Ohio's Professional Soil Scientists

2020 Fall Newsletter
Volume 47, Issue 3 Part 1

Message from our president – Jeff Glanville

Greetings everyone. Hope you all are well.

It's the middle of November, and I hope we are near the end of at least one of our country's current dramas. Wish we could say the same about the pandemic. But we all know that won't last forever also.

I had heard that there was a lot of "stress shopping" during the election this year. And I guess that has been a thing for a while. But apparently a little more is going on this election season. Alcohol sales are up also. And home fitness and exercise retailers are doing well.

Wish I could have been a little more active in that third category, and a little less in the first two. Since we started working from home in March, I haven't taken the bus. So that means no 1.5 mile walk twice a day when riding the bus. And now it's too cold for me to ride my bike. It's also leaf season, and time to do last minute outside house maintenance.

I'm not sure I mentioned it before: the NRCS official soil data is now being updated the first of July. In years past, we had released the new data to coincide with the start of our fiscal year on October 1. The reasoning for the change is that our planners now can have everything in place by the start of the fiscal year. And we've recently changed it to where each county is updated every year. Sometimes there are more substantial changes, like new map units. More often, there may be only minor changes to some of the data or interpretations. Or there may be new interpretations. Some of the interpretations we've added recently are various soil health ratings, like organic matter depletion, susceptibility to compaction, subsidence of organic soils, etc. We also recently replaced the Ohio sewage treatment rating. This last one is named "Sewage Treatment Systems – NEW (OH)" in Web Soil Survey. There are also ratings for black walnut and wine grape variety suitability. Take a look, and let me know what you think about these.

We are investigating the possibility of having a virtual annual meeting. The timing will probably be about the same as normal. We will also need to do our officer elections a little differently since we won't be meeting in person. This will probably be just a complete mail-in ballot process. I hope that we can avoid any major controversies. More details to follow.

I received a question recently about the possibility of NRCS accepting site and pedon descriptions from consultants. This question had come up before, and we were never sure how to answer it. The potential problem is in having records with names, addresses, and contact information. Also, we were unsure of whether we could be in possession of this information, when the land owner did not specifically give us permission to have it. So we asked some of our national leaders. The answer was

that, since we don't make point data (sites and pedons) available to the public, we are free to include this information in our database. And USDA rules on release or sharing of "personally identifiable information" are very strict. If any of you have site and pedon descriptions that are gathering dust and are in danger of disposal, please consider donating it to the National Cooperative Soil Survey. Not sure we currently have sufficient staff to process it. There might even be potential for volunteers to type them into Excel forms that can be uploaded into our database.

Finally, please be receptive to requests to be on our ballot for election this winter. Even before the pandemic, we were doing Zoom meeting/teleconference almost exclusively for our executive council meetings. These run 1-2 hours, once a month. I enjoy seeing fellow council members and discussing agenda items monthly.

Until next time, stay safe. Please contact me or any of the other council members with questions, comments, or concerns.

Pres. Jeff

Future meeting announcements and cancelations

I will continue to send notices of webinars and on-line conferences that either do qualify for or could qualify for Continuing Education Credits. I'm working with Franklin Soil and Water Conservation District (where I still serve as an Associate Board Member after all these years, back to 1974) as they continue to develop a series of on-line educational opportunities, many of which would be of interest to soil scientists. Plans are to have a virtual Zoom Annual Meeting the end of February, 2021, more later.

A message from our new treasurer

Your Dues Due?
Thanks for being a member of the Association of Oho Pedologists. You are a member of a unique group of Science Professional. Being a member of the AOP affords you several benefits. Networking with similar professionals, networking with unfamiliar professionals, educational programs, great newsletter, CEU's, good food, just to name a few benefits. Being a member also requires you to pay your dues in a timely manner. It doesn't cost much to be a member, and stay a member:
Professional - $40.00
Affiliate - $20.00
Student - $20.00
If you aren't sure if you have paid for the current year, contact Rick Griffin, AOP Treasurer at: rgriffin1741@gmail.com; AOP in the subject line would help. Keep your membership up to date. It keeps our organization strong, informative and relevant to your professionalism.
Or mail your dues to:
Rick Griffin, Treasurer
937 Laurel Av.
Zanesville, OH 43701

Annual Dues payments

Name: _____

Please provide contact information:

Street Address_____

City, State, Zip Code _____

Email Address_____

Phone number _____

Association of Ohio Pedologists Membership Dues for 2021

For members approved as Professional.....$40

For members approved as Affiliate Members and Student Members.... $20

Category of Membership (circle one): Professional, Affiliate Member, Student Member, Honorary (No annual dues)

AOP Dues Amount: _____

Contributions to the Scholarship Fund: _____

Make checks payable to AOP and send to:

Rick Griffin, Treasurer

937 Laurel Av.

Zanesville, OH 43701

TOTAL AMOUNT ENCLOSED: _____

In addition, we would like to hear from you regarding membership and meeting topic ideas.

Are there individuals, either potential new members or former members that you would suggest being recruited to join AOP?

Are there topics that you would like to see covered, either as annual meeting program topics or as summer workshop topics?

You can provide input to Rick Griffin at the address above, to any other member of the executive committee, or let us know during discussion at the upcoming annual meeting.

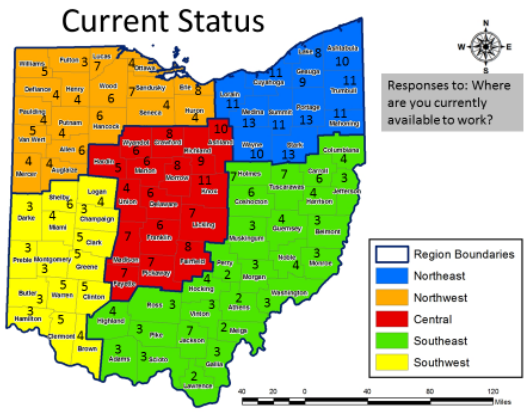
Survey of CPSS in Ohio

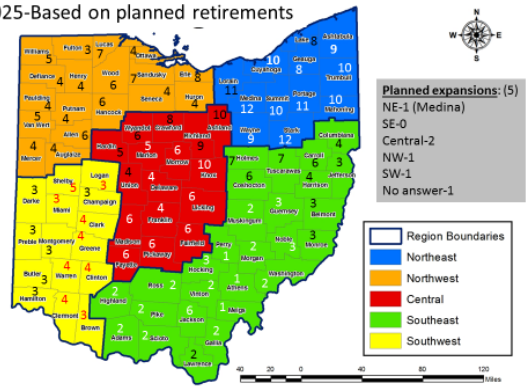
Help the Executive Committee Plan for training the next generation of Certified Professional Soil Scientists

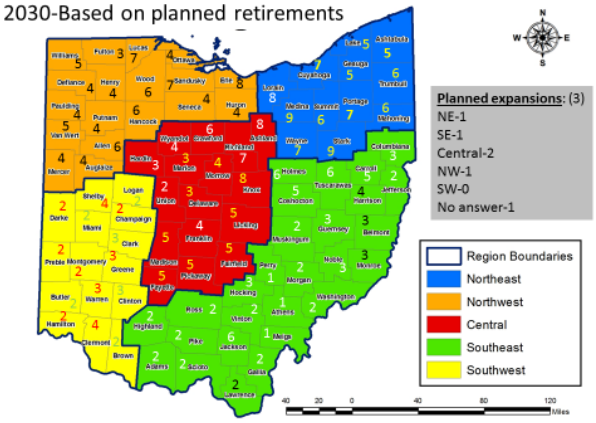
AOP State-wide Soil Scientist Needs Assessment I.

This is a short description of the results from the "AOP State-wide Soil Scientist Needs Assessment I" that was distributed to our members and other affiliates via the survey tool Qualtrics. I would first like to thank all of those that took the time to fill out the survey, especially the open-ended questions. We had a 64% response rate, which is great! The objective of the survey was to ask soil scientists working in Ohio to gauge five to ten year consulting

trends and to anticipate education and training needs. This information will be used to further the mission of AOP as a source of soils information and training for Ohio's soil scientists and to develop the next generation of soil scientists. In total the survey was distributed to 85 people via email and 56 responses were received as of this writing. Of those responses, 51 are current members, 28 are CPSS, and 31 hold a soil science or closely related degree. Again out of 56 responses, 38 identified themselves as consulting soil scientists, while 8 are not currently working/retired. Geographically a higher number of consultants indicated that they are available for work in the Northeast region (see Current Status figure), while the lowest number of responses was in the Southeast. Using the responses of "Where do you intend to work in 5 and 10 years?" projections were made for 2025 and 2030. A total of six respondents indicated that they plan on retiring within five years, while an additional nine plan on retiring within ten years. The largest geographic change is in the Northeast region with reductions, for example, of five and six in Mahoning and Portage Counties, respectively. The Northwest region of Ohio, based on responses, is the most stable, with few planned changes in consultants' county availability. In addition to communicating the results here in the AOP newsletter, for those who indicated in the survey, we will include county availability on the AOP website in the near future. The goal is to have an interactive Ohio county map where someone can click on a county and pull up the names and contacts of those consultants working in that county. Something that we can discuss at the AOP winter meeting is whether to make such a survey (annual, biennial) a regular feature, where we gather such information to gauge general trends in our members. Feedback on the survey or anything else related is always appreciated!







Job Opportunities and Openings

From Kathy Sasowsky
Hi Julie:
As we can see from Scott's maps, if they build it, they will come, as they say?! This could be encouraging for students to know that there are jobs out there recently listed as well as in the future.
Here's some recently listed for the newsletter. There will be more:

https://www.indeed.com/q-Environmental-Scientist-l-Akron,-OH-jobs.html?from=relatedQueries&saIdx=6&rqf=1&parentQnorm=soil%20scientist&vjk=bcff2be3956e0dd6

https://www.indeed.com/q-Environmental-Scientist-l-Akron,-OH-jobs.html?from=relatedQueries&saIdx=6&rqf=1&parentQnorm=soil%20scientist&vjk=b40c4d1dee289cb5

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https://www.indeed.com/q-Environmental-Scientist-l-Akron,-OH-jobs.html?from=relatedQueries&saIdx=6&rqf=1&parentQnorm=soil%20scientist&vjk=cb47a09f0b8c1f6d

-Kathy

An Equipment Scholarship opportunity

One of our stalwart soil scientists is hanging up his auger and has offered his equipment to a young up and coming soil scientist who is currently involved in her/his year of field training or has just finished and is setting up on their own. The Executive Council, fully understanding how expensive it is to equip a field person just starting out, has decided to award these field tools as a scholarship of equipment. We are proposing that these tools be applied for as a scholarship. Therefore, we would like applicants to submit a short essay telling us a little about yourselves, your goals, both short term and long term and what tools you currently need. The Executive Council will review the essays and determine the winner(s) who will be announced at the (virtual) Annual Meeting in February. To give us time to review the applications, please submit by January 31, 2021.

"Retired soils consultant has several tools he would like to go to a young soil scientist just starting in the consulting business. Includes a Backsaver, augers, a clinometer, other tools, some flags, etc. Could probably go as a package to someone or be split up. Email scholarship application response/responses to Julie at aopeditor2020@gmail.com. Please indicate specifically the items you are interested in. Must be a current AOP member."

Ohio State University AOP Scholarships

From Matthew Sullivan with an update from Rick Griffin RE: AOP Scholarship Fund

I have an update for the scholarships presented this year. Two were given: Erica Babusci and Monica Stevenson. Each received $1500; $750 in the Fall semester and $750 in the Spring semester. Each student is engaged in a Soil Science related field. OSU makes the decision on who receives a scholarship, based upon their applications. Currently, after the scholarships were awarded this year, the AOP fund has $4437.00 (update Dec. 1, 2020 $6,247.00) remaining. Donations can continually be made to our AOP Scholarship fund.

I wanted to make sure I sent everyone the correct information concerning the AOP Scholarship Fund for AOP. If someone would like to donate to the fund, they should put the following on the check and in the letter: AOP (Pedologist) Fund 314160

The address to mail the check is:
College of Food, Agriculture and Environmental Sciences
Office of Advancement
Suite B100 Riverwatch Tower
364 West Lane Avenue
Columbus, OH 43201

Dear Matthew Sullivan,

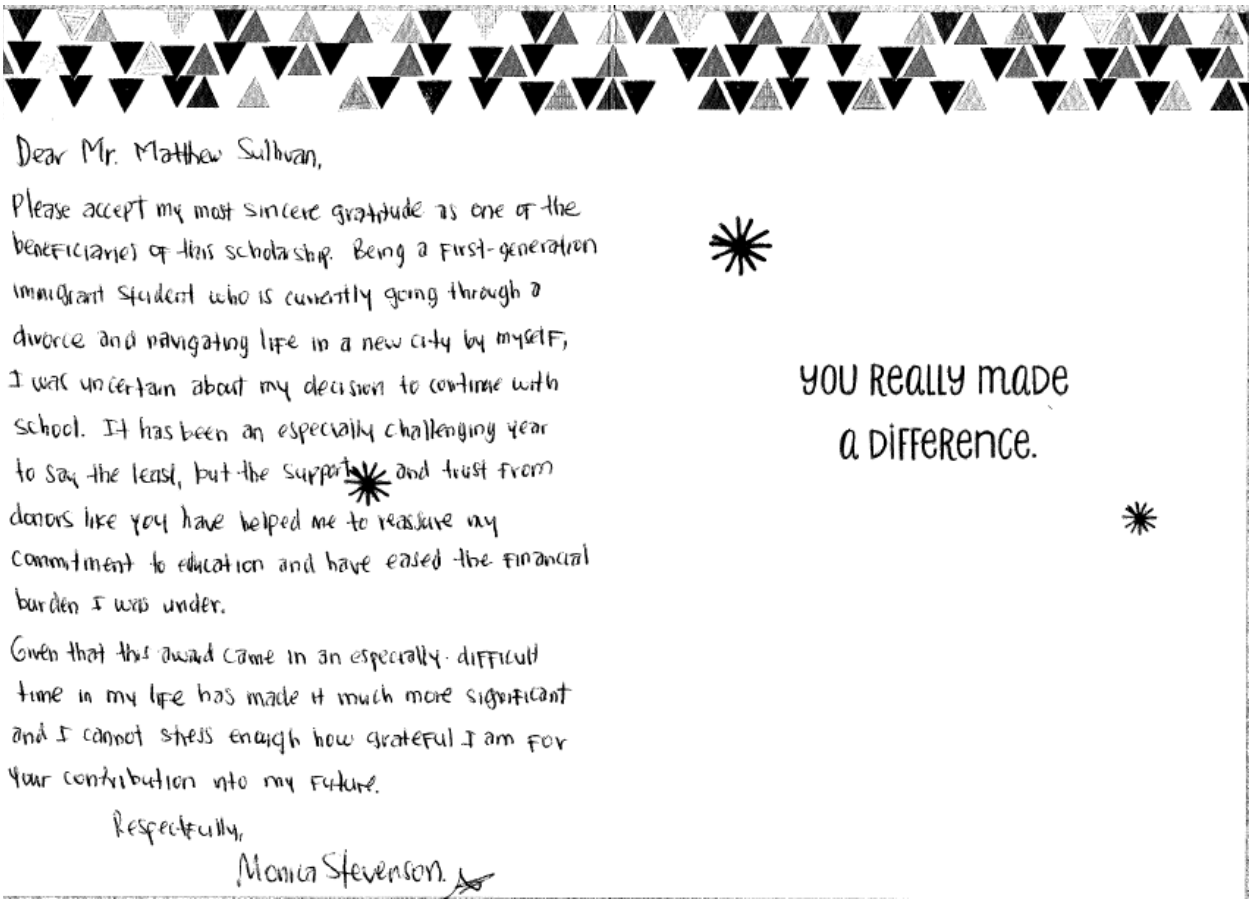
My name is Erica Babusci and I am a junior at The Ohio State University, double-majoring in Environmental Science and Biology-with a minor in environmental engineering. Being named one of the Ohio Pedologist Scholarship recipients is such an honor, and will help me pursue my educational dreams.

I am taking 17 credit hours this semester while working 16 hrs. a week at my on campus job. I am considering graduate school, so I wasn't sure if I could balance my work schedule and my studies. But because of your scholarship I can now reduce my work hours and focus on my studies. Your generosity has made this possible, and it is appreciated.

Sincerely,

Erica Babusci

OHIO STATE



Dear Mr. Matthew Sullivan,

Please accept my most sincere gratitude as one of the beneficiaries of this scholarship. Being a first-generation immigrant student who is currently going through a divorce and navigating life in a new city by myself, I was uncertain about my decision to continue with school. It has been an especially challenging year to say the least, but the support and trust from donors like you have helped me to reassure my commitment to education and have eased the financial burden I was under.

Given that this award came in an especially difficult time in my life has made it much more significant and I cannot stress enough how grateful I am for your contribution into my future.

Respectfully,

Monica Stevenson

you really made a difference.

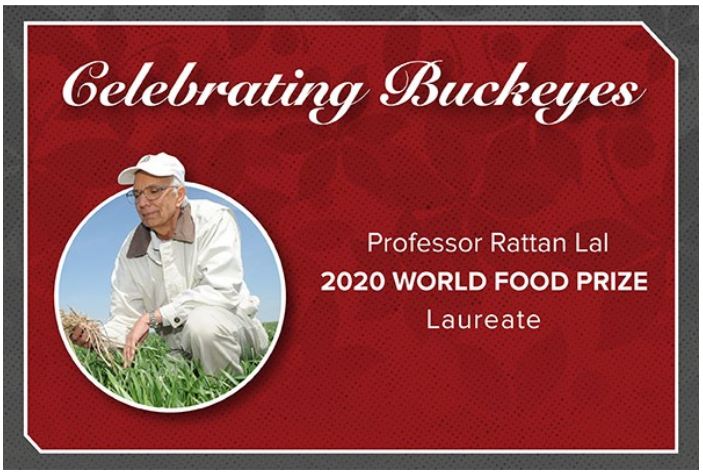
Celebrating one of our own

My daughter Susan and I were watching a recent video on WOSU about the restoration of Rock Mill in Fairfield County. This is an amazing historical mill site that has been lovingly rebuilt and restored by the greater Fairfield County community and is now a park that is open to the public. Imagine our surprise when one of the first people being interviewed for the program was our own Joe Steiger. I'm sure there is more to the story of his involvement than was covered in the short interview. Thank you, Joe, for giving back to the greater community on this important historical educational effort. We are planning a trip down once Covid-19 allows for safe travel. For those interested in learning more about the mill and the restoration effort, here is the link, https://video.wosu.org/show/rock-mill-saving-original/

And another honor of note:

THE OHIO STATE UNIVERSITY

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES



Dear Alumni and Friends,

I'm delighted to share that Rattan Lal, 1968 alumni of our college and a current faculty member in the School of Environment and Natural Resources (SENR), has been awarded the 2020 World Food Prize. **This is an award of international significance.** The awards ceremony was held yesterday and you can view a recording of the award ceremony **here.** Also, Ohio State, in partnership with Nationwide and the Ohio Farm Bureau Federation, hosted an event to pay tribute that could be of interest to members of the SENR community, which can be viewed here: **The Legacy of Dr. Rattan Lal.**

Dr. Lal is one of the most accomplished and honored faculty at The Ohio State University and he always gives credit to Ohio State for enabling him to achieve the success he has. I am also grateful for his generosity over the last couple years as he has given the award prizes and honorarium from several awards to establish an endowment that will support the ongoing efforts of the Carbon Management and Sequestration Center. To date, he has provided over $500,000. We are hopeful that further donor contributions will help us grow this endowment and sustain the center's efforts to understand and apply nature-based solutions to carbon management.

I am so proud and inspired by Dr. Lal. And while this week's awarding of the World Food Prize goes to just one of our many alumni, I hope you all can take some pride and gather inspiration from his success to appreciate what Buckeyes can accomplish!

There are so many alumni successes we never hear about, so I encourage you to let us know of any great work or recognitions that you or someone you know from among our alumni has received. Let us know at **senr50@osu.edu** . The successes you share with us are invaluable to our efforts to inspire the next generation of environmental and natural resource professionals.

Jeff Sharp

Director
School of Environment and Natural Resources
The Ohio State University

We Need Your Help for the new AOP Display

New AOP Promotional Display

Our old tri-fold promotional display was outdated in information and modality. Council decided that there was a need for a power point show to promote the Association as well as pedology/soil science as a field of study and a profession. This show is one which any member would have permission to use for the promotion of the Association and its goals. It will be present on our website for download (a "ppt" file). All it would require to run is Microsoft Power Point Viewer and a computer for use. It could be projected on a computer projector for use in larger format.

A tentative power point "slide" show has been created, but we encourage your input. Although Council knows of the education and training required in our field and the many activities and applications of soils, if you would like to make sure that your unique ideas are incorporated, please contact us. What we would especially like is high quality, digital photographs of soil profiles and landscapes which are significant to Ohio ("jpeg" format). In order to be "high quality", the photographs need to be well-lit, in focus, and ideally include something for scale (e.g. a tape measure or a person). We can't guarantee that your ideas or photographs will be included, but if selected, it would be particularly useful for photographs to include 1) the photographer's name, 2) company or government entity to which the image belongs, and whether you/they grant permission for re-use. We're sorry that there will be no remuneration for your input, but heck, we're a non-profit!

Send input and files to kathryn@sasowsky.com

Memorials for recently departed friends

From Jerry Bigham, the Passing of Dr. Frank Himes

Dr. Frank Lawrence Himes passed away peacefully on October 10, 2020, in Columbus, Ohio, due to pneumonia brought on from myasthenia gravis. Family was at his side.

He was born on July 30, 1927, to Ralph and Mary (Herr) Himes on the home farm in Montgomery County, Indiana. He attended New Market schools from first through 12th grade; received an AB degree in 1949 from Wabash College, an MS degree in chemistry in 1941 from Purdue University, then a PhD in Soil Science in 1956 from Purdue University.

Frank taught math and science at Remington High School, Indiana, from 1951-1953. During the summer of 1952, he had a Fellowship for Science Teachers at MIT in Boston. He was an Assistant Professor at Middle Tennessee State College from 1956 -1957. He then was a Professor in the Department of Agronomy at The Ohio State University where he taught soil science courses from 1957 – 1992.

He married Dorothy (Hostetter) Himes in 1951 in Bainbridge, Indiana, and they happily celebrated their 68th wedding anniversary last December.

Frank enjoyed people, had a positive outlook on life and enjoyed exploration. His brother remembers that he only wanted to read and hear about things that were "real". Although he grew up in the great depression, only getting two pairs of jeans each year, his memories were of fun times. With his brother, nearby cousins and friends, they spent many hours playing games, riding bikes, digging holes to bring electricity to their home, working on threshing rings, making maple syrup, going on picnics with the adults, participating in local plays, while also being active in church, in school, and working on the farm.

His hobbies included gardening, photography, travel and wood working. The OSU Faculty Photo Club was always a source of inspiration and enjoyment. Starting with a sabbatical leave at the Rothemsted Experiment Station in England, he and Dee became world travelers, exploring the world through the following decades. They traveled to 43 countries, nearly all the states in the U.S., and he was particularly happy to have had extensive stays in England and France. Until the end, he enjoyed sharing his pictures, often arranging them along unique themes at the request of his audience. He particularly enjoyed a series called "unexpected" or "around the corner". It captured scenes that tended to be daily life in interesting locations. As he was less able to travel, he spent many evenings reviewing pictures from his past trips and reminiscing about the wide variety of opportunities.

Other areas of enjoyment included playing bridge, where he and Dee increased their skills by belonging to several groups over many years, and tent camping with the family across the US and Europe. He was ahead of his time in developing a customized van for camping, complete with kitchen boxes, followed by obtaining an IH Scout II before SUVs were a hit. His children, brother, and childhood friends would tell you to beware of his skill at carrom and croquet.

Respected for his intelligent, thoughtful, open, and calm demeanor, Frank served the community in a wide variety of leadership positions at Northwest Christian Church and then Trinity United Methodist Church, where he was an Elder, chair of the Property Committee and taught Sunday school classes. He was an adult leader for the Y-Indian Guides and Boy Scouts. After retirement, he volunteered with Habitat for Humanity, amused by the tools brought by other volunteers. He always enjoyed informally mentoring and encouraging young people, as evidenced by the many notes of appreciation sent to him.

Among his professional achievements, he was a Fellow of the Soil Science Society of America, Fellow of the Society of Agronomy, and received teaching awards in the College of Agriculture and Department of

Agronomy at OSU. He was proud of, and recognized for, his work in developing an audio tutorial program for the introductory soil science course, including the publication A-T Notes for Soil Science. He was the author of various publications in Agronomy Journal, the Journal of Soil Science, and chapters of two books.

Frank leaves behind his wife, Dee, children Laura (John) Perone of Galena, Ohio, Caroline Himes of Boulder, Colorado, and Glenn (Anne) Himes of Herndon, Virginia, grandchildren Sam and Elizabeth, brother Glenn (Carmen), and many nieces and nephews.

Due to COVID restrictions, a memorial service will be postponed. Donations may be made to the Frank Himes Scholarship in Soil Science fund 643204 at The Ohio State University.

From Larry Tornes remembering Dr. Himes

I never had Dr. Himes for any classes, however, certainly enjoyed our discussions on soil fertility and how the carbonates in glacial till soils effect root growth. He had a lot of respect for Soil Scientists and our work.

Larry

From Matthew Sullivan remembering Dr. Himes

Here is a comment to honor the legacy of Dr. Frank Himes:
Dr. Himes is the reason I am a soil scientist. In my first couple years at OSU, I met Dr. Himes and he took an interest in me being a soil scientist. I was a crops major and Dr. Himes recommended that I spend more time on the "blue ribbon" floor of Kottman Hall. The walls on the 4th floor were painted blue in the late '80s and he considered it the "blue ribbon" floor. As I took his introductory soils class, I often questioned his confidence in me studying soil science. I passed his class and others along the way that provided a framework of what I know and understand today about soils. Dr. Himes was not my advisor, but he cared to ensure that soil science would be important for generations beyond him. My career choices never led me to map soils, but Dr. Himes helped instill a passion about Pedology that I can share to a lot of different people.

From Frank Gibbs, Dr. Donald Myers Obituary

Dr. Donald K. Myers PhD

Dr. Donald K. Myers PhD

Dover - Dr. Donald K. Myers, 86, of Dover, Ohio died Wednesday, Nov. 11, 2020 of a Covid-related illness. He was born June 30, 1934 on the third generation family farm in West Salem, Ohio.

He was a member of the first graduating class of Northwestern High School (Wayne County) in 1952. He continued his education at The Ohio State University and Michigan State University, earning Bachelors, Masters, and PhD degrees in Agronomy and Crop Sciences.

Don was employed by The Ohio State University, he was a County Extension Educator in Columbiana County and later became a faculty member as a State Extension specialist and teaching and research Professor in The Ohio State University Department of Agronomy. He was a

member of numerous professional organizations and inducted into both the Ohio Farm Science Review and the Ohio Agriculture Halls of Fame.

In recent years, he was an agricultural consultant for Tmk Farm Service of Bakersville, Ohio.

His devotion to agriculture and the people whose lives he touched while serving as an educator and scientist at The Ohio State University will keep his legacy alive across Ohio, especially in no-tillage and alfalfa fields.

He was preceded in death by his parents, Franklin and Helen (Swope) Myers, a sister Jane (Johnie) Holcomb and a brother, Norman (Janet) Myers.

He is survived by his remarkable wife, Marilyn (Smith) Myers of 68 years. He is also survived by two sons, Jeffrey (Beverly) Myers of Worthington, Ohio and their children, Kimberly (Greg) Crane and Kyle (Katie) Myers; Steve (Cheryl) Myers of California, Kentucky and children, Sarah (Josh) Jacobson, Ruth (Riley) Snowden, Aaron Myers, Josiah Myers, Hannah (Ethan) Simms, Micah Myers, Deborah Myers, Daniel Myers, and Abigail Myers; daughter, Marcia Myers (James) Gainer of Charlotte, N.C. and children, Meredith (Jeff) Hamilton and Matherly Gainer along with 11 great grandchildren.

A celebration of his life will be held on a sunny day, when it is safe for family, friends, and colleagues to gather together. Those who may wish to express a fond memory of Dr. Myers can sign the online guestbook on the funeral home website at www.tolandherzig.com Inurnment will be held at a later date in the Dover Burial Park.

He suggests that on his behalf you may reach out to someone in need. This may not be only monetary but could be words of praise and encouragement, a thank you or a visit or a smile, which could make a significant difference in someone's life, as well as your own.

Published on November 13, 2020

From Frank Gibbs via NRCS State Office channels

Henry Fisher's Obituary

Fisher, Henry H.

1936 – 2020

Henry Fisher, age 84 years, died on November 14, 2020. Proceeded in death by parents, Jacob and Evelyn Fisher.

Survived by wife, Goldie Fisher; daughter, Deborah (Daniel Beck) Fisher; son, Martin (Stephanie) Fisher; sister, Anne Faber; granddaughters, Lauren Fisher, Paulina Fisher and Ada Beck; grandson, Ezra Beck; nephews, Robert Faber and Nathan (Elizabeth) Faber; nieces, Lisa (Todd) Brennan and Denise (Heath Miller) Glass.

A private graveside service will be held on November 15 at New Tifereth Israel Cemetery.

He received geology degrees from Brooklyn College and Missouri School of Mines. He retired from Natural Resources Conservation Service in 2004. A square dance and contra caller, wood worker, piano player, and rock collector. He enjoyed life.

In lieu of flowers, contributions in Henry's memory may be made to Congregation Tifereth Israel at www.tiferethisrael.org

Online guest book at www.epsteinmemorial.com To get the zoom link for the funeral please email zoom2@epsteinmemorial.com

To Plant Memorial Trees in memory, please visit our Sympathy Store.

Published in The Columbus Dispatch from Nov. 14 to Nov. 15, 2020.

https://www.legacy.com/obituaries/dispatch/obituary.aspx?n=henry-h-fisher&pid=197105147&fhid=8669

Letters to the Editor

With these issues of the Newsletter, we are reaching out to a much larger audience. We critically need to grow the number of Certified Professional Soil Scientists (CPSS) in Ohio if we are going to meet the needs of the state in the future. Since the typical pathway to reach Certification takes nine years (4 year undergrad in Soil Science or related field including five core courses, one year internship with a CPSS, four more years of experience with oversight from a CPSS and an examination), we are not quickly going to grow our ranks before those of us who are preforming most of the work in the state decide we are too old or simply die off. Therefore, the Executive Council has decided that it is important to reach out to you. our natural partners, staff at county soil and water conservation districts and public health departments to encourage you to cross train to take up the challenge as the older generation decides it's time to lay down our soil probes. We already have members of AOP from soil and water conservation districts and public health departments. Additional staff from those organizations comes to our annual meetings and/or field days for training. Links to this Newsletter is being sent to each soil and water conservation district and public health department in the state, in hopes that the dialogue will be expanded.

This section of the Newsletter belongs to you, our members and future members, in the hopes that if we communicate with each other, we can find pathways to move forward to train the next generation. Please send your letters and/or responses to the Editor at AOPEditor2020@gmail.com and I will include them in upcoming issues of the Newsletter which is developed and disseminated quarterly.

From Jerry Bigham

Hi Julie. The newsletter has never been more important to our organization, and you are doing a great job. I knew you would. Thanks so much. Jerry

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A Two Part Newsletter

This ends part one of the Fall Newsletter. Our members were so generous with their forwarding of technical references and experiences that had I incorporated them all into one issue, it would have been far too large to read in a single sitting. Therefore, I am dividing the issue between AOP "News" and our ongoing attempt to offer continuing educational opportunities for our members in light of the new normal COVID-19 lifestyle we are all living. So when you tackle the second part, grab a cup of coffee or tea, time yourself and count those Continuing Education Credits.

Ohio's Professional Soil Scientists

2020 Fall Newsletter
Volume 47, Issue 3 Part 2

Journal Articles etc. of note

Jerry Bigham sends the link to this web page article.

Julie,

Please see the attached article. Bob Parkinson has some great historical information about a major conservation event that occurred in Licking Co. during the late 1940's. He says Bob Ritchie actually attended the event while a student at Ohio State. It could be a nice series of articles for the Newsletter.

Jerry

Bob, want to add more to the story?
https://www.5280.com/2020/09/the-man-who-saved-the-nation-from-one-of-the-worst-environmental-disasters-in-history/

From Matt Lane, the Statewide Virtual Soil Judging Contest;

The OhioFFA's annual land and soil judging Career Development Event was held on Tuesday, October 20. The event is designed as a practical method of teaching students to evaluate land and soil and to determine its potential use for urban, home site, and agricultural production. Due to restrictions on in-person gatherings, this year's contest was virtual. These restrictions presented a challenge to contest organizers, as the event typically involves students traveling to a field site and physically inspecting several soil pits. Instead, students remained in the classroom and were shown a series of videos of a soil scientist describing a soil pit.

The OhioFFA worked with soil scientists Steve Baker, Jeff Glanville & Jessica Burns from the United States Department of Agriculture Natural Resources Conservation Service and Matt Lane with the Ohio Department of Agriculture to create the videos. The "virtual soil pits" were excavated at the Lintner Conservation Education Farm owned by the Champaign Soil and Water Conservation District.

Over 1,600 students across Ohio participated in the contest. In the urban soils contest, Gallia Academy earned first place, eking out a two point win over the defending champion, East Knox, with a final score of 2336 to 2334. The top individual was Dustin Holmes with Centerville Environmental Management (and tied for second place was Mallory Deaton, daughter of AOP member Matt Deaton). In the agricultural soils contest, the top team was Centerville Environmental Management. Two students tied

for first place, Hayley Kovacs and Zoe Lamb, both from Centerville Environmental Management. The top five teams in each contest qualify for the National Land and Range Judging Contest.

From Duane Wood, the Wayne County Experience

Dear Julie,
I just wanted to let you and our members know that here in Wayne County, the local FFA/Vo. Ag. programs were able to hold a semblance of a soil/land judging contest. Kelsey Bowers, the Vo-Ag teacher at Triway, found us the farm and an excavator. Almost all of the schools were permitted to participate. Kelly Riley of the Wayne SWCD and I scored and prepared the pits a day ahead on a dairy farm that included soils mapped as Riddles, Fitchville, and Luray. The Fitchville turned out to be more like a Glenford, but the Luray was seemingly true to form and in a small depression to boot. Since it had been such a dry fall, the Luray pit didn't have a water issue, but it was a good example of where not to put a house or septic system.
Normally the contest would be held with all students present, but with the current state of affairs, the teachers were able to schedule such that as one group finished another arrived. We only used three pits rather than the usual four. Normally I have a chance to address the entire group to promote soil science and potential careers, but with the all-day format I was only able to talk with a limited number of students. However, I did have one young lady tell me she was very interested in becoming a soil scientist☺.
Thank you,
Duane Wood

Northwestern- Wayne FFA
Levi Myers/ Heather Tegtmeier
7473 North Elyria Road
West Salem, Ohio 44287
Phone (419) 846-3384 Fax (419) 846- 3163

October 8, 2020

Dear Duane Wood,

Thank you for officiating the County Soil Judging Career Development Event. Through this event, our members learned how to correctly texture, classify, and evaluate land and also how to conduct themselves in a contest setting. With your continued support, the students in our chapter continue to improve themselves in this competition and overall as a member. Our chapter thanks you for your continuous support and encourages you to proceed with these actions in the future.

Sincerely,

Lizzy Howman
2020-2021
Northwestern-Wayne FFA Secretary

Riley Mertz

Jocelyn Aguirre

Thank you for being a Judge.
We appreciate all your hard work to allow us to have a soils contest!

WCSCC FFA

Dear Duane Wood,

The Triway FFA would like to thank you for being the judge of our chapter soil contest. It meant a lot to all of the contestants to be able to participate in the contest and learn more about soil. We are so grateful for community members like you who are helping make our school year as fun and normal as possible!

sincerely,
aurora Metz
Triway FFA secretary

Just love this photo. This is Triway FFA! What a change in a generation.

Stumbled upon this article from 2014 and thought it might be of interest to the group as it incorporates information about our macropore research and STATSGO data flow modeling. Let me know if you want the PDF to read it, it's too long to reproduce here.

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The role of macropores and multi-resolution soil survey datasets for distributed surface–subsurface flow modeling

Xuan Yu [a], Christopher Duffy [a,*], Doug C. Baldwin [b], Henry Lin [c]

[a] Department of Civil and Environmental Engineering, The Pennsylvania State University, University Park, PA 16802, USA
[b] Department of Geography, The Pennsylvania State University, University Park, PA 16802, USA
[c] Department of Ecosystem Science and Management, The Pennsylvania State University, University Park, PA 16802, USA

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SUMMARY

Distributed watershed-scale modeling is often used as a framework for exploring the heterogeneity of runoff response and hydrologic performance of the catchment. The objective of this study is to apply this framework to characterizing the impacts of soil hydraulic properties at multiple scales on moisture storage and distributed runoff generation in a forested catchment. The physics-based and fully-coupled Penn State Integrated Hydrologic Model (PIHM) is employed to test a priori and field-measured properties in the modeling of watershed hydrology. PIHM includes an approximate representation of macropore flow that preserves the water holding capacity of the soil matrix while still allowing rapid flow through the macroporous soil under wet conditions. Both phenomena are critical to the overall hydrologic performance of the catchment. Soils data at different scales were identified: Case I STATSGO soils data (uniform or single soil type), Case II STATSGO soils data with macropore effect, and Case III field-based hydropedologic experiment revised distributed soil hydraulic properties and macropore property estimation. Our results showed that the Case I had difficulties in simulating the timing and peakflow of the runoff responses. Case II performed satisfactorily for peakflow at the outlet and internal weir locations. The distributed soils data in Case III demonstrated the model ability of predicting groundwater levels. The analysis suggests the important role of macropore flow to setting the threshold for recharge and runoff response, while still preserving the water holding capability of the soil and plant water availability. The spatial variability in soil hydraulic properties represented by Case III introduces an additional improvement in distributed catchment flow modeling, especially as it relates to subsurface lateral flow. Comparison of the three cases suggests the value of high-resolution soil survey mapping combined with a macropore parameterization can improve distributed watershed models.

Somehow, during my years as Adjunct Professor at Ohio State, I was signed up into a program called Research Gate that tracks the number of people who read and cite my publications. Of course, in my case, they are our publications, works we have been writing, presenting and publishing for what must now be 60 years. My name is on less than 40% of those publications but those are the only ones I can track. But just since 2000, we have had more than 600 reads for just the papers I am listed on. Even more importantly, the interest continues and the papers continue to be read. I'm certain that if we all were being tracked, the numbers would be far, far higher. I'm reproducing this last week's report here because the two papers listed was one that George Hall and I wrote in 2006 about how quickly fractures form and one that Jerry Bigham and I also wrote that year, the "Green Rust" paper. Each week it's a different set of papers and some weeks there are none, but the interest continues. In our own small

way, we have all made a difference, worldwide, from our efforts. George Hall would be so proud of all of us.

Report for week ending
November 28, 2020
Report for week ending
November 28, 2020
Summary

- +7

Reads

Your most read publications

Show only publications

Fracture and Gully Formation in Glacial Fill: Field Observations at the WillowCreek Landfill, Portage County, Ohio, with Implications to Historic Earthen Dam Failure Sites in the US
Article

+6
Reads
2 Full-text reads
Current total: 71

Buried Pre-Illinoian-Age Lacustrine Deposits with "Green Rust" Colors in Clermont County, Ohio1
Article

+1
Read
0 Full-text reads
Current total: 82

Reads by institution

United Arab Emirates University

- United Arab Emirates
- Al Ain

+1
Read
Reads by country
United States
+5
Reads
United Arab Emirates
+1
Read

The Technical Corner

This is a new column open to any and all members who want to discuss technical issues, equipment, new methodologies, observations, any of the discussions that we would typically have at field days and training sessions which, because of the Covid-19 Pandemic, are not available to us at this point in time. The Executive Council is hoping that this column will encourage the ongoing dialogue that has made AOP gatherings so very informative. This issue's presentation comes to us from Kathy Sasowsky. Would you like to be next?

Climate Change and Soils

By Kathy Sasowsky, AOP member and Cuyahoga County Community College Adjunct Professor

Evidence that the Climate is Changing

There is an abundance of evidence that the climate is changing. Before listing some of these, we must be able to distinguish between weather and climate. Weather is local (think your city, town, or township) and short-term (this week up to 10+ years). Climate is regional (think the Midwest, New England, etc.) and is long-term (usually considered multiple decades to thousands of years). Weather determines whether we wear a jacket today when we go out. Climate determines what soils develop and what vegetation types naturally grown in that region. So, here's an incomplete list of evidence that the climate is changing:

1. Shrinking glaciers (land ice).
2. Shrinking sea ice.
    a. longer melting periods
    b. smaller area over 30-100-year time frames
    c. polar bear deaths (e.g. 17% reduction in Hudson Bay over the last 30 years) and extinction potential increasing
    d. rate of decline in extent of sea ice seems to be increasing over the last decade
3. increases in humidity (NOAA, 2010)
4. increases in near surface atmospheric temperatures (NOAA, 2010)
5. increases in temperature over oceans (NOAA, 2010)
6. increase in sea surface temperatures (NOAA, 2010)
7. increases in ocean heat content (NOAA, 2010)
8. rising sea levels
9. increase in temperature over land (NOAA, 2010; McConnell and Steer,2021)
    a. the 20th century was the warmest in the last 1000 years
    b. the ten hottest of 1000 years of record have occurred since 1998
    c. average temperatures mask changes in specific locations
10. decreases in snow cover
11. animals and plants are migrating to higher elevations and higher latitudes
12. increases in precipitation in some locations and droughts in others
13. melting of permafrost
14. heat waves
15. more frequent and intense hurricane activity

What is causing the current climate change?

An increase in the concentration of greenhouse gases in the troposphere (lowest level in the atmosphere) is extremely likely to be the cause of our current climate change. This results in the

greenhouse effect (what happens in a closed car on a sunny day, more obvious in winter). The greenhouse effect results from visible light from the sun coming through the atmosphere, heating up the ground (being converted to infrared radiation), the solar radiation being re-emitted as this longwave, infrared radiation, and being absorbed on its way back out to space by the greenhouse gases. The absorbed infrared radiation is then kept close to Earth's surface, heating up the troposphere and "blanketing" Earth. It's the same thing that happens on a cloudy night (no frost) versus a cloud-free night (higher potential for frost in Spring and Autumn).

Water is the most important greenhouse gas, but people haven't altered the water content in the atmosphere much. The greenhouse gas level in the atmosphere which people have altered most is carbon dioxide. We have altered the carbon cycle greatly by burning fossil fuels (coal, oil, and natural gas) at a much more rapid rate than they are being created (this is why fossil fuels are considered nonrenewable fuels). Fossil fuel combustion is thought to be responsible for about 2/3 of the increase in greenhouse gases in the atmosphere over the last 150-200 years (since the industrial revolution). The remaining 1/3 is thought to be from agricultural practices, namely clearing forests and cultivating land by modern agricultural practices. Clearing forests removes a very large biomass which took in carbon dioxide from the atmosphere and gave off oxygen (photosynthesis). Cultivation (primarily tillage and removal of vegetation) increases oxygen levels and temperature in the soil. This speeds up decomposition of organic matter because that process is caused by soil organisms which breathe in oxygen and exhale carbon dioxide (like us); most biological processes and chemical reaction rates are increased with an increase in temperature, within limits of normal temperatures on Earth's surface.

How is current climate change different than past climate change?

1. Long-term (millions of years) climate cycles are caused by the moving locations of continents (plate tectonics) and the resulting ocean circulation patterns. The size, shapes, and latitudes of continents affect global temperatures of land and water. Water is slow to change temperature (high specific heat) and generally moderates the temperature of nearby land. Land heats and cools more rapidly (low specific heat) and the areal extent of the land impacts the extent of the temperature range. The ocean surface circulates following prevailing wind directions. Wind directions are dictated by pressure differences, which in turn are due to the differential heating of the surface of Earth (globally meaning equator warm, poles cold). One example of ocean circulation affecting temperature of land is “the Gulf Stream,” which brings warm water northward up the East coast of the U.S.A. and circulates to the United Kingdom moderating the temperatures of higher latitude lands. There is also deep ocean circulation of the ocean, flowing upwards from deep water, sideways in a serpentine path, and downward from surface water in a cycle of about 1,000 years. This is referred to as thermohaline circulation because it is driven by density differences, which are affected by temperature and salinity differences.

2. Geologically short-term (10,000-100,000 years) climate cycles are due to Earth-Sun relationship changes (Milankovitch cycles). These astronomical changes include eccentricity (shape of orbit), tilt of the Earth (because it affects intensity of solar radiation and therefore heating), and precession (wobble or changes of orientation in the tilt of Earth's axis). Currently the North Pole always points to Polaris (the North Star), so this polarity of Earth’s axis combined with the tilt of the axis causes our seasonal differences in temperature. All other factors being equal, the seasonal differences are more pronounced as latitude increases. There is a complex interaction of the Milankovitch cycles because each cycle is of a different length. The Milankovitch cycles can account for the Pleistocene (Ice Age) widespread glaciation in North America and Eurasia. It cannot explain the current climate change.

3. The current climate change (the last 50-200 years) is considered geologically immediate and instantaneous over geologic time. Read on to learn how this causes problems and how soils can be part of the solution.

Why scientists are worried about current climate change

1. The rate of climate change is geologically instantaneous.

The current rate of climate change is very fast geologically speaking. When we have very fast Earth processes occurring, it *usually leads to catastrophic Earth responses*. Rates of change are non-uniform across the Earth, with more severe changes in the Arctic (vs. Antarctic). This means that the Northern Hemisphere (where most of the world's land and people live) will likely experience greater temperature increases than the Southern Hemisphere. This means that *most of the Earth's people will experience the effects* of climate change, despite the fact that they may not have been responsible for it.

2. Temperature could exponentially increase.

Atmospheric carbon dioxide levels are very well correlated with temperature over the past 400,000+ years. The glacials and interglacials of the Pleistocene, in fact, are evident solely from graphs of carbon dioxide levels (lows of ~100 ppm by volume during glacials and highs of ~275 during interglacials). Carbon dioxide levels have risen higher than they have been at any time in the last 400,000 years (to >375 ppm by volume, with an exponential increase in the last 200 years). Because temperature changes tend to trail carbon dioxide levels, scientists are worried that soon we'll experience an exponential increase in temperature.

3. There are economic and personal ramifications of climate change.

We will experience an increase in cooling (HVAC) costs. Air conditioners give off heat, which will exacerbate global warming. This is not just our homes and businesses, but includes all those data centers where all our electronic information is stored on the cloud (so they can market to us), which requires machinery (computers, servers, etc.) that generate heat and must be cooled.

Weather damage is increasing. There will be *more hurricane damage* and government (taxpayer) bailouts. Especially in the Ohio, we will experience *more flood damage*. This impacts our homes and businesses, but also farmers; this affects our taxes as the hurricane damage does. Some areas in the Mid-West will experience *more droughts, with an increased need for irrigation*. Note that changes in precipitation are not "global warming", but are "climate change." Small climate changes can affect crop growth and survival of people (historically the Little Ice Age in Europe lead to famine and death). Crops and agricultural practices will need to change to adapt to more or less heat and water.

Crop pests are migrating to areas never before impacted by them. What impacts farmers, impacts the cost of our food as well as one out of eight jobs in Ohio which are related to agriculture.

Most of the world's high population centers are located near coasts and *coastal erosion and storm-surge flooding* from sea level rise is increasing (think about superstorm Sandy in New York and New Jersey). People will be forced to move inland or build infrastructure to reinforce the coast; likely soil will be destroyed as cities expand. The Netherlands is building more dikes, while cities on deltas (e.g. Bangladesh) and some islands will become uninhabitable.

Rise in sea level causes *saltwater intrusion into freshwater aquifers*, making aquifers less potable. Certainly, water will become more expensive.

There is already an *increase in disease. Insects and other pests* and the diseases which they spread are *expanding to areas where they never occurred before* (think of Zika coming to Florida). Health costs will increase and people's health will be negatively impacted.

4. There are political impacts of climate change.
There will likely be *wars over water*. Secondarily there will be *wars over food shortages or because of an increase in the cost of food*. Marginally supported populations in semi-arid regions will experience famines and death during droughts as has happened in recent history (e.g. Somalia). Globally crops are already failing due to climate change and in South America (e.g. Guatemala) people are migrating to North America. *The immigrant problem* we are already dealing with is said to be fueled by this. There will likely be wars over immigration, especially because of the poor and hungry people whose numbers will be increasing from climate change.

5. Potential irreversibility.
Positive feedback loops, such as the lower albedo (less reflection of solar radiation) of melted ice (water) versus ice causes more absorption of solar energy. This leads to more heating and thus more melting and an *acceleration in the rate of global warming*.
In contrast, the *thermohaline circulation of the ocean*, previously discussed, may change as ice (fresh water) melts, changing the temperature and salinity of the Arctic Ocean. This could produce *non-intuitive climate changes*, such as slowing or stopping the Gulf Stream, which would result in a *colder eastern U.S. and northern Europe*. This is one of the many reasons scientists refer to "climate change" instead of "global warming", even though it's caused by overall warming.
Methane hydrates (frozen methane in Arctic waters) have more carbon than fossil fuels, soils, oceans, and the atmosphere combined. As the Arctic Ocean warms, the fear is that the *methane hydrate will melt and release methane (a very strong greenhouse gas*). This has the potential to create a *runaway greenhouse effect*.

Can we do anything about climate change and how can soils be a large part of the solution?
Yes, if we act soon and change our behavior quickly, we can affect the amount of climate change. Currently more carbon enters the atmosphere as carbon dioxide (and other gases, such as methane, another greenhouse gas) than exits the atmosphere. This means that we have upset the carbon budget of Earth, which had been operating in equilibrium or balance (no net gain/loss) for millions of years. Human activities are calculated to be responsible for 3.4 billion tons of additional carbon in the atmosphere (McConnell and Steer, 2021). This comes from the following activities: respiration (animals exhaling, including people), burning/timbering forests, an increase in decomposition rates in soils, and burning fossil fuels. The contribution from animals, even with our current global exponential population growth, is not a large contributor of carbon dioxide.

Because more than half of the world's rain forests have been destroyed during historic time, loss of these "removers of carbon dioxide from the atmosphere" is huge. This doesn't even consider the forests in other ecosystems (e.g. Ohio, which was primarily forested, except for the northwestern part, which was thought to be grassland and swamps before western European immigrants moved in). Agricultural practices have already been discussed, but surely the trend toward "no-till" and "reduced tillage" as well as soil quality improvement practices, such as planting of cover crops, are beneficial. Those practices help the soil, help the crops, help decrease erosion, and help the atmosphere; they are more in equilibrium with natural processes.

Anything we do to reduce energy consumption (because currently we primarily use fossil fuels for both transportation and electricity) and efficiency standards can help combat climate change. Decreases in consumption of material possessions (all require energy from cradle to grave of the object) are critical as long as we are using fossil fuels. Nuclear power is carbon neutral, but has other environmental and health consequences for 1000's of years.

Fossil fuels come from rocks in the Earth and are millions to 100's of millions of years old. We have been combusting these carbon source for the last two centuries during the industrial period of history. Carbon content in the atmosphere has been changed over the last 200, and especially the last 50-70 years as energy use has increased dramatically. We can alter our fuel choices, rate of energy use, population dynamics, standards of living, timbering rates (especially in the rain forest where deforestation leads to destruction of soil, which makes reforestation extremely difficult), and agricultural practices. Use of natural gas is preferable to use of coal or oil because it produces less carbon dioxide per Btu (British thermal unit).

Combustion of wood or other biofuel is producing no net carbon addition to the atmosphere because it is carbon neutral over a person's lifetime (or two in the case of wood, which does have other air pollution effects). Corn for ethanol is the possible exception of a carbon neutral biofuel because it requires high "chemical" fertilizer inputs. If you remember your soil fertility course, you may remember that "chemical" nitrogen fertilizer generally requires lots of energy (generally fossil fuel), to produce the fertilizer. Side note: the very maligned consumption of meat by environmentalists is misplaced because, although meat production does produce methane, methane contains current carbon (in and out), with the exception of any "chemical" fertilizer inputs in feedstock. There are good health reasons to decrease meat consumption, but carbon in the atmosphere is not a valid reason in this scientist's opinion.

You may notice that many of the solutions to climate change have to do with soils!

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The Role of Soil Science in the History of Ohio

This is a new column that I am adding to the newsletter. We all recognize the importance of soils to the settlement and development of the State of Ohio, but few of us realize how important those soils and parent materials were to the founding of Ohio's first industry, Ceramics. This column is dedicated to documenting investigations undertaken by Ohio soil scientists that may be a bit out of the norm and/or the role of that industry in the development of the state.

The first discussion comes from my relationship with the Walnut Grove-Flint Union Cemeteries in Worthington and Sharon Township, Franklin County, Ohio. I serve on their Advisory Board and have since the mid-1990s, a left over assignment from my years on the Board of Supervisors of the Franklin SWCD. Since I live in Worthington, I just stayed on. This is a three part story that documents a Forensic Soils Investigation undertaken by AOP members here in central Ohio. It was a neat piece of research using modern technology and old fashioned field work. It also helped to answer a mystery that had its roots going back to the settlement of the Village of Worthington and Sharon Township in 1803. This is the story of the Ozem Gardner Homestead Underground Railroad "tunnel" investigation.

I was hoping to have the second installment of the story, the geophysical investigation finished for this issue of the Newsletter, but my co-author for this segment, Barry Allred, ARS, ran out of time to meet

my deadline. He promises to get his notes to me soon so I can complete this segment for the next Newsletter.