a new technology or idea is consistent with the lifestyle, values, attitudes, existing infrastructure, and needs of potential adopters. Even if an innovation has a high relative advantage, it might be a poor candidate for adoption if it rates very low in compatibility. For example, rice growers can easily adopt a new variety of higher yielding rice, but they may resist the idea of giving up rice production and going into the catfish business.

Complexity is the relative ease with which potential adopters can understand and implement a new technology or idea. For example, most Americans use calculators, ATM machines, and cell phones because, although the underlying technology is complex, they are extremely simple to use. A much smaller number of people use global positioning systems (GPS), partly because they are still too complex at the user interface.



Trialability is the extent to which potential adopters can implement something a little bit at a time. For example, farmers are more likely to adopt a new crop variety if they can try it out in a few small areas until its advantages are proven. This option allows them to try the new technology with minimal risk. All other things being equal, innovations that rank high in trialability are likely to have a high rate of adoption and diffusion throughout a population.

Observability is the extent to which the relative advantage of a new technology can be seen. For example, an innovation that shows an immediate and pronounced positive effect might be adopted rapidly. In contrast, an innovation with benefits that are hard to measure or that do not show up for several decades would be adopted very slowly if at all.

The five characteristics offer a quick but effective way to screen a new technology and determine its relative potential for adoption. They also can be used to identify potential barriers to adoption. For example, if a new technology is rated high in every category but observability, then marketing efforts should focus on overcoming this weakness. You can learn more about this topic by reading the book *Communications and Innovations—A Cross-cultural Approach*, 2nd Edition, by Rogers and Shoemaker. ■

Photo courtesy of Dr. Nettleton.

W. Dennis Nettleton Retires

By Dr. Carolyn G.Olson, National Leader for Soil Survey Investigations, National Soil Survey Center, Natural Resources Conservation Service, Lincoln, Nebraska.

W. Dennis Nettleton, Research Soil Scientist on the Soil Survey Investigations Staff at the National Soil Survey Center in Lincoln, Nebraska, retired from NRCS on October 1, 2001. Following military service, Dennis began his career as a student trainee for the Soil Conservation Service in 1956.

Upon completion of a Ph.D. at North Carolina State in 1965, Dr. Nettleton was assigned to the SCS Riverside Laboratory in Riverside, California, as a research soil scientist. In 1976, Dennis moved to Lincoln, Nebraska, following the combining of three research laboratories into the present central location.

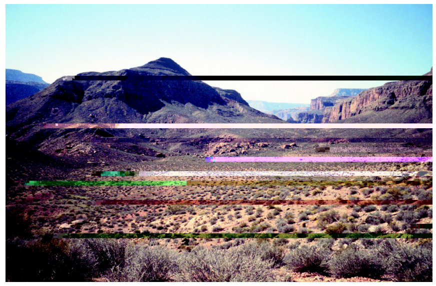
Dennis is internationally known for his work on the micromorphology of soils, soil genesis, arid soils, and paleosol classification. He has provided assistance and has been a liaison to NRCS field offices for a number of years. He will continue his interests as a volunteer for NRCS. ■

Soil Quality Information Series Adds Rangeland Soils

From "USDA NRCS Technology News," October 2001.

The popular Soil Quality Information Sheet series has been expanded to cover topics relevant to rangeland soils. The series describes soil properties that change in response to management and provides information related to several indicators used in rangeland health assessments. The information sheets support rangeland inventories and monitoring and provide management strategies for planning purposes.

The information sheets are intended for as wide an audience as possible. The information is primarily intended for use in the planning process; however, it can also be used as an educational resource for teaching about soil quality on rangeland. These information sheets are a collaborative effort of the Soil Quality Institute (SQI), Grazing Lands Technology Institute, and National Soil Survey Center, Natural Resources Conservation



Service, USDA; the Jornada Experimental Range, Agricultural Research Service, USDA; and the Bureau of Land Management, USDI.

The Rangeland Soil Quality Information Sheet titles include: "Introduction," "Indicators for Assessment and Monitoring," "Aggregate Stability," "Compaction," "Infiltration," "Organic Matter," "Physical and Biological Soil Crusts," "Soil Biota," "Water Erosion," and "Wind Erosion." The information sheets are available on the SQI Web site at http://www.statlab.iastate.edu/survey/SQI/range.html. Hard copies can be ordered by e-mailing a request to jbauer@nssc.nrcs.usda.gov.

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Use-Dependent/Dynamic Soil Properties Data Meeting

By Arlene J. Tugel, Soil Scientist, Soil Quality Institute, Natural Resources Conservation Service.

Use-dependent and dynamic soil properties and the development of a database for these properties were discussed at a meeting held in Lincoln, Nebraska, August 13-15, 2001. The meeting was co-sponsored by the National Soil Survey Center (NSSC) and the Soil Quality Institute (SQI). In his opening remarks, Bob Ahrens, Director, NSSC, said, "Your goal for this meeting is to make plans for the development of a database that includes temporal soil properties. We need to be sure we include data that is needed, not just more data."

Over 21 people representing the NSSC, the Institutes (Soil Quality, Grazing Lands Technology, and Watershed Science), and the USDA Agricultural Research Service (ARS) attended the meeting. Specialists in rangeland, forestry, erosion models, water quality, agronomy, and urban land presented the perspectives and data needs unique to their disciplines. Representatives from the NSSC and SQI explained how dynamic soil properties can add value to soil surveys and soil interpretations and provided information on current and past activities related to the collection of data, the development of a database, and GIS considerations.

Concepts and models that can help to integrate data for soil properties that change were also presented and discussed. Bob Grossman, NSSC, described a method of coupling use-invariant and use-dependent data. Jeff Herrick, ARS, described soil resistance and resilience (figure 1) and showed how these relate to the capacity of the soil to function. Arlene Tugel, SQI, presented a new technology from

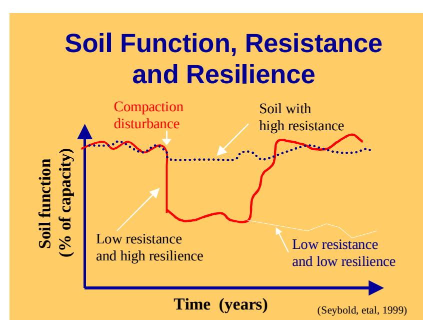


Figure 1

rangeland ecology, the State and Transition Model, and showed how this conceptual model integrates vegetation-soil-management interactions and can provide a framework for organizing information about dynamic soil properties.

The following goal emerged from facilitated work sessions: **Develop information linked to soil components that includes soil properties that change with use, management, and time (seasonal, diurnal, etc.) and that are important for understanding soil ecological processes and functions.**

The group also summarized our current situation and needs in regards to soil properties that change (i.e., use-dependent or dynamic soil properties):

> The current database contains many data elements that can be considered use dependent (e.g., soil organic matter or carbon). However, the current NASIS map unit component data structure and dictionary do not provide adequate use dependent/ dynamic soil property values, and the related interpretations, plant/soil interactions, and ecological functions. The availability of dynamic soil information will facilitate the application of new science (e.g., models, precision agriculture, ecological site descriptions, and bioavailability of heavy metals in urban ecosystems) in order to more accurately inventory the soil resource, make assessments, and develop better management alternatives. This will allow NRCS to provide more complete and relevant technical assistance to our clients in order to better enhance and protect our natural resources.

For example, NRCS is embarking on the application of two erosion-prediction tools (WEPS 1.0 and RUSLE2). These models are dependent on dynamic near-surface properties and hence are highly use dependent. Use of soil property values that reflect the effects of past management on the soil will provide a more accurate prediction of erosion.

A short-term plan for the next 15 months was developed. Activities include the development of an initial problem statement report, a literature review of framework options for organizing the database, and an evaluation of the framework options using existing data. A preliminary long-term plan was prepared. It indicates user input, development of the framework, identification of data needs, testing methods, peer review, database programming, development of data collection methods, policy, cost analysis, and budget and marketing considerations.

There was a common understanding among the participants that all of us who are involved in the design and development of the database and the collection of data will be called upon to look at and present data in ways that may be different from those in our current standard soil survey databases. In order to meet future data needs, new and innovative approaches will deserve consideration.

The results of the meeting were presented to the Soils Division Leadership Team on August 16, 2001. Horace Smith and others acknowledged the contributions and good work of all of the participants and encouraged the group to continue its activities. Bob Ahrens recommended and Horace agreed to the designation of Craig Ditzler, National Leader for Standards and Classification, and Bill Puckett Director, Soil Quality Institute, as co-sponsors for the Use Dependent/ Dynamic Soil Properties Database group. MO and State Office representation early in the effort to design a database was encouraged .

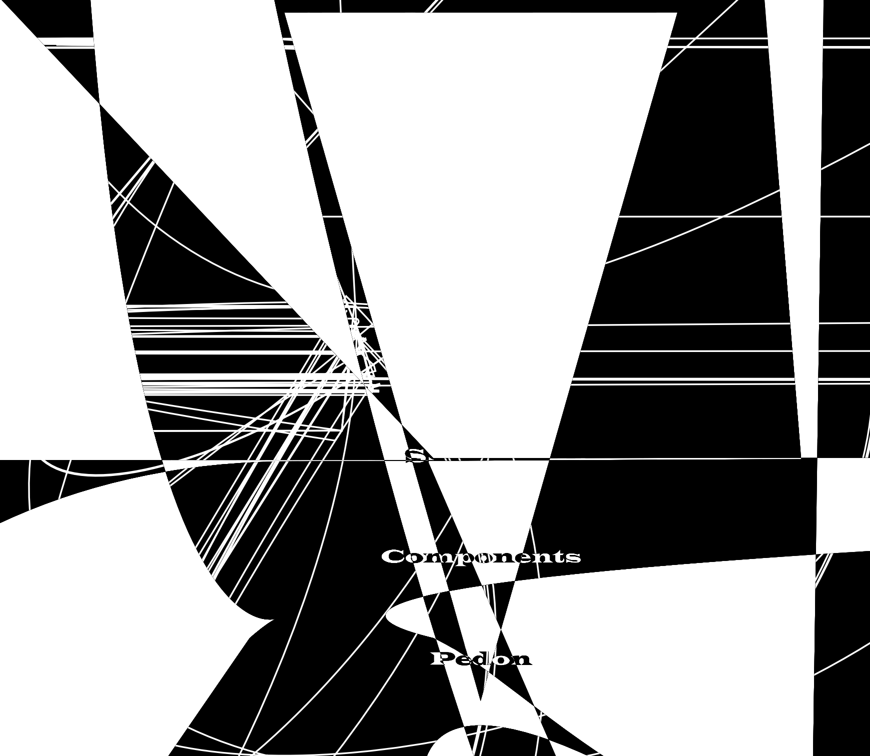
If you want more information about the meeting or would like to participate in this effort, contact Rick Bigler (rick.bigler@nssc.nrcs.usda.gov), Arlene Tugel (atugel@nmsu.edu), or Curtis Talbot (curtis.talbot@usda.gov). ■

Ecoregion Mapping

By Sharon W. Waltman, Soil Scientist, USDA, Natural Resources Conservation Service, National Soil Survey Center.

Although the role of Major Land Resource Areas (MLRAs) in the history of soil conservation and natural resource planning is a familiar one to USDA soil conservationists and scientists, this framework of geographic regions with similar patterns of soils, climate, geology, water resources, potential natural vegetation, and land use is rarely used by scientists working in the area of water quality and ecosystem management concerns. Instead, a framework developed by the U.S. Environmental Protection Agency (USEPA) called “Ecoregions (Level III and IV)” is used by State regulatory agencies working in partnership with USEPA to determine acceptable water quality standards for nutrients and agrichemicals. In addition, U.S. Forest Service (USFS) scientists choose to use the “National Hierarchy of Ecological Units” to do their ecosystem management work.

To foster more effective working relationships (sharing of data and knowledge) among Federal and State



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Contestants examining a Pootatuck series profile.

Connecticut Soils Judged

By Shawn McVey, Assistant State Soil Scientist, USDA, Natural Resources Conservation Service, Tolland, Connecticut.

Drumlins, flood plains, and kame terraces held the answers for over 40 college students participating in the Northeast Regional Collegiate Soil Judging Contest hosted by NRCS and the University of Connecticut in October. Students competed in timed events against each other and in teams, attempting to properly identify and describe five soils commonly found in Connecticut. Students judged soil morphology, profile and site characteristics, soil classification, and soil interpretations related to urban development. The top scoring teams, University of Maryland, Ohio State University, and University of Rhode Island, will advance to the National Soil Judging contest held in Minnesota. For more information contact Shawn McVey at 860-871-4044. ■

SSSA Membership

By Robert Ahrens, Director, National Soil Survey Center, Natural Resources Conservation Service, Lincoln, Nebraska.

Membership in the Soil Science Society of America (SSSA) has steadily declined over the past several years. Here are some facts on membership:

- Twenty-four scientists from the National Soil Survey Center are members.
- Eleven State Soil Scientists are members.
- Recently, the CSA (Crop Science-Soil Science-Agronomy) published a list of graduate degree recipients in the field of soil science and their advisors. Only 22 percent of the recipients of advanced degrees in soil science and about 50 percent of the advisors are members of the SSSA.

All scientists associated with the National Cooperative Soil Survey are encouraged to join the SSSA. There is strength in numbers, and we all benefit from promoting our profession. There are several membership options. One includes membership without subscription to the *Soil Science Society of America Journal* at a reduced cost. For more information on joining, access the SSSA Web site (http://www.asa-cssa-sssa.org/membership/). ■

Horace Smith Announces Retirement

By Robert Ahrens, Director, National Soil Survey Center, Natural Resources Conservation Service, Lincoln, Nebraska.

Horace Smith, Director of the Soil Survey Division, announced his retirement effective January 2002. Horace is a native of Clarkton, North Carolina, and received his B.S. degree from Virginia State University and an M.S. degree from The Ohio State University.

Horace came up "through the ranks" serving in various positions as a soil scientist in SCS and NRCS for over 38 years. He began his career as a field soil scientist in Illinois and was promoted to project and resource soil scientist positions in Ohio and Maryland. Of all his accomplishments during his time in the field, he is most

Horace Smith

noted for piloting the soil survey of the District of Columbia. This survey was one of the National Cooperative Soil Survey's first efforts to map an extensive metropolitan area, and it set the standards for making soil surveys in urban areas. Horace was Assistant Soil Scientist in Maryland before moving on to Assistant Principal Soil Correlator at the Northeast National Technical Center. He served as the State Soil Scientist in North Carolina from 1984 to 1995 and fostered strong relationships and cooperation with the Division of Environment and Natural Resources and the North Carolina Center for Geographic Information and Analysis. The partnership is still strong today and continues to enhance the soil survey program in North Carolina.

As Regional Soil Scientist at the Southeast Regional Office, Horace had responsibilities for oversight and evaluation. In 1996, Horace assumed the position of Director of the Soil Survey Division. As Director, Horace was a strong advocate of the MLRA concept of managing soil surveys and was instrumental in the establishment of MLRA soil survey offices. He promoted digitizing soil surveys and helped to secure additional appropriations from Congress for these efforts. Horace was strongly committed to the field soil scientists and initiated recognition awards for field soil scientists and members of the National Cooperative Soil Survey.

Horace was the recipient of many awards and honors, including the Achievement Award from the Soil Science Society of North Carolina. He also had several special assignments to foreign countries, including Mexico, The Gambia (Republic of West Africa), and Taiwan.

Horace provided strong leadership to the soil survey program. Because of his extensive field experience, he felt a certain kinship with the field soil scientist and was a strong advocate and promoter of the resource soil scientist and the field soil scientist.

Horace plans to retire in the Raleigh area and pursue various hobbies and enjoy his family. ■

Status of Implementation of Field Data Recorders

By Lyle Steffen, Geologist, National Soil Survey Center, Natural Resources Conservation Service, Lincoln, Nebraska.

At an MLRA Leaders Business Meeting held July 10-12, 2001, in Plymouth, Massachusetts, Joe Moore led a discussion on issues raised by Soil Data Quality Specialists. The third priority issue was “Implementation of Field Data Recorders.” This article describes some of the data recorders that are available, their limitations, their current use in the agency, and the status of future implementation in soil survey.

What’s Out There?

Portable electronic field data recorders are available in three different platforms. Palm Pilots are the smallest units, have the least computing power, and have severe limitations for data collection, storage, and transfer. Pocket PCs are small (less than 0.5 pound) hand-held computers that are programmable and can be used for field data collection. The discontinued Apple Newton is an example of a Pocket PC. Neither the Palm Pilots nor the Pocket PCs are typically rugged enough for day-to-day field use. Hammerheads are larger (2 pounds), rugged, hand-held computers that are shock-, water-, and dust-proof.

At least three companies build Hammerheads that are rugged enough for day-to-day field use. Tripod Data Systems (TDS, a Trimble Company) builds the Ranger and Husky machines, DAP Technologies has the Microflex line, and Harvestmaster has the Allegro Field PC. The machines cost from $3,000 to $7,000 with the minimum software, peripherals, cables, and connectors required for field mapping, electronic data collection, and data transfer to desktops. They typically use Windows CE or a proprietary CE operating system.

Compaq, Hewlett Packard, and Casio make Pocket PCs priced around $1,000. This price typically includes the minimum software, cables, and connectors to record field data electronically and transfer it to desktop PCs. Pocket PCs typically run on a version of Windows CE, but the HP Jornada is capable of running a pocket version of Microsoft Office.

Limitations

Currently, screen size, screen visibility in daylight, screen resolution, the number of gray scales that can be represented on digital orthophotos, and data entry without a keyboard continue to be problems with all field data recorders. The rapid evolution of

Using the Microflex PC 9800 with an attached GPS unit.

hardware also presents a problem for users trying to maintain an inventory of high-quality machines while utilizing government procurement procedures. Most operating systems for hand-held devices are a version of Windows CE. The preferred data synchronization technology is USB, so it would be prudent not to purchase any field data recorders until the field units and NRCS Common Computing Environment (CCE) machines have Windows 2000 or XP operating systems or another system capable of supporting USB technology.

There is no commercial soils mapping software available for any hand-held field data recorder. There are currently no commercial soils or field data collection forms available for these machines. Programming data collection forms is not straightforward in Windows CE or NS/Basic CE software.

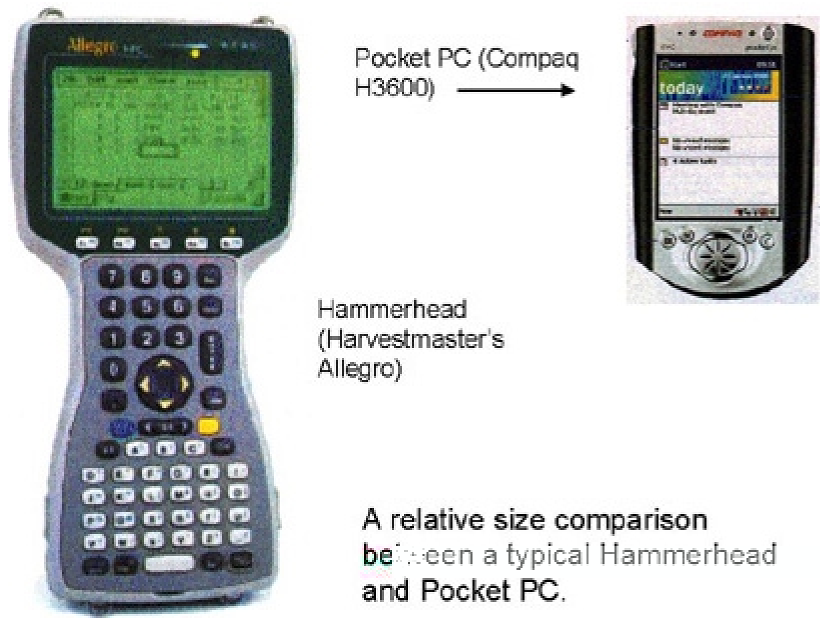
Who’s Using What?

The National Soil Survey Center (NSSC) staff does not know the extent to which field data recorders are used in soil survey work. It does not know if any soil scientists have mapped soils using the Pocket PCs or Hammerheads or if any programmed data collection forms are available for any of these hand-held computers. Henry Mount established a list serve over a year ago for field soil scientists to post their experiences with electronic mapping tools. After some initial postings when the list serve was first set up, there have been no postings for several months.

NSSC staff has used the obsolete Apple Newton to complete a few Order 1 soil surveys of farm fields. It used the Newton to record soil properties at grid points on a spreadsheet form. A GPS unit was used separately to georeference the grid points. The electronic data were transferred to a laptop computer, and the spatial variation of soil properties was displayed in ArcView.

Some field soil scientists are integrating GPS units and digital cameras in their field work. MLRA staff members who are updating existing surveys record field site locations using GPS and then import the GPS coordinates into the University of Wisconsin's 3DMapper software so that they can see where they were on the ground at the time they made their field observations. 3DMapper software shows georeferenced landscapes in three-dimensional blocks with an orthophoto base and soil lines. Idaho is training all their soil scientists in the use of 3DMapper.

The NSSC recently purchased two Pocket PCs—a Casio EG800 and a Compaq 3760—to evaluate prior to purchasing Personal Data Assistants (PDAs) for use in an Electronic Field Data Collection and Analysis course being developed. This course will eventually be offered to soil scientists and other disciplines in all NRCS offices. The course will focus on collecting field data electronically using GPS, digital cameras, and PDAs. The course will include downloading data into desktop PCs, basic image processing, and importing electronic data into other applications (Microsoft Word, Excel, Powerpoint, and 3DMapper).



A relative size comparison between a typical Hammerhead and Pocket PC.

Based on information gathered at Basic Soil Survey courses held in Lincoln, most recent college graduates can use ArcView GIS software on desktop PCs. Beyond these few examples, it is not known what other types of hardware and software are currently being used by soil scientists to collect field data or map soils.

Future Implementation

Gary Hallbauer at the Cartographic and Geospatial Data Center in Ft. Worth has been assigned the task of researching the hand-held computer market in order to recommend three different systems for NRCS to purchase. One system would be of the Palm Pilot genre. Managers would use it to monitor schedules and email. The second system would be a field data recorder to replace the Newton in NRI. The third system would be a hand-held computer that integrates GPS technology with GIS software.

Micheal Golden, MLRA 9 Leader, is the soil science representative on a recently formed work group that is evaluating rugged, mobile field data collectors for NRCS. Frank Jeter, who is on the Information Technology Center staff in Ft. Collins, is leading the group. The group plans to host two or three projects in 2002 to evaluate different machines in order to make a recommendation for an agency purchase in 2003.

Before recommending implementation of hand-held computers or Pocket PCs as field data collection tools, the NSSC must know what works. After the NRI and Ft. Collins evaluations are completed and the NSSC staff has evaluated Pocket PCs, a recommendation can be made on what products to purchase in 2003. If any soil scientists have field experience with any Hammerhead or Pocket PCs (other than Newtons), please contact Mike Golden (micheal.golden@tx.usda.gov) or Lyle Steffen (lyle.steffen@nssc.nrcs.usda.gov). ■

Language Matters

By Stanley Anderson, Editor, USDA, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.

For reasons that remain mysterious to me, my former boss (now retired) cited me as the contact person for a list of “factoids” that NRCS posted on the Web during the centennial of the National Cooperative Soil Survey. These factoids were collected from Bob Ahrens, Berman Hudson, and other NRCS soil scientists. They were submitted to me for editing. I spent less than 1 hour on them and then forgot about them, until people started calling me to ask about the validity or source of the factoids. An innocent bystander, I had no idea how to answer the questions, which I learned to fob off on Tom Reedy, a soil scientist at the center who sits near me.

The queries about the factoids discontinued after a while, until August 30 of this year, when an employee for *National Geographic* called me.

I believe she was an editor charged with the responsibility of checking both the facts and the factoids to be included in a story about soil erosion that was to appear in an upcoming issue of *National Geographic.* As soon as she used the word “factoid,” I tried to fob her off on Tom, but she asked her question anyway. She was concerned about the following factoid:

> In the spring of 1934, a dust storm originating in the Great Plains carried an estimated 200 million tons of soil to the Northeastern United States and out to sea. This storm caused “muddy rains” in New York and “black snows” in Vermont.

She asked me whether the measurement was in metric tons or in short tons. I had never heard of a metric ton (or a short ton, for that matter) and thought that a ton was a ton (2,000 pounds), so I told her that I was not the person to ask, that I would transfer her to Tom. “Just tell me this,” she responded. “Does the USDA have a policy about reporting metric or short tons?” Again, I had never heard of a metric ton, so I transferred her to Tom, though I listened to his end of the conversation.

The editor indicated that the Discovery Channel had a similar factoid, but one that estimated that 350 million tons was removed from the Great Plains in a dust storm in 1934, probably in the same storm referred to in the NRCS factoid. She wanted to know which figure to use. She said that she was inclined to use the NRCS number because, after all, it came from the Federal Government.

I have reservations about her reasoning.

First, since this phone conversation I have learned that 1 short ton is the equivalent of 0.907 metric ton. Thus, the difference between a short ton and a metric ton does not explain the discrepancy between the different figures in the two factoids (200 million tons and 350 million tons).

Second, I wonder about the term “factoid.” The suffix “oid” implies that the term refers to something that resembles a fact without actually being one, that it refers to a sham fact or a false fact. *The Random House Dictionary of the English Language*, second edition, 1987, defines the term as follows:

> something fictitious or unsubstantiated that is presented as fact, devised especially to gain publicity and accepted because of constant repetition.

The fact is, the meaning of the term appears to be drifting, so that it can now describe not only sham facts but also ones that can be verified, for example, by *National Geographic.* That is to say, the term can now refer to valid facts. If this is the case, I wonder how a “valid” factoid differs from an ordinary fact. Perhaps, the difference is that the factoid is somehow extraordinary.

Third, studying the NRCS factoid more closely, I wonder why *National Geographic* wanted to verify it at all. The statement defines itself as an estimate. Note the words “an *estimated* 200 million tons of soil.” Also, consider the end of the first sentence, where the 200 million tons is carried not only to the Northeast but also “out to sea.” Imagine measuring that. It appears that this factoid is a horseback opinion, that the number “200 million” was pulled out of thin air, as it were. In other words, this is a factoid in the original sense of the term. ■