



ASSOCIATION OF OHIO PEDOLOGISTS

OHIO SOIL PROFESSIONALS

www.ohiopedologist.org



PRESIDENT'S MESSAGE

May 2016

Driving from Ohio to northern New York with a vehicle full of sleeping kids was a regular feature of our excursions to visit my parents. The goal was to get as many road miles as you could while it was dark and the gang was snoozing. Of course, another difficult task was to stay awake through the night. That little knob on the northeast corner of Pennsylvania, was just an obstacle that had to be driven through. It was nice to count the miles and be able to check off an entire state in about an hour of driving.

Now that our kids are out on their own, we kind of view the trip in a different light. A little more of an adventure, and a lot less of a chore. In that little knob, we've discovered a unique beach where the shale has been pushed up by the pounding waves, and lies on top of the sand. There is a delicious chocolate store that it is all too easy to overspend in, and several quaint wineries that are begging us to stop on our next pass along that north coast.

That's one of the reasons I jumped at the chance to co-host the Summer Technical Tour with PAPSS. Aside from the convenient location for us in Ohio, Alex Dado, NRCS Resource Soil Scientist for Western PA, is in charge of the program. Alex has assembled a great program with a good variety of soils and

stops to fill the two days. The details are in this newsletter. Be sure to note the dates and deadlines and get your registration and reservations shored up soon. Summer is tourist season in Erie, so the best opportunities for lodging will be for those who make their plans early.

Hope to see you there!

Neil Martin, President

ALSO IN THIS ISSUE: ELECTION RESULT E-MAIL ADDRESSES FOR COUNCIL, SCHOLARSHIP FUND UPDATE, PA/OH JOINT TRAINING, DRONES, PHOSPHORUS UPDATE, 2016 dues form

ELECTION RESULTS

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SCHOLARSHIP FUND UPDATE:

Please consider a donation so we can keep the fund funded and possibly increase the amount. AOP is the named sponsor of the award given out at CAEFS. It goes to a deserving Natural Resource Major who specializes in soils. Being on the soil judging team helps.

The fund was discussed at Annual Meeting in March. Joe Steiger challenged us to get the fund to \$10,000. I will try to provide a regular update on how we are doing. While writing this I have been inspired. I have donated a thousand dollars to the fund. If we raise another two thousand by our next annual meeting I will donate another thousand dollars.

WHY? Well, when I was ready for college I had been working for two summers. I really hadn't saved much earning a \$1.25 and what I did save I spent on an old car so I could drive to a community college. With the help of my grandmother and a stranger I was able to get started. My parents knew the stranger. I say stranger because I have only met him once when I received the scholarship. I am not sure that I ever thanked him enough. I imagine there are many qualified students at risk of not completing their studies. With additional funds we can give scholarships of more consequence. This stranger helped me 1968. That was a crossroad that I'll always remember. He helped me live the life I have lived.

314160 is our fund number. On the university website go to https://www.giveto.osu.edu/makeagift/?Source_Code=DEV_AG-0-GivingHome-ON-S

You search for the fund. Enter "Association" in the search for box on the right and press the magnifying glass and you will get a list of funds with word association in them. We are on the first or second page depending which browser you are using. Just select our box.



AND



PRESENT

A Joint Technical Session Soil and Geomorphology Tour of Erie County, PA June 10-11, 2016

Friday, June 10, 2016

8:00 A.M. Meet at the offices of the Erie Conservation District
1927 Wager Road
Erie, PA 16509

There will be a one-hour lecture/PowerPoint overview on the diverse geology/landforms of Erie County

Coffee and a Continental Breakfast will be provided

9:00 A.M. Bus trip will begin covering the following:

- Harborcreek series on Penn State Erie grape research farm – new series established for relict beach ridges. Speaker to discuss the current grape research activities.
- Mardin series on a drumlin landform
- Fremont/Orpark series. Speaker to discuss the Welch's cooperative and how Erie County's juice grape industry differs from the wine grape industry in other parts of the state.

Lunch is not provided on Friday; however, there will be a fast food stop with Subway and Pizza Hut Express being your options.

Reservations have been made for 25 at the Union Station Brew Pub (or McGarry's) for a group evening dinner which is not included in the registration fee. It will be an opportunity for our members to catch up with old friends and meet new ones! Contact Jackie Heintl by June 1st if you want to be included: wolfheintl@hotmail.com

Saturday, June 11, 2016

8:00 A.M. Meet at the offices of the Erie Conservation District
1927 Wager Road
Erie, PA 16509

Coffee and a Continental Breakfast will be provided

Bus trip (including a bag lunch) will begin covering the following:

- Colonie series – eolian sand deposits with lamellae. A speaker from a large local nursery operation will discuss how the soils and microclimate influence the business.
- Platea series –example of fine textured till – fragic intergrade / fragipan discussion
- Conneaut series – silty lacustrine deposits over till. Hydric soil discussion.

*******A Block of rooms has been reserved for June 9th, 10th and 11th at the Days Inn, 7415 Schultz Road, Erie, PA 16509 at the group rate of \$79.00 plus tax. Please contact the Days Inn directly at (814) 868-8521 to make your reservation and payment.**

Another block of rooms has been reserved for June 9th and 10th at the Holiday Inn Express Hotel and Suites, 8101 Peach Street, Erie, PA 16509 at the group rate of \$149.00 plus tax. Please contact the Holiday Inn directly at (814) 217-1100 to make your reservation and payment.

TO GET THE GROUP RATE, YOU MUST MAKE YOUR RESERVATION BEFORE May 9, 2016! YOU MUST ALSO TELL THEM THE ROOMS ARE RESERVED UNDER PAPSS!

**This special rate cannot be guaranteed after May 9, 2016!!!
Make your reservations early!!!!!!!!!!!!!!!!!!!! *******

AOP MEMBERSHIP DIRECTORY

In the near future I will sending out our complete membership once Jon Gerken and I can cross check our lists. We can take updates after I send it out. It will not be put on the website. But it will be an electronic update to our paper directory.

Drones Drones Drones

I would like to follow up the March meeting talk about UAV I mean drones no I think I mean UAV. The industry has tried to get people call them UAV because our first image of a drone is a Predator drone sending a missile to the earth. But I think the word Drone is winning out. Industries that can make use of a drone include agriculture, real estate, construction, industrial maintenance, videography, law enforcement, disaster response, surveillance, oil and gas.

That said the practicality comes into play. There are two basic types of commercial/hobby drones. The most common is the multi-rotor “helicopter” with a gimbal to hold and move the camera. These have limited range on a battery charge. Currently they get about a half hour flight time depending on the weather. It appears these are the most popular. The second type is fixed wing. These have longer flight times and are mostly used in large farm country to track cattle, crops and forests. These tend to be more expensive.

The list of issues with drones is a long one that need to be addressed. When I first started researching drones I started with Google (maybe I am a drone). The first things to come up were of the singer Julio Iglesias cutting his fingers and another item about a rotor drone catching on fire just after take-off.

So far most drones do not have rotor guards. The singer saw one flying over the indoor stage and reached for it. Rotors are usually plastic or carbon fiber. Carbon fiber can maintain it shape at high revolutions and resists breaking if you have hard landing (crash). The downside is human skin has no resistance to them. Plenty of injured fingers show this to be true.

The fire was caused by the lithium ion batteries catching fire. The drone was a year old. The sophisticated electronics that control the rotors, camera and flight control malfunctioned and overheated the batteries.

If we stop for moment and get the visual of a blazing object falling from the sky probably trying to get back to you. What happens when the battery dies? Visualize a rock falling from 500 feet. Currently hobby drones have an allowable weight of about a pound, it's hard to find an exact number.

There is a video of a new "pilot" flying his brand new drone. He has flown it three times and getting one last flight before dark. The safety zone is 15 to 20 feet. He is filming the takeoff (probably a Go Pro). The drone lifts of up to about 5 feet and in an instance it flies directly at him. He was able to get the controller to cover his face but the rotors cut his fingers. Luckily no cut fingers were shown. But he can be heard while running for help describing how bad they were injured.

Takeoff and landing zones are another area that needs addressed. There are many statements about the size and location required. There are videos people wading into the ocean or diving into a pond to retrieve their drone before it hits the water. I have no info but I am guessing sea water is contraindicated in these situations. The airplane models need a short takeoff depending on size since you can throw them into the air. But they need a longer landing zone preferably with no known hazards nearby.

I think YouTube is a pretty good place to find out what not to do with a drone. Adam Savage (Mythbuster) has a series of videos with things learned from flying his commercial drone.

We come to the topic of where to fly, this is very complicated and contentious. Obvious no fly zones are around the White House, and within 5 miles of major airports. Prisons will become no-fly because the already instances contraband being sent in. Military installations, sports arenas

other outdoor events with large crowds will be no fly zones. Zones that suddenly become a disaster will be another knotty issue. Wild fires in California last year posed extra challenges because drones were interfering with water tankers. But at the same time use by law enforcement and first responders could be critical for saving lives. Just as the Jaws of life have helped car crash victims, drones can be the Eyes of Life. You can bet there are many official drones flying over the Canadian wildfire.

Loss of radio contact can be a problem also. Most radio controllers have a limited range around of ½ to 1 mile depending radio interference. And currently there is a 500-foot ceiling. Does your drone just fly till the battery dies or does it return to the starting GPS coordinates? Oh yeah it needs to be line of site. The flight planning software will probably decide on altitude.

The big question is when do we know what the rules are. This is why the FAA allowed the testing areas talked about our meeting. The FAA is moving relatively quickly to resolve these issues There was a recent test of a drone air traffic control system. It involves 10 so drones flying in a large area and closer together. They were able to track them and the drones avoided each other. A good guess is that something will we deployed at commercial airports in the future. There are over 5000 333 commercial exemptions approved by the FAA. For drones weighing over a pound. By this time there are at least half million hobby users registered. The FFA has the intent to allow up to 50 pounds without a pilot license.

Drones do have a pretty sophisticated ability to avoid obstacles. Avoiding each other is a bigger problem. Protocols will need to be adopted. Relying on my computer industry experience this will prove fraught with peril. The companies involved are international, there are many aviation agencies involved. It will take time and then when there is a standard most companies will interpret it differently. But that has always been the case so what could go wrong?

There are many complaints about FAA approving a final version of the current rules. They are saying spring. But the FAA is probably working 2 times government speed. Getting these rule “right” and protecting is more important then speed. I think they have used radio controlled model airplane rules as starting a starting point.

This bring up the question of how do you keep track of where you can fly. Technology will be the answer for this one. Through a concept called Ring Fencing where there is a common database that includes all no fly zones entered by GPS coordinates. Users would download the coordinates into the controller which then wouldn't allow the drone to fly into these areas. The same applies for autonomous drones. Autonomous drones are downloaded with flight plans developed using the provided software.

The industry is moving quickly trying to address safety, durability, battery life, better cameras and sensors and education. Manufactures are adding safe failure modes. If contact is lost it lands, if the batteries get down to a certain percentage, it lands where it is. I mentioned ring fencing earlier. The last and most important is training. There are drone flight schools online and I expect there will a licensing test for commercial operators of drones. The FAA has registration system place they will try to build on that. Getting systems and data integrated will be challenging. Currently the rules say a licensed pilot must fly a commercial drone but there will likely be a less involved license for the smaller than 50 pound drones. The liability insurance companies would want this.

LIABILITY! Who is responsible for injuries or damage? One suggestion is to have the drone developers take at least part of the liability. That might make some sense since the race to develop the industry is going to lead to inadequately tested hardware and software. Extra Insurance will be a must!

For more information, check the following link. It is a UAV newsletter with many links to other UAV sites. <http://www.uavexpertnews.com/> I also have a 17 page PDF drone primer e-mail I can if you request it.

There are untouched issues that I will discuss in the future newsletter:

Data Ownership

Data Storage “the cloud”?

Data processing of images for DEM or Lidar

Sensor technology and costs

Cost Benefit (can this be a business)

Recreational uses (racing, photography)

The problem with high frequency rotor noise

Hopefully a rules update

PHOSPHORUS UPDATES: The State of Ohio Sea grant program has completed its first year. This is the collective study of algal bloom toxins and their mitigation. The problem is being researched to prevent as well as fix the problem afterwards. This is the larger project that Libby Dayton our speaker 2015 is working on. She is trying to develop a farm index to help farmers more precisely apply phosphorus.

This is a link to project annual report for the first year.

<http://ohioseagrant.osu.edu/news/2016/2bzfkhabriannual-report-2015>

Association of Ohio Pedologists Membership Dues for 2016

For members approved as Pedologists and Soils Professionals.....\$40

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

Please submit the following form and mail it as a whole sheet with your check for the appropriate amount made out to:

Street Address _____

City, State, Zip Code _____

Email Address _____

Phone number _____

Category of Membership (circle one): Pedologist Soils Professional Affiliate Member Student Member Honorary (No annual dues) please note any changes to contact information above.)

AOP Dues Amount: _____

Scholarship Donation: _____

Total amount enclosed: _____

Please remit your dues if you haven't already. Send to our new treasurer:

Jon Gerken, Treasurer

5890 Rauch Rd.,

Carroll, OH 43112

Has your contact information changed? (Please circle) YES, NO (If YES, then please only add information that has changed.)