The Lay of the Land

The Newsletter of the Maine Association of Professional Soil Scientists

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BEING TECHNICALLY CORRECT

by David Marceau

I'm concerned that our technical perspectives and the final work product we produce may not be the best it can be, at least from a soil science standpoint. Fifteen years ago there were many more NRCS (SCS) employees in Maine and thus many more of these soil scientists attending our MAPSS meetings and influencing our decision making process. Since that time consulting soil scientists have become more numerous and the importance of things like identifying shoreland zoning areas, significant wildlife habitats, and standards of the site location of development law have dominated our agenda. I'm a soil scientist that has built his career as a consultant. Thus, I know how important these regulations are not only to soil scientists, but to the people of the State of Maine. However, consulting soils scientists only get paid when they have billable work and they generally have little or no time to spend on things that they do not get paid for because that list is already pretty long.

What am I getting at? Well, if you review some of the things that we produce, in my opinion, they lack information that allows a soil scientist to determine whether some things are technically correct. For example: the form E's and form F's that the MDEP requires for submission with site law projects. These forms appear to be providing the information that the MDEP is concerned about, as evident by the lack of complaints that we receive when you submit them. However, they have no place to show horizon designations, structure, or adequate depths as well as other information that could be vital in deciding whether this is in fact the soil series and therefore the conditions that we portraying on our map. In fact, I would argue that these forms are site evaluation forms and should be replaced with forms that are more indicative of the information that soil scientists produce. I don't believe that we need to describe soil profiles to the extent that the NRCS does, but we do need to include characteristics that demonstrate that we are describing the kinds of conditions that are characterized by the series we mapped.

Secondly, a large part of the argument about oxyaquic conditions, when they exist, and what we should do about them, in my view, strays from soil taxonomy which is the building block that series are derived from. If we were looking at it from a soil science standpoint, primarily we would have to address soil taxonomy and soil morphology. On both counts I would argue that we do not have a leg to stand on. We have no morphology to justify the hydrology we think exists and because of the lack of morphology the soil does not classify any differently than a soil which is well drained. In other words I believe that we are not being technically correct to our science. That is what our NRCS State Soil Scientist told us during our Rangeley meeting this past summer.

I often wonder what things would be like if Roland Structmeyer, John Ferwerda, Bob Rourke, Ken LaFlamme and others were still active in our profession to voice their opinions. One thing is for sure, they would have made their opinions known and we would have listened because we knew they had a lot more experience then we did.

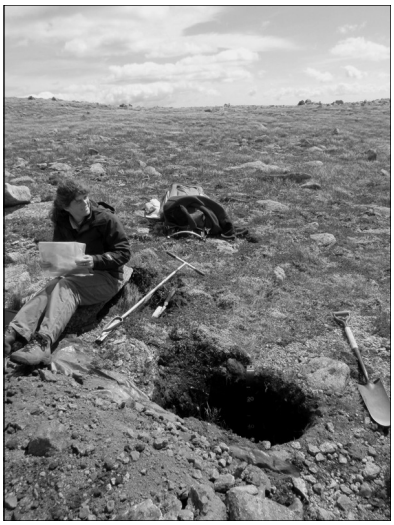
I believe the use of the internet, GIS and other recent technology has not helped us with these problems. Through the computer the lay person can gather any of a wide range of information related to soils and be provided with specific interpretations, soil profile descriptions, landscape positions etc. Thus, it would seem that there is no need to have a soil scientist involved at all. However, we as soils scientists know how the information was gathered: the scales of maps that were used, sampling techniques, amounts of inclusions and other information that has a huge bearing on validity of the information being presented. The take home message, again: we must be technically correct and not just have something look pretty.

Believe me I have fought the battle of use and management vs. taxonomy in my mind for well over two decades. So, I understand how difficult it is to spend time on taxonomic issues when non-soil scientists could care less about these problems. However, taxonomy does have a systematic approach to organizing soils information that has served us well not only in Maine but throughout the United States.

Arguing to be more technically correct, for me, is awkward in more ways than one. First, the last thing we need as consultants is another form to fill out or additional delays in the projects we submit. Secondly, generally our clients could care less how something classifies taxonomically they just need their work product. Thirdly, I know that being the one to complain means that people will expect me to put the work into the solution. So, while I still have a little gumption, let's begin the discussion.

MILE HIGH SOIL MAPPING AT BAXTER STATE PARK

by Chris Dorion



From July through October of 2010, I was part of a soil mapping crew responsible for Order 3 mapping in the cryic zones (>2,500 fasl) and remote interior regions of Baxter State Park (BSP). The crew consisted of myself and NRCS soil scientists Nick Butler, Allison Montgomery, and Matt Dorman; soil scientist Amy Jones; and State Soil Scientist Tony Jenkins. We were also fortunate to have alpine botanical training from Peter Abello, NRCS, during our first week on the Tablelands. Soil scientist-in-training Rod Kelshaw joined the crew for two days of mapping in the Trout Brook valley at the north end of the park, helping us hand-dig deep soil pits and complete transects.

My role encompassed several areas: bedrock geology, glacial geology, logistics, and alpine (above treeline) safety. On a daily basis, all of us spent some time explaining our work to the general public. This typically occurred in the evenings at Chimney Pond or Russell Pond, where we had use of the crew cabins. Occasionally we were met by hikers on the trail, and we generally exchanged conversation for a few minutes. The most frequent question was: "Why are you doing a soil survey in BSP?" We patiently explained that these were the last eight townships in Maine that had not been mapped, and a map with a black hole on it is not very useful; that yes, we know BSP is not facing any proposed development, and for that reason our soil mapping will be "forever used" as a reference site. In other words, the forest stands in BSP (excluding the Scientific Forest Management Area) will reach their climax compositions, and the underlying mapped soils will yield valuable insights into forest and soil dynamics over time, without complicating factors such as timber harvesting.

We generally worked in two groups of two soil scientists. This allowed one person to navigate with the GPS and air photos, while the other scouted the least cumbersome route. We carried a Montana 12 pound sharp-shooter ("the bruiser"), a Dutch auger, and a regular sharp-shooter. All the soils except the alluvial and outwash soils were extremely stony to rubbly, and the "bruiser" could blast through the stones and cobbles. We used canoes when possible because we could paddle at ~ 4 mph, compared to hiking at ~2 mph pace. Over three weeks, we saved about 15 hours of hiking time per person, or nearly two field days. During the hot weather, we often swam at the end of the day in different lakes, ponds, and streams.

Order 3 mapping in the trail-less areas of BSP required, on a daily basis, a clear understanding of the challenges of bushwacking, navigation, safety, and soil mapping objectives. In terms of bushwacking, we were surprised to find very few areas of open, mature forest stands. Parts of BSP were logged into the 1960s with mechanized equipment, leaving typical "toothbrush" fir and spruce regeneration. These areas were found on Poorly Drained (PD) and Somewhat Poorly Drained (SPD) valley bottoms (foot- and toe-slope landscape positions), such as the areas east of the Perimeter Road in the Nesowadnehunk drainage and Center Mountain lands. These were heavy-textured lodgement tills of the Telos – Monarda Associations. In the lands between Pogy Pond and northward to the Trout Brook Valley, we found "pasture-spruce", with extensive lateral branching from the ground upward, making traverse progress difficult. These red spruce had regenerated on Moderately Well Drained (MWD), Well Drained (WD), or Excessively WD soils developed in coarse-textured glacial outwash and lodgement till. Extensive fires, following logging operations in the early 1900s, created this unusual, open landscape.

We investigated and sampled soils on the Tablelands of the Katahdin Massif. Because of the unique and rare alpine flora, we worked through park director Jensen Bissell and park naturalist Jean Hoekwater to minimize any impacts. The two photos are of a typical soil pit on the Tableland out toward Howe Peaks (now called North Peaks) at ~4,600 fasl. The tape measure is metric, cm-scale to 1 meter. Note the ~90 cm thick A- or O-horizons. Pending lab analyses will confirm the A- or O-horizon designation. The Bw-horizons below were loamy sand. I suspect cryoturbation has mixed the soil horizons, although we did not encounter frozen soil, obvious frost involutions, or frost cracks characteristic of gelisols. There was no indication through redox features of a water table in the soil pit.

The Katahdin massif is a silicic granite to granophyre pluton, composed of the dominant minerals potassium feldspar, plagioclase feldspar, quartz, biotite, and minor hornblende. Mechanical and chemical weathering produce coarse textured tills. In contrast, in the northern half of BSP, soils are derived from various grades of volcanic rhyolite, resulting in finer-textured tills.

On a transect up to the Katahdin massif, we found that at ~3,300 fasl, the lodgement till gave way to residuum (saprolite, grus, etc.), with an occasional erratic clast derived from metasedimentary bedrock located to the northwest. I suspect most of the Laurentide ice sheet was frozen to the bed most of the time, in most places above this elevation, thus explaining the paucity of erratics (coarse fragments). There are areas on the Tableland with large "bullet boulders" and "bullet blocks" (clasts > 4 m length) covering ~30% of the surface. These areas are distinct from the frost-shattered bedrock areas that are associated with bedrock outcrops. The areas remind me of some of the frozen-based to thawed-base ice transition areas I saw in Sweden. It seems that the basal thermal regime of the ice sheet was "flip-flopping" between frozen, thawing, and refreezing up on the Tableland.

(Continued on page 3)

(Continued from page 2)

At lower elevations, ~ below 2,500 fasl, many exciting deglacial landforms were "found" under the thick tree canopy and 20 foot topo lines. We spent time in the Howe Brook valley. The "fan" or "landslide" that divides Upper and Lower South Branch Ponds is not an uncommon landform in mountainous areas of Maine. Unfortunately, the topo is 20 foot, and the trees can be up to 70 feet, so one is limited by the topo map contour lines when trying to interpret subtle deglacial landforms. Wouldn't we have preferred 2 foot topo like a HISS.... We completed a traverse across the Howe Brook valley, and found an outwash / ice contact deposit ~120 feet above the present Howe Brook. It was probably deposited when a glacial lake occupied the valley to the north. This outwash deposit nearly filled the Howe Brook valley. I think when the glacial lake drained, the deposit was rapidly "disemboweled", with the sediment moving down-gradient, dividing South Branch lake into the two ponds we see today. During the Holocene, Howe Brook has cut small channels across the lower fan. Most of the lower fan is cobble to small stone (very well rounded), nearly fragmental, and extremely permeable. The lower reaches of Howe Brook "disappear" and "reappear" along its channel.

There are other "disemboweled" fans in the valleys between South Branch and Pogy Pond, one being called "Dry Gorge", which we bushwacked up on a stinking hot, humid, buggy day. From our planning the night before, we were excited to see hardwood color tones on the air photos, which we believed to be mature red and sugar maple stands, and a dreamy walk through big woods. As we began our bushwack off the Pogy Notch Trail, we did find a mature red and sugar maple overstory, but with an accompanying, oppressive shrub stratum of striped maple, hobblebush, witch hazel, and beaked hazelnut, which clawed, tripped, wacked, and snapped at us.

We spent two days at Pogy Pond, and the area is full of "kames" and sinuous, small end moraines. These deposits are composed of Hermon-like sand beds and resedimented tills (flowtills), or Skerry-type soils, and were formed by sediment-laden glacial meltwater debouching at the ice sheet margin, along with much "flowtill" and small-scale ice margin oscillations. In the Russell Pond – Six Ponds – Wassataquoik stream valley, we observed multiple crested eskers of varying dimensions, kettle ponds, and bouldery ridges probably demarcating former ice sheet marginal positions.

Other deglacial landforms we informally termed "drumsticks", such as in the Roaring Brook – Sandy Stream Pond – Whidden Ponds valley, and are oriented with their narrow end at the north, and "fat" end at the south, composed of +/- sandy outwash (Colton-like), sandy diamicton (Monadnock to Hermon to Dixfield to Skerry-like). At their toes we often observed ice-cold spring discharge. We started seeing them near Pogy Pond, and they continue southward. They are the wrong orientation for end moraine ridges, are clearly not fans or eskers, and not drumlins nor drumlinoid forms. There is generally a "loamy cap" where the soil has developed, but below, in the "parent material", is water-sorted outwash, suggesting deposition at the ice margin.

Other interesting areas were the Klondike (borosaprist soils), a foggy, enchanted, medieval forest of black spruce growing on moss covered bedrock (Hogback – Rawsonville soils), huge glacial meltwater channels cut into till in the Trout Brook valley, and small areas of alluvially "enriched soils" supporting stately stands of sugar maples.

On the Traveler mountains and other cryic areas at the north end of BSP, we observed extensive talus slopes such as one finds in the Rocky Mountains. We mapped the cryofolist Ricker, rubble land, rock outcrop, the shallow Saddleback, moderately deep Enchanted, and the two lodgement tills, Surplus and Sisk. Mahoosuc soils were found on lower valley walls and floors of the cirques surrounding Katahdin, and also at the bases of cliffs throughout the park.

We extend many thanks to the staff at BSP for accommodating us in various crew cabins, lean-tos, and camp sites throughout the park, and providing us with flexibility in their scheduling. We especially enjoyed working out of Russell Pond, for its remoteness, solitude, stunning fall foliage, and total absence of cell phone coverage, internet, or electricity.

LICENSURE AND CERTIFICATION

Submitted by Johanna Szillery and reprinted with Permission from September 2010 Edition of CSA News

by Dawn Farris, SSSA Soil Science Program Coordinator

As I begin this new position as the Soil Science Program Coordinator with SSSA, one of my main goals is to promote and expand the licensure and certification programs for soil scientists. One of the things I have realized very quickly is that there is a lack of understanding among soil scientists as to the similarities and differences between licensure and certification and why these credentials are so important to our profession.

Certification through ARCPACS has been in place since the 1970s. No exam was required until the late 1990s, only a documented educational background and professional experience. In the early 1990s, talk regarding licensure of soil scientists was beginning in North Carolina, Minnesota, Texas, and other states. In response to the possibility of licensure and the need for a national exam to support licensing programs, SSSA began to work on clearly defining the practice of soil science. A committee was formed to develop a list of specific knowledge points that soil scientists should have to be considered competent. Committee members were chosen from across the U.S. to facilitate national geographic diversity and included representatives from industry, government, and academia. Out of this committee's work came the first set of performance objectives (POs) that we use today to define the state of the practice for soil science. The POs are important in that they not only define what a competent soil scientist should know, but also dictate the ex-

(Continued on page 5)

Exerpts From Field Mapping, 2010

by Johanna Szillery, S.W. Cole Engineering, Inc.

In 2009 and 2010, S. W. Cole Engineering, Inc. was one of several consultants chosen, through a competitive process, to accelerate the completion of initial soil survey activities for the USDA-NRCS in Piscataquis and Aroostook Counties. In 2009, Steve Howell and I were assigned to the Round Pond area of the North Maine Woods. In 2010, we mapped southwest of Baxter State Park, in the Rainbow Lake area. Following are some excerpts from my 2010 USDA – NRCS mapping field note book to share my experience.

Day 3 - July 22, 2010 meeting and field tour in the Millinocket area

Meeting with NRCS staff in Millinocket. We discuss map units, and conceptual map unit arrangement, mapping status, and logistics. Wow, the variety of soils and parent materials here is much greater than in our mapping area last year. The repeating landscapes of the St. John Valley, in part a result of the uniform pelite and sandstone bedrock, created a predictable Chesuncook-Telos catena progression. Because of the combination of bedrock variability and landscape influences, we are likely to see more variety in one quad than we did last year in three quads! Parent materials include basal till, ablation till, and outwash some with loess influences.

Steve and I do some road and access recon in our mapping area. This will be a beautiful place to be work! Good bye to the office for a while!

Day 14 - August 04, 2010 field mapping in the Chesuncook Lake area

About 2 weeks into field mapping, having started in the western part of our mapping area. Based on adjoining mapping and NRCS staff knowledge, the area we are mapping will grade from Chesuncook catena, to Dixfield, then to Skerry (from west to east), as the bedrock grades from pelite /sandstone to gabbro/diorite to granite (from west to east). My observations show no sign of anything coarser in the substratum than a Chesuncook just yet. Yikes! Will I find it? What if I'm not cut out for this? This is making me nervous… I miss the repeating, predictable hill and valley landscape of the St. John Valley. The bedrock was uniform; the soils were primarily Chesuncook catena, with some variations in depth to bedrock (Monson/ Elliottsville) or coarse fragment content (Winnecook/ Thorndike).

Day 19 - August 12, 2010 field mapping in the Rainbow Lake area

Wow, it's a hot and humid day. One of those where I try to delay breaking the sweat barrier… and succeed for about ten minutes. This winding and steep logging road has some great road cuts, and would be an ideal place for map unit transects. Except for the access! The road has been blocked with boulders, and culverts have been pulled from the road, so hiking is the best option. Eh, well, I'll make a note… hopefully one of the NRCS folks will end up hiking this with a mattock, shovel, GPS, field books, data sheets, spray bottle and documenting the transects.

At 11:30am, my first bear sighting of the field season. I paused on the hike uphill by a raspberry patch, and heard a rustle. After a few "hey, bear!" yells, it runs off. The stories are true, bears are magical! How can such a large animal move through the woods so quietly and quickly?

And, a great development: There is sandier basal till and ablation till here!

Day 30 - August 25, 2010 field mapping in the Debsconeag Lakes area

Large parcels of land in our mapping area are owned by the State and by The Nature Conservancy. This makes for beautiful and peaceful field hikes, but more difficult soil mapping. In this area, I map with a combination of hand-dug pits and auger borings, as well as an understanding of the surrounding landscape. I have observed an indicator of shallow to bedrock soils – white birch. As the relative abundance of white birch increases, I use a map unit that includes a shallow to bedrock component, from Dixfield-Colonel to Monson-Ragmuff. After several auger borings and test pits to test the observation, it seems to hold for this area.

Another related observation: My field notes decrease in abundance and content as my energy fades and the day wears on. Today's round trip to the 8th, 7th, and 6th Debsconeag Lakes was 8.5 miles.

Day 35 - September 09, 2010 field mapping in the Rainbow Lake area

See note, Day 19. I complete 2 transects along the logging road with the great road cuts. The hike with the mattock, shovel, GPS, and remaining test pit description gear is not bad, maybe just slow. Moral of the day? Be careful what you assign to others. Alternately: assign it sooner?

Day 36 - September 10, 2010 float plane fly-in and field mapping, Rainbow Lake area

Since large parcels of land in our mapping area are conservation land, access to these areas to map is remote… even from Millinocket. After considering several access options, Steve and I decide a float-plane fly-in for the day is the best and most efficient way to access these areas. (I was not at all an impartial voice in the matter)

Steve and I fly in to Rainbow Lake from Ambajejus Lake. The weather is much different at Rainbow Lake: cool, rainy and 40's. The elevation difference between the two is about 1,000 feet, and the pilot and sporting camp folks tell us weather systems always get hung up at Rainbow. Steve and I hike and recon Rainbow Mountain, and the ledges at the summit. This landscape - the bald granite ledges that are sparsely vegetated with spruce-fir - is so reminiscent of the Maine coast. Just add in the sound of navigational buoys.

(Continued on page 5)

ANNOUNCEMENTS

JANET ENGLE CORMIER SCHOLARSHIP

The Maine Association of Professional Soil Scientists (MAPSS) is seeking applicants for its Janet Engle Cormier Soil Science scholarship. Each year, MAPSS awards one to two scholarships, up to $1000 total, to undergraduate or graduate students who display an interest in and dedication to natural resources, and a dedication to academic achievement. All students interested in natural resources are encouraged to apply, though an interest in soil science, soil conservation, sustainable agriculture is an advantage.

Application deadline is March 11, 2011.

Please direct interested students to **contact Johanna Szillery**, or forward the student's contact information to her at:

Johanna Szillery

S. W. Cole Engineering, Inc.

37 Liberty Drive

Bangor, Maine 04401-5784

Phone (207) 848-5714; Mobile (207) 991-8791

JOBS/INTERNSHIPS

Anyone anticipating regular or seasonal positions/internships with your company for the upcoming field season please contact Ivan Fernandez or Samantha Langley Turnbaugh so that the can let students know about the opportunities. You can e-mail Ivan at *ivanjf@maine.edu* or Samantha at *langley@usm.maine.edu*

(Excerpts From Field Mapping, Continued from page 4)

Steve and I are even treated to some hospitality, warm soup and a sandwich, at the sporting lodge on Rainbow Lake, before we get our fly out. By the end of the day, I am feeling that three modes of transportation (car, boat, plane) was too much for my system. It was great to work with Steve and discuss our thoughts on what we're seeing. It's not too often we have that chance.

Day 42 - October 07, 2010 data compilation, Liberty Drive, Bangor

The final phase of our project is in the office, piecing together our notes and test pit descriptions over the last two months into field maps. As we look over our gathered observations, patterns emerge. The wonderfully intriguing part is these observations are validations of our basic understanding of glacial geology and soil genesis: the south-east facing side of a hill is most often the plucked face, and has shallow soils. The north-west side has till deposits, and deeper soils. Soils vary by the bedrock geology: coarser soils in the granite bedrock; finer soils in the shale and slate rock. Mapping at this scale allows these patterns to emerge.

It's difficult to put lines on the map, but this becomes as crucial to understanding the landscape as the field work itself.

(Licensure and Certification, continued from page 3)

amination material for the licensing and certification exams. The Council of Soil Science Examiners (CSSE) writes the national exams used for licensing and certification of soil scientists. Each exam question written by the CSSE must relate back to a PO, or it is not used on the exams. The Pos are updated every two years to stay current with the state of the practice.

Today, in addition to education and professional experience, a soil scientist must pass two examinations to be licensed in states that use the national exams or certified under SSSA's Soils Certifying Board (formerly the ARCPACS Board). The first exam is the Fundamentals of Soil Science, which is typically taken at or near the conclusion of the bachelor degree. The second, taken after an appropriate length of professional experience is gained (usually five years), is the Professional Practice Exam. The rigor used to provide a measure or standard of competency within the practice of soil science is not unlike the type of licensing programs used by engineers and geologists.

Licensure vs. Certification

Licensure is done at a state government level, dictated by statute and rule, and is considered a legal requirement to do work within the state that is overseen by a state licensing board. This means that to practice soil science in a licensing state, one must have a soil science license granted by that state. A person holding a Certified Professional Soil Scientist/Classifier (CPSS/C) certification is

(Continued on page 6)

Soils in the Wind (Eolian) – a Soil Scientist's Song

(Sung to the tune "Blowing in the Wind" by Bob Dylan)

by Aleita Burman

How many holes must the soil scientist dig,
before (s)he needs chiropracty?
How many field textures must the scientist do,
before understanding ribbony?
How many times must taxonomy be read,
before getting what spodic really means?

The answer my friend is eolian, the answer is eolian.

How many years does it take to accumulate,
2 inches of organic debris?
How much rain does it take before we see,
redoximorphic features in the B?
How can we know if what we see,
is gleying or eluviation in the E?

The answer my friend is eolian, the answer is eolian.

(Licensure and Certification, Continued from page 5)

not licensed and therefore cannot do work in a licensing state without also seeking a license. If a person were to practice without a license they can, depending on the state licensing law, face penalties such as fines and/or jail time. The primary reason for granting licenses to professionals and thereby regulating their activities is to protect the health, safety, and welfare of the general public. It is a way for states to provide assurances of competency to the public and a listing of qualified professionals for professions such as soil scientists, engineers, geologists, architects, etc.

Certification is also a designation that indicates a person is competent to perform work as a soil scientist, but it does not carry a legal status with it. In addition, certifications, as is the case with the CPSS/C, are affiliated with a professional society. Certifications can be and are referred to in some state statutes and rules, but this is usually in reference to what type credentials a person has to have to do a certain job, for example septic systems, within states without licensing.

A soil science license (in states that use both SSSA exams) and a CPSS are fairly similar with respect to educational requirements, professional experience, exams, and continuing education. However, it is important that, as SSSA helps to expand licensing programs, consistency is maintained between states to assist our licensees in attaining the ability to work across state lines (comity). Licensing states are very strict about granting comity to license holders in other states and will review the other state's licensing requirements to make sure that they match their own. In the same way, we want our certification requirements to match the licensing states so that the certificate holders can move between programs as needed. No one wants to take the exams again!

Importance to the Profession

Licensure and certification are important with respect to the health, safety, and welfare of the general public, but they are also important to the profession itself. SSSA will be working hard to encourage more states to look to the licensing option because it best protects the practice of soil science as a legal requirement to do soil science work. Licensure also puts the profession of soil science on equal ground with that of engineers, land surveyors, and geologists. National exams show potential employers that a person has been found to be competent by meeting a professional standard through testing, education, and experience. In addition, national exams allow our licensure and certification to be portable credentials.

Earlier this year, a strategic planning group consisting of SSSA board members and senior staff met to update the Society's long-range strategic direction. The group identified SSSA's core purpose as "advancing soils as fundamental to life." Core values included items such as attention to stewardship, scientific principles, professional respect, and ethics. Goals included enhancing member credentials and recognition. What better way to do that than to have soil science better recognized as being on par with those careers that require licensing in order to practice their profession? The strategic plan also speaks to the "big audacious goal" for SSSA, which is that "Soils and soil science will be at the forefront of global consciousness." Licensing and certification of our professionals will facilitate attaining this goal by showing our colleagues across disciplines and the general public that soil science is a consideration integral to the sustainability and stewardship of the world around us.

We Need Volunteers!

Interested in licensing, certification, and the process SSSA goes through to support these programs? We are always looking for people who would be interested in helping out on the CSSE or the PO review/revision committee. CSSE members are required to be licensed or certified themselves or have absolutely no intention of taking the exams. The council itself is composed of people from all over the U.S. with different career perspectives (academia, industry, and government), a variety of expertise (soil chemistry, physics, morphology, etc.), and different degrees (B.S., M.S., and Ph.D.). The PO review/revision committee is made up of the same type of demographics, and while we prefer professional practitioners, there is no requirement to be certified or licensed. If committee work isn't for you, we are always looking for people who can write questions for us to consider for the exams as well as ideas for scenarios from your experience, which are the basis for the Professional Practice Exams.

Please feel free to email me (dferris@sciencesocieties.org) with any questions on licensing, certification, or volunteer opportunities. I look forward to working with you and helping to take soil science to the forefront of global consciousness!

MAPSS 2010 TREASURY REPORT

by Gary Fullerton, treasurer

MAPSS Checking Account as of 12/31/09		**$9,966.18**
2010 Income:		
2010 Dues (full membership)	$1,375.00	*55 full members at $25.00 each*
2010 Dues (associate membership)	$225.00	*15 associate members at $15.00 each*
2011 Dues (full membership)	$25.00	
2011 Dues (associate membership)	$15.00	
	$1,640.00	
Annual Meeting Registration	$1,645.00	*47 registrants at $35.00 each*
	$15.00	*1 students at $15.00 each*
	$40.00	*1 nonmember at $40.00 each*
	$1,700.00	
Saddleback Workshop	$2,525.00	*101 registrants at $25.00 each*
	$1,080.00	*27 registrants at $40.00 each*
	$3,605.00	
Reid State Park (DEP attendance from 2009)	$225.00	
TOTAL INCOME	**$7,170.00**	
2010 Expenses:		
Annual Meeting Registration (Senator Inn & Spa)	$2,608.48	
Envirothon (Maine Association of Conservation Districts)	$1,000.00	
Janet Cormier Scholarships	$1,000.00	*1 scholarship recipient*
University of Maine Soil Judging Team	$1,000.00	
Saddleback Workshop	$224.42	
Common Ground Fair	$150.00	
Annual Meeting Copies/ Gifts	$330.51	
Newsletter	$278.14	
Website Host (DiscountASP.net)	$120.00	
Miscellaneous (copies)	$20.00	
Domain Registration (Speedsoft)	$0.00	
TOTAL EXPENSES	**$6,731.55**	
MAPSS Checking Account as of 12/31/10		**$10,404.63**

IRIS TEST TUBES CONFIRM OXYAQUIC CONDITIONS AT REID STATE PARK WORKSHOP

by Dave Rocque

Some of you may remember the MAPSS sponsored Wetland Delineation and Identification and Site Evaluator Soil Pit Classification Workshop held at Reid State Park in Georgetown, Maine on September 9, 2009. One of the transects I chose at this workshop had what I believed to be soils with a high seasonal groundwater table but with oxygen in the groundwater so that it did not become anaerobic. It had all of the classic signs I have observed over my many years in the field and the soil profiles did not have any redoximorphic features that I could detect. That seemed to be confirmed by my twice weekly or more monitoring of the groundwater table levels and by a group of distinguished soil scientists, including Chris Dorion, Dave Wilkinson, Greg Granger and Doug Coombs (of the State Septic System program) who officially described the soils. The site was on a long slope, soil textures were sandy loam and the groundwater table was perched on a dense sediment layer at about 28". I called it site "C" and it was a long walk down the trail that formed the boundary of the Park.

This site had 5 soil pits in the transect with pit 1 being the highest in the landscape and pit 5 being the lowest. There was considerable discussion regarding this transect, not only regarding the soil profile descriptions but where to draw the wetland boundary. Based on hydrology, the ACOE believed the boundary to be near pit 2 while the DEP believed it should be somewhere between pit 4 and 5, where wetland vegetation started to become more prevalent. None of the pits though, classified as being hydric, by any of the keys.

The Technical Committee for the Field Indicators for Identifying Hydric Soils in New England (NEHSTC) got wind of the workshop site and I invited them to make it their fall field tour site for 2009. They accepted and visited the site on August 27, 2009. As with the MAPSS workshop, there was considerable discussion and disagreement amongst members as to the classification of the soils and related hydrology. An important note should be added here to explain that the official descriptions were made in a very wet month of June while the two workshops were conducted in much drier conditions. One of the outcomes from the NEHSTC site visit was the offer of Iris Tubes to make a more definitive determination regarding whether or not anaerobic conditions exist at this site for long enough during the growing season for redoximorphic features to form. Many, including the ACOE, believed they did but the redox features were masked by organic matter accumulations in the soil profile.

For those of you not familiar with Iris Tubes, they are simply small diameter PVC pipes that are painted with a special paint that is high in iron so it rusts easily when exposed to air and turns red. The tubes are inserted into the ground when the groundwater table is high and the soil temperatures are above biologic zero and left for a period of time. If the groundwater table is stagnant and becomes anaerobic, biochemical reactions will occur in the soil that result in the oxidized iron on the tubes being reduced. Once reduced, the iron will become mobile, exposing the white pvc pipe. The more white that shows on the portion of the pipe that is below ground, the more reducing the environment is. It is a simple and easy way to check on whether or not anaerobic conditions exist.

I received the Iris Tubes via the mail and installed them on April 27, 2010. They were installed by me using a screw auger to make holes in the soil and then inserting the tubes in the holes. The fit was pretty good and I pushed soil against the sides of the tube to prevent any surface water from entering the holes. I installed two Iris Tubes at each of the wetter soil pits on this transect.

On July 27, 2010, I went back to the transect site with Ruth Ladd and Paul Minkin from the ACOE and Greg Granger of NRCS to observe the tubes. It was the first time I had been back to the site as I wanted to make sure there was plenty of time for reducing conditions to exist and I wanted to have others present to observe the results. As you can see from the attached photos, there was no sign of reduction occurring on the tubes even though the groundwater table was very near the surface on the date we pulled them. The twin tubes came from pit 4 and the single tube came from pit 5. Initially, I did not place a tube at pit 5 because I believed it was unnecessary. After the July 27 site visit however, I decided it may be a good idea so I pulled the tube at pit 1 (the most upland pit that was supposed to be the control pit) and installed it at pit 5. This tube was first inspected on November 19, with Ken Cotton, a local Site Evaluator who wanted to see the site. The soil water temperature on November 19 was 48 degrees F so it was still above biologic zero. As with the July 27 site visit, the groundwater table was very near the surface on November 19. No sign of reduction could be detected with this Iris Tube either.

Pair of iris test tubes from pit 4. The tubes are rust colored, indicating oxidized conditions.

If the time and resources were available, it would be quite interesting to do a more detailed groundwater monitoring program at this transect with a data logger that could also measure dissolved oxygen content.

In case you are interested and can't find your copy of the official soil pit logs from the workshop, following are brief descriptions for soil pit W-C4 and W-C5, featured in the photos.

W-C4: 0"-3" Oe, 5yr 2.5/2, platy, friable; 3"-6" Oa, 7.5yr 2.5/1, blocky, friable; 6"-13" A, 10yr 2/2, fine sandy loam, blocky, friable;

(Continued on page 9)

(Continued from page 8)

Single iris test tube from pit 5 also indicates oxidation.

13"-15" Bs, 75% 7.5 yr 4/6 and 25% 10yr 2/1 fine sandy loam, blocky, friable; 15"- 28" C, 2.5y 5/3, sand, no structure, loose; below 28" was a firm silt loam sediment (not described).

I took 21 groundwater table measurements at this pit from April 16, 2009 to July 31, 2009. Only 2 measurements were greater than 7" below the mineral soil surface.

W-C5: 0"-3" Oi, 3"-10" Oe, 10 yr 2/2, granular, friable; 10"-12" A1, 10yr 3/3, sandy loam, granular, friable; 12"-18" A2, 10yr 2/1, mucky loam, blocky, friable; 18"-28" Bs, 60% 7.5yr 3/4 and 25% 7.5yr 2.5/2, loam, blocky, friable; below 28" was a firm silt loam sediment (not described).

I took 21 groundwater table measurements at this pit from April 16, 2009 to July 31, 2009. Only 1 measurement was below the mineral soil surface.

As a point of reference, soil pit 1 on this transect, which was at the highest point on the transect and was classified as being somewhat poorly drained with a seasonal groundwater table at 12", had only 4 measurements out of a total of 21 that were at less than 7" below the mineral soil surface. Ten of the measurements had no groundwater in them to the depth of the bottom of the pit (28"). On July 14, 2009, this pit had no groundwater in it while W-C4 had a water table at 3" below the top of the organic duff layer and W-C5 had a water table at 4" below the top of the organic duff layer.

SUMMARY OF THE NEHSTC FALL MEETING

Reprinted with permission from the SSSNNE January 2011 Newsletter *Field Notes*

by Karen Dudley

The New England Hydric Soil Technical Committee (NEHSTC) attended a fall tour to assess the support data set up for the test indicator: TA-6 (Test, All soils, #6). TA-6 is the "Mesic Spodic" Indicator (page 27 of the National Indicators – Test Indicators of Hydric Soils). The committee visited 3 Aquod catena sites where National Hydric Soil Technical Committee-approved equipment (i.e. wells and IRIS tubes) were placed. Pedon descriptions and water table data were discussed and described. Vegetation data was taken as well. Bud burst will need to be noted in the spring (replacing soil temperature readings at 12").

SSSNNE members Jim Gove and Joe Noel discuss Aquod morphology.

The intent of the committee was to look at TA6 as a "replacement "of the National S6 indicator as it is being used in the Northeast. It has been noted that S6 proves that a hydric soil exists when a soil exhibits a "polychromatic matrix" or "streaking" in an E horizon. Studies and field work have noted that "polychromatic" features in E horizons also occur in well drained Spodosols. TA -6 has been added to the National Indicators specifically for the mesic area of the northeast (instead of focusing on the Albic horizon; the indicator focuses on the spodic horizon - in terms of its thickness, color and placement from the surface). This indicator takes the guessing out of wetness feature determinations in Albic horizons.

Two additional sites need to be added and monitored to satisfy the National Hydric Soil Technical Committee's requirements for accepting test indicator #6 as a true indicator.

Another important task that the NEHSTC took on was to address the inconsistencies of mucky and mucky mineral field-based determinations by most soil and wetland scientists. This variability was proved to (and by) the committee as members took a field test on organic matter amounts in soil samples from New England (the samples were previously measured for SOM). The outcome of this test emphasized a need for an organic information sheet and subsequent technical sheet on how to determine mucky, mucky mineral, etc. The results of the organic testing from this committee and a similar test in the mid-Atlantic will be published soon in Soil Survey Horizons!

Lastly, it was noted that the above mentioned challenges do exist in the determination of hydric soils, but hydric soils are only one part of the three criteria wetland determination. Wetland hydrology and hydrophytic plants are required in conjunction with hydric soils to have a wetland.

MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS ANNUAL MEETING

WELLS CONFERENCE CENTER, UNIVERSITY OF MAINE, ORONO

WEDNESDAY, MARCH 16TH, 2011

PROGRAM AGENDA

8:15- 8:45 Registration (coffee and pastries provided)

8:45-10:00 BUSINESS MEETING:

- President's introduction – *Ken Stratton* (5 minutes)
- Treasurer's Report – *Gary Fullerton* (10 minutes)
- Secretary's Report – Acceptance of minutes from March 16th, 2010 Annual Meeting – *Anna Kettel* (2 minutes)
- Envirothon donation of $1,000 – *Dave rocque* (10 minutes)
- University of Maine Soil Judging Team donation - Ken Stratton (10 minutes)
- Education Chair Scholarship fund $1,000 – *Johanna Szillery and Anna Kettel* (10 minutes)
- Membership updates – *Dave Turcotte* (5 minutes)
- UM & USM update – *Ivan Fernandez* and *Samantha Langley-Turnbaugh* (10 minutes)
- NRCS updates – *NRCS staff* (10 minutes)

10:00-10:15 ELECTION OF OFFICERS - Nominating Committee (Johanna Szillery and Joe Noel)

10:15 - 10:30 Break

10:30-11:45 NEW BUSINESS:

- Ideas for 2011 workshops and training – Dave Silver (15 min.). The 2010 membership survey responses favored a soil mapping workshop, followed by a GIS / GPS workshop. Focus on the PD and SPD soil break.
- Discussion of the Membership Application form and Web site Member Directory
- Future of MAPSS?

11:45-12:30 Buffet lunch

12:30 -1:15 Dave Turcotte to present "*Seasonal Water Table and Temperature Relationships in Calcareous Till and Residual Soils of Central Maine".*

1:15 - 2:00 MDEP Commissioner to present "*Trends in the Regulatory Environment in Maine".*

2:00 - 2:15 Break

2:15 - 3:00 Tony Jenkins, State Soil Scientist – NRCS to present "*Soil Mapping Progress in Maine: COMPLETED"*

3:00– 3:30 James Santiago to present "*Gypsum: Wonder Soil Amendment or Inhibitor of Good Fertility"*

MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS

2011 Annual Meeting Registration and Membership Application

Wells Conference Center - University of Maine, Orono

Wednesday, March 16th, 2011

Name _____

Company or Affiliation_____

Address:_____

Work Phone:_____ Cell Phone:_____

Fax:_____ E-mail:_____

Are you a Maine Certified Soil Scientist? _____ If yes, License #: _____

Are you a USDA-NRCS Soil Scientist? _____ If yes, How many years in Maine? _____

Are you ARCPACS Certified? _____ APSS _____ CPSS _____ Certification #:_____

Membership Dues: _____

*Full Member - **$25** Associate Member - **$15** Student - **Free**

*Full members must be Certified Soil Scientists in Maine, NRCS Soil Scientists working in Maine for at least 3 years, or have taught collegiate courses in soil science in Maine and been an associate member for at least 3 years.

Annual Meeting Fee (includes lunch): _____ (Register by Wednesday, March 2nd to reserve a meal)

Full and Associate Members - **$30** Students - **$15** Non-members - **$40**

*Students can attend afternoon sessions for free with student ID (no lunch provided).

Total amount enclosed: _____

Please submit form and check made payable to **MAPSS** and mail to:

Gary Fullerton
104 Millturn Road
Limington, ME 04049

for more information: www.mapss.org

gfullerton@sebagotechnics.com

Note: CEUs pending for New Hampshire Certified Soil Scientists and Wetland Scientists
3 PDH's will be awarded to Maine Licensed Site Evaluators

Maine Association of Professional Soil Scientists

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MAPSS is on the Web
www.mapss.org

Thank you to everyone who submitted material for this edition of The Lay of the Land!!

Submitted by Dave Turcotte

Don't forget to practice pit safety!

Don't forget to attend this years MAPSS Annual Meeting on March 16th, to be held at the University of Maine campus in Orono! Program agenda and registration enclosed!