

Indiana Association of Professional Soil Classifiers



2021 Membership Dues Statement

Amount: \$25.00

Please remit payment c/o
Make checks to I.A.P.S.C. Inc.

Clip and mail to Dena Anderson IAPSC Sec./Treas at:
6939 S. Majors Rd
Hanover, IN 47243

Please correct any contact information as needed.

Name: _____

Address: _____

Phone: _____

Email: _____

Indiana Association of Professional Soil Classifiers
Executive Council Ballot
Return Ballot & Dues to Dena Anderson by **January 21, 2021**

**President-Elect 2-Year Term; Advances to President Beginning 2
Executive Council the 3rd year.**

Scot Haley	<input type="checkbox"/>
Archie Sauerheber	<input type="checkbox"/>
Darrell Schulze	<input type="checkbox"/>
Gary Steinhardt	<input type="checkbox"/>

Vice President 1-Year Term

Dave Ralston	<input type="checkbox"/>
Mike Salem	<input type="checkbox"/>
Evan Troutman	<input type="checkbox"/>
Amber Willen	<input type="checkbox"/>

Secretary-Treasurer Appointed

Dena Anderson



2021 Winter Meeting

Indiana Association of Professional Soil Classifiers (IAPSC)

Indiana Association of Professional Soil Classifiers

Winter Meeting

Location: **Canceled due to COVID 19**

Fellow Professional Soil Classifiers,

On behalf of the IAPSC Executive Council, I want to thank you for your support of the organization in 2020. Many of you attended the Fall Tour at Mounds State Park in Anderson, Indiana in September. A special thanks to Gary Struben for arranging the fascinating, narrated group tour of the paleo native American mounds! With social distancing measures in place to a degree, we felt it was a successful event overall! In particular, our sincere appreciation extends to Dr. Jessi Haeft for the informative update on Ball State University's soil program. The challenge again for us to consider is that we must all do our part to help nurture a future for soils & environmental science students who will be entering the soil science profession. Will we rise to meet the challenge?

As you are aware, our winter meeting and social event of the year, has been postponed indefinitely. Rest assured we plan to reassess the COVID situation in the spring for possibly reconvening prior to the Fall Tour in September. With so many opportunities for virtual professional meetings as 2021 nears, I want to make you aware of one such meeting for CEU credits. The Soil Science Society of North Carolina is sponsoring its virtual meeting

9am-5pm Tuesday January 19, 2021 featuring speaker presentations. Go to the SSS NC website to register.

Finally, to all who have agreed to a ballot nomination for incoming president and vice president,

Huge thanks!

Again, on behalf of our leadership team of Dena, Norm, Dave and Mike, THANK YOU for supporting IAPSC during a tumultuous and surreal 2020!

Best wishes for a prosperous & healthy 2021!

Larry L. Gramm, RPSS, IAPSC president

"Whether You Think You Can, or Can't - You're Right"

-Henry Ford

The Indiana Association of Professional Soil

Classifiers (IAPSC) is a not-for-profit organization of soil scientists who are interested in the field study and evaluation of soils.

Larry Gramm, President
Jeff Woodward, Past President
David Laforge, President Elect
Michael Wiggington, Vice President
Dena Anderson, Secretary-Treasurer
Norm Stephens, Pedestal Editor
Tim Porter, Website Administrator

<https://www.oisc.purdue.edu/irss/iapsc.html>

<https://www.iapsc-in.com/>

Indiana Registry of Soil Scientists

(As written on the IRSS web site.)

The Indiana Registry of Soil Scientists is a program that establishes ethical standards and education, examination, and work experience criteria for Indiana Registered Soil Scientists.

<http://www.oisc.purdue.edu/irss/>

Pedestal

We need your stories and photographs for the Pedestal. Please email them to:

Indycaver@aol.com

Or mail them to:
Norm Stephens
1911 Central Avenue
Indianapolis, Indiana 46202

See the Pedestal in color:

Electronic copies of Pedestal will eventually be found at:

<http://www.iapsc-in.com/#!/documents/clpo4>

Membership Email Addresses

If you did not get an email notification of the electronic Pedestal it means we no longer have a valid email address for you. Please submit your current email address to Norm Stephens:

Indycaver@aol.com

Email is the most cost effective way the IAPSC can keep you informed of any last minute changes in meeting plans, or time sensitive notifications of importance to the group.

Everyone is Busy

Everyone who is serving, or has served as an IAPSC board member is a busy person. It's not a valid excuse for not taking a turn in our group's leadership. Many of the same people have taken on the different responsibilities many times over, or they have held a position for years on end. I applaud those who take on a role in our group, but I really find it disappointing we can't get more than one person to run for an office. The jobs do require a day, or two of your time over the course of the year. Most of the time ... a few hours at a time.

Diversity in our group's leadership keeps things fresh. Be sure and say yes when asked to run for office.

Norm Stephens
15th year as Pedestal Editor

Soil Classifiers:

Periodically (once every couple of weeks) I send, via email, notices on happenings within the National Cooperative Soil Survey. The subjects vary, but include job vacancies, workshops, soils videos, NCSS Newsletters, Soil Taxonomy updates, updates on Web Soil Survey, etc. If you are not currently on my email list (which is currently at about 120 folks) and would like to be added please send your current email to me at

Rick.Neilson@usda.gov Feel free to share this with others if you know of folks you think might be interested, but may not be IAPSC members. Maybe we can recruit some new members!

Of course, if you want to be taken off the list, just email me that too! (Except for the NRCS staff who will get them whether they want them or not!)

Rick Neilson

Indiana State Soil Scientist
USDA Natural Resources Conservation Service
6013 Lakeside Blvd.
Indianapolis, IN 46278
317-295-5875 (Office)
Rick.Neilson@usda.gov

Norm Stephens Retirement



Jake and I examine oxidation weathering along a joint in pre-Illinoian till in eastern Indiana.

2020 marks 45 years of working fulltime, with the latter 29 years being with SCS/NRCS. Prior to that I farmed with my in-laws and worked for a farm store chain. I started with SCS in 1989 by working on the Wetlands Mapping Team created as a result of the 1985 Farm Bill. We took 1987 NAPP air photos, soil maps, and FSA slides, and then delineated potential wetlands based on the hydric soils found in each county soil survey. No GIS layers in those days. I left SCS after 6 months for a field position and went to work for Indiana University as a research assistant working on the Sangamon Paleosol Project, and as a teaching assistant for an historical geology course.

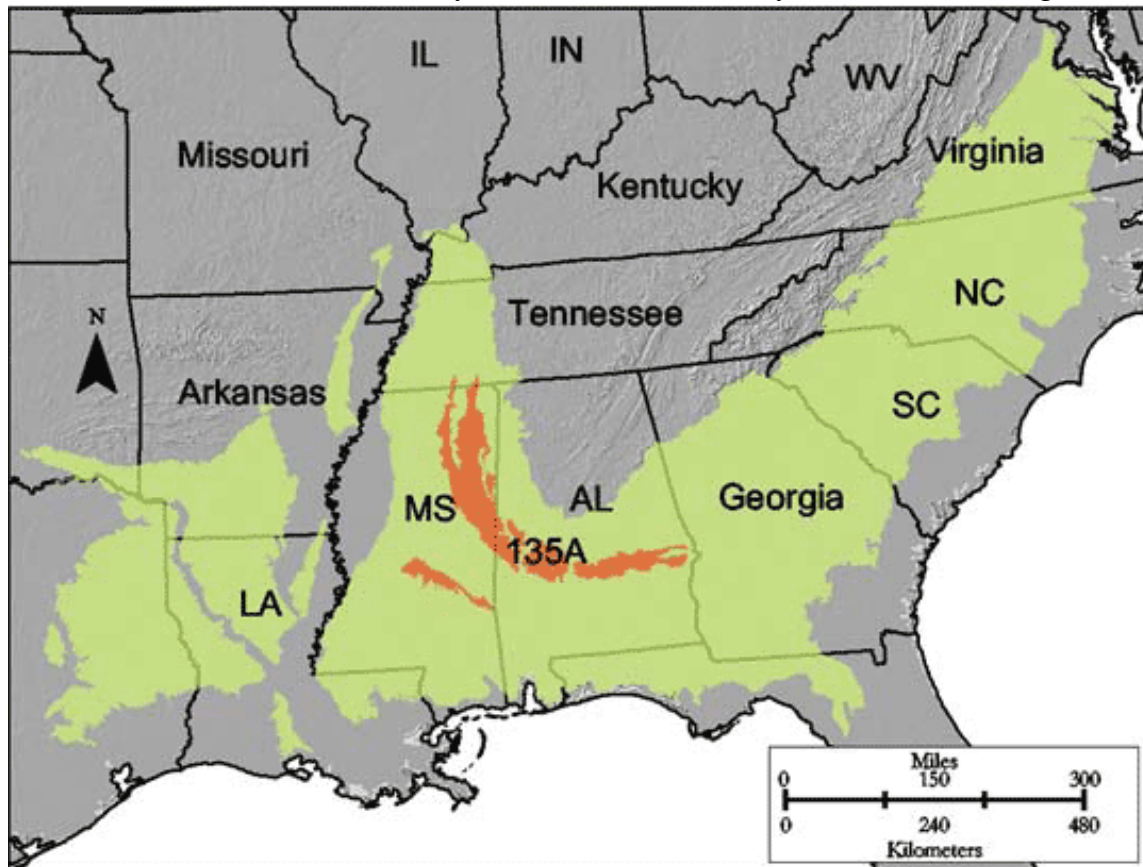
The Sangamon Project allowed me to do field work with some of the best glacial geologists in Indiana, Illinois, and Ohio such as: Dr. Robert Hall, Dr. Thomas Lowell, Dr. Barry Miller, Dr. Leon Follmer, Ned Bleuer, Tony Fleming, and Scott Brockman. The Sangamon Paleosol Project was concluding towards the end of 1991 and a friend at SCS called and told me they were

starting a new project called NRI (Natural Resource Inventory). He also told me that my old boss was wondering if I would be interested in coming back and working on it. The NRI project lasted about two years, but we were starting to work on digitizing soil surveys towards the end of the NRI project by first recompiling the soil maps onto stable mylar base maps. Two of us from the NRI Team were kept on as contract employees to do the map recompilation work and to help sell the idea of digitizing soil surveys to the county boards. We'd map anything for a buck in those days! Once the National Office decided we should digitize all the soil surveys, I moved into a position dealing more with quality control and training. I trained soil scientists in both Indiana, and Ohio to do soil map recompilation onto the mylar base maps and reviewed their maps when I wasn't working on my own. We moved into whatever job was needing done at the time, whether it was map recompilation, digitizing, training, or quality control. Today, nearly everyone has at least one computer with ArcMap, but back then, it was all dumb terminals running off one UNIX computer and every digital LT4X edit was a tedious process. Around 1999, I had the chance to join a soil survey party and I went back to doing fieldwork and mapping until 2012 when the SDJR process started. We completed MLRA updates on Fountain, Bartholomew, and Boone County soil surveys in Indiana, and more special projects than I can outline here. Field work was rather limited during the last 8 years to evaluating sites for farm program structures, and DSP (Dynamic Soil Properties) activities. It was nice to get back to doing more fieldwork this summer for my final year with NRCS. My last day is December 31st, 2020.

The Black Belt – Mike Wigginton
December 18, 2020

When I hear “black belt”, the first thing that comes to mind is a level of skill attained in martial arts. Why there’s even a Black Belt magazine. But today we’re talking about a **Black Belt** that’s a physical geography term referring to a geological formation of dark fertile soil, much of it Vertisols. At least that’s where the story

Mississippi Valley Loess. At the heart of Alabama's **Black Belt** is the Ripley *cuesta*, or ridge. It’s known locally as the *Chunnennuggee* after the Bullock County ridge formation of the same name. Another formation known as the Selma Chalk underlies the **Blackland Prairie**, a major physiographic component of the region. This sedimentary limestone bed formed over millions of years in the shallow gulf waters



begins...

Some readers may be interested to know that the Major Lands Resource Area (MLRA) is 135A: Alabama and Mississippi **Blackland Prairie**, which occupies about 6,370 square miles (see map below). The formation stretches about 300 miles long and 25 miles wide, mostly in central Alabama and northeast Mississippi. It’s surrounded by MLRA’s 133A and 134: Southern Coastal Plain and Southern

that once covered

modern-day Alabama during the Lower Tertiary Period, 66 to 38 million years ago. The Selma Chalk has since uplifted and tilted toward the Gulf of Mexico and is overlain by a layer of dark, fairly rich soils, that with proper irrigation, are excellent for growing cotton, wheat, and rice.

The Black Belt label has been used for more than 100 years and is thought to

have come from early settlers' description of abundant dark black soils found throughout the region. The exceptionally fertile black soil encouraged 1820's and 1830's pioneers to settle Alabama, constructing cotton plantations that supported half of the states enslaved population. Historically the region has been home to "the richest soil and the poorest people" in the United States. It has been farmed and inhabited mostly by poor Black residents, many of whom are descendants of slaves.

The dense, dark soils in the area are great for growing cotton but aren't very permeable and don't easily accommodate conventional septic systems. The soils are dominated by shrink-swell clays which are poorly drained and can easily damage and clog septic field lines as they expand and contract over wet and dry periods. The significant movement of the soil can cause septic tanks to settle and crack. As settling occurs, the recommended slope of the lines from the tank to the soil treatment area may be lost. Field lines in the soil treatment area may experience differential pressures or swelling over their lengths and become clogged. Natural Resources Conservation Service (NRCS) Soil Limitations Rating System ranks 93.4% of Lowndes County as "very limited" for use as septic tank absorption fields.

Regardless, the state of Alabama requires anyone not connected to a municipal sewer line, or 80% of Black Belt residents, to invest in a private waste-management system. Conventional septic tanks, which store sewage until it can be filtered by the earth and consumed by microbes, may be defeated by the dense soil. In some cases a **mound system** is recommended, which uses piled-up dirt to filter waste. Yet, in a region with a high water table and intense rains made worse by a changing climate, mounds can erode and tanks fail, sending sewage back through

toilets, sinks, and bathtubs. The Alabama Department of Public Health estimates 40-90% of households have an inadequate septic system or no system at all. Half of the septic systems installed tend to fail anyway in the impervious clay soil. Families cope the best they can often using straight PVC pipes to carry waste from houses to open pits and trenches that can overflow during heavy rains, bringing sewage into people's yards where children and pets play.

Local governments have limited resources, and it seems the state has not provided adequate help. People may be afraid to report problems, because in Alabama, not having a functioning septic system is a **criminal misdemeanor**. From 2002-2008, investigations by the Alabama Department of Public Health, led to a spate of criminal prosecutions launched against residents who couldn't afford proper treatment systems and were open-piping sewage from their homes. Residents can be fined as much as \$500 per citation, evicted, and even arrested. One grandmother spent a weekend in jail for failing to buy a septic system that could have cost more than her annual income. From 2015-2016, the median household income in the area was about \$27,000. Soil percolation tests are required and can cost landowners \$600. Engineered sewer systems can cost \$10,000 to \$30,000 which may put a sewage system out of reach for most people. Criminal prosecutions for failing septic systems has decreased in the last decade, but fear remains, and some prosecutions still occur.

Problem septic systems provide a perfect breeding ground for disease. Hookworm, historically affected 40% of the population in the southern US. Public health officials thought the disease was eradicated, but a 2017 study of Lowndes County Alabama residents found that 34% of participants suffer from **hookworm** which thrive in areas of extreme poverty with poor

sanitation. Hookworm isn't deadly but it can impede physical and cognitive development in children, and expose victims to intestinal illnesses.

Inadequate wastewater isn't just a Lowndes County or an Alabama problem. It's estimated that more than 20% of the US uses onsite wastewater systems, and that number rises to 40% or more in areas with large rural populations. It's suspected that up to half of the septic systems in the US don't work properly or fail at some point. By some estimates, 65% of the land in the US cannot support septic systems. In rural Alaska, where a single septic system can cost more than \$100,000, people rely on **outhouses** and **honey buckets**, pails lined with garbage bags. Untreated waste accumulates on neighborhood streets in Centreville, Illinois, where the city has done little to repair worn-out sewage infrastructure. A recent study of Florida's Miami-Dade County, warns that rising sea levels may threaten two-thirds of residential septic systems by 2040. Problems have been reported in Appalachia, California, Louisiana, Michigan, Mississippi, North Carolina, Ohio, Puerto Rico and Texas.

Where local governments either won't or can't afford to build infrastructure to connect folks to proper wastewater-disposal lines, people are left to deal with the problems caused by living with sewage that can bubble up into showers and bathtubs. The problems with onsite septic may not be much worse than what happens in some towns with managed systems. Heavy rains and flooding can overwhelm weak sewer systems, forcing sewage to back up in people's homes and may contaminate drinking water.

Many people don't have good options for wastewater management that are affordable to them. New technology may provide some relief. Several Alabama and other universities across the country are

collaborating on a project to develop sewage treatment for Alabama's Black Belt, where bad soil, poverty and long distances make traditional wastewater treatment options nearly impossible. The proposed system is a hybrid of traditional septic tanks, which may not work well in the Black Belt's thick clay soils and where building sewer lines and treatment plants would cost millions. The group estimates that 90% of septic systems installed in the area don't function properly, and the ones that do function are expensive systems designed to handle soil with really bad shrink-swell clay that won't readily absorb water.

The group of academics has developed system for testing that filters out solids on-site and collects them in tanks. Instead of discharging the wastewater underground, liquid waste is piped to a smaller, modular treatment facility. Separating solids means the system can operate with less equipment and can use small two-inch pipes instead of larger sewer mains. Since they're only treating liquid waste, the treatment units are simpler and less intensive treatment is needed. Treatment facilities are small and modular and can be expanded. If more homes need to be connected, another unit can be added. Individual homes attached to such a system have tanks, and like traditional septic systems, need to be emptied on a regular basis. In this case every five to eight years. The homeowner doesn't have to invest in advanced septic systems to manage the liquid waste.

Poor people around the United States are trapped in conditions no one else would put up with. Polluted air, tainted water and untreated sewage make people sick.

Catherine Coleman Flowers, author of the recently published book, "**Waste, One Woman's Fight Against America's Dirty Secret**", is trying make a difference. The county where she grew up was known during the civil-rights era as **Bloody**

Lowndes, because of the murders, attacks and evictions that whites inflicted on their Black neighbors. After a time away, she returned more than 20 years ago, to work in her home county, advocating for people and educating others about rural poverty and environmental injustice. When I heard her describing soil percolation tests in a radio interview, I decided to dig deeper. The information in the following list were sources for this article. I encourage you to investigate for yourself, the intersection of soil science, poverty, and environmental justice.

1. The Heavy Toll of the Black Belt's Wastewater Crisis, Many rural households in America don't have access to safe sewage systems. In Alabama, entrenched poverty and unusual geology have created a public-health disaster, New Yorker Magazine, 11/30/2020
2. Mold, Possums and Pools of Sewage: No One Should Have to Live Like This, Catherine Coleman Flowers, New York Times, 11/14/2020
3. Waste: One Woman's Fight Against America's Dirty Secret, Catherine Coleman Flowers, The New Press-2020
4. Hookworm, a disease of extreme poverty, is thriving in the US south. Why? Ed Pilkington, 7/10/2017, The Guardian
5. Pamela Rush Fought for Environmental Justice Before Being Felled by the Coronavirus, Michelle Love, Birmingham Watch, 8/22/2020
6. America's Clean Water Crisis Goes Far Beyond Flint. There's No Relief in Sight, Justin Worland, TIME Magazine, 2/20/2020
7. A County Where the Sewer Is Your Lawn Catherine Coleman Flowers, New York Times, 5/22/2018
8. In Alabama, racial disparities in health outcomes predate the pandemic (Pamela Rush was first featured in a 2018 report on extreme poverty), PBS News Hour, 7/24/2020
9. Trapped, video published by the Bernie Sanders presidential campaign (features Pamela Rush)
10. Potential solution emerges for Alabama's Black Belt sewage woes, Dennis Pillion, Al.com, 11/19/2020
11. Examining Wastewater Treatment Struggles in Lowndes County Alabama, Emily Meza, Masters Project, Duke University, 4/27/2018

Pipe Vise ... Quite the Improvement!

By Norm Stephens



A pipe vise mounted on a truck hitch works very well for changing soil probe shafts and probes. It puts to an end getting skinned knuckles wrestling with pipe wrenches on truck tailgates, or the ground. The pipe vise can be found on Amazon and other places:

<https://www.amazon.com/Grizzly-H3394-Pipe-2-Inch-Capacity/dp/B0000DD5A6>

You will need to fabricate a mounting plate to attach the vise to the trailer hitch. I used a one-inch bolt to attach the vise to the hitch, but it could have been done with a one-inch hitch pin as well. This arrangement allows for easy removal and storage in your toolbox.

Probe Truck Vise



The previous vise was removed by someone who thought they needed it more than we did. The replacement vise is attached to a 3/16 steel plate which is welded to a 2-inch steel tube for a 2-inch hitch receiver. The hitch receiver is welded to the steel frame of the probe guard. This allows for the vise to be easily removed and stored in a locked toolbox when not in use.



Setting up the 2020 State High School Land Judging Contest ... with social distancing.



Fieldwork can be very amusing at times! Dena Anderson tends the amoozometers during DSP sampling.