



The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header

List View

General Information | Contact | Default Values | Discount | Document Information

Procurement Folder: 205124

SO Doc Code: CRFQ

Procurement Type: Central Purchase Order

SO Dept: 0603

Vendor ID: VS0000009345

SO Doc ID: ADJ1600000021

Legal Name: MAD Scientist Associates, LLC

Published Date: 4/26/16

Alias/DBA: MAD Scientist Associates, LLC

Close Date: 5/4/16

Total Bid: \$98,250.00

Close Time: 13:30

Response Date: 05/03/2016

Status: Closed

Response Time: 14:38

Solicitation Description: ADDENDUM 2 INVASIVE SPECIES SURVEY- CAMP

Total of Header Attachments: 0

Total of All Attachments: 0



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

**State of West Virginia
 Solicitation Response**

Proc Folder : 205124

Solicitation Description : ADDENDUM 2 INVASIVE SPECIES SURVEY- CAMP DAWSON

Proc Type : Central Purchase Order

Date issued	Solicitation Closes	Solicitation No	Version
	2016-05-04 13:30:00	SR 0603 ESR05031600000005324	1

VENDOR

VS0000009345

MAD Scientist Associates, LLC

MAD Scientist Associates, LLC

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
 (304) 558-2402
 crystal.g.rink@wv.gov

Signature X **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Invasive Species Survey-Camp Dawson				\$98,250.00

Comm Code	Manufacturer	Specification	Model #
77111507			

Extended Description : Invasive Species Survey Inventory and Assessment, and Update of the Plant Community Mapping Data per the attached specifications.

EXHIBIT A
CRFQ # ADJ160000021

ALL LABOR, MATERIALS, EQUIPMENT, AND SUPPLIES NECESSARY TO CONDUCT AN INVASIVE SPECIES INVENTORY AND ASSESSMENT AND TO UPDATE PLANT COMMUNITY MAPPING DATA, ON CAMP DAWSON ARMY TRAINING SITE AT KINGWOOD, WV

BID FORM

The undersigned, hereafter called the Bidder, being familiar with and understanding the bidding documents; and being familiar with the required qualifications and the mandatory requirements of the Project with regards to the deliverables and associated timelines, hereby proposes to furnish labor, material, equipment, supplies, and transportation to perform the work as described in the bidding documents

BIDDERS COMPANY NAME: MAD Scientist Associates, LLC

VENDOR ADDRESS: 253 N State Street, Suite 101

Westerville, OH 43081

TELEPHONE: 614.818.9156

FAX NUMBER: 614.818.9157

E-MAIL ADDRESS: chris@madscientistassociates.net

CONTRACT TOTAL BID:

Ninety-eight thousand, two hundred and fifty dollars

(\$ 98,250.00) ****(Contract bid to be written in words and numbers.)*

The contract will be awarded to the Bidder with the lowest contract total bid meeting all of the specifications. Bidder understands that to the extent allowed by the West Virginia Code, the OWNER reserves the right to waive any informality or irregularity in any bid, or bids, and to reject any and all bids in whole or in part; to reject a bid not accompanied by the required bid security or by other data required by the bidding documents; to reject any conditions of the bid by the Bidder that is any way inconsistent with the requirements, terms, and conditions of the bidding documents; or to reject a bid that is in any way incomplete or irregular.

Failure to use this bid form may result in bid disqualification.

SIGNATURE:  DATE: 5/2/16

NAME: Christine S Dilley
(Please Print)

TITLE: CEO / Co-Owner

***Technical Proposal for Invasive Species Inventory &
Assessment, Update of Plant Community Mapping Data***

Camp Dawson Army Training Site
Kingwood, WV

Solicitation No: CRFQ ADJ1600000021

prepared for

Department of Administration, Purchasing Division

2019 Washington St. E.
Charleston, WV 25305-0130



prepared by



*Specialists in
Ecological & Wetland
Consulting*



May 2, 2016

Crystal Rink
2019 Washington St. E.
Charleston, WV 25305-0130

Subject: Invasive Species Inventory & Assessment, Update of Plant Community Mapping Data- Camp Dawson Army Training Site

To Whom It May Concern:

I am pleased to present you with this proposal for a floristic survey of the Camp Dawson Army Training Site, located in Kingwood, West Virginia (henceforth referred to as the Site). Our proposed deliverables are a summer survey work plan, draft and final versions of invasive species survey and assessment reports, vegetative communities data update, and digital maps of plant communities. All deliverables will be made available in electronic and hard copies, as specified in the request for quotation (CRFQ ADJ1600000021).

The attached Proposed Scope covers seven (7) phases and outlines the tasks included within each phase. The required hours and tasks have been distributed among MAD Scientist Associates (MAD) staff to provide you with the most reliable, efficient and cost-effective services. The MAD survey team (Team) will include myself, and Jenny Adkins, our lead botanist. While in the field, other staff members from MAD will assist Jenny and myself with data collection and organization. Jenny and I will accompany all team members during field activities. One or more additional qualified botanists may be subcontracted, as necessary, to complete site work.

Regarding the qualifications of our team, I am an experienced naturalist, Certified Senior Ecologist with the Ecological Society of America, and Professional Wetland Scientist (PWS #001155), with considerable training and experience in the field of botany. My firm maintains an extensive library of regional flora guides and has a laboratory equipped with necessary equipment and resources to complete this project. I have served as the QA/QC Botanist to support the Kentucky Division of Water's efforts under the NWCA in 2011. Jenny is well trained in both upland and wetland flora, sedge and grass identification, and we are both certified to conduct running buffalo clover surveys. Staff qualifications can be reviewed in Attachment A.

The primary identification reference used will be the Manual of Vascular Plants of Northeastern United States and Adjacent Canada (Gleason and Cronquist, 1991). Other taxonomic resources in the MAD library are listed in Attachment B. The Team will also take general habitat photographs and photo vouchers, as well as mark any T&E species using a Trimble GeoExplorer 6000XH, a hand-held GPS that is capable of sub-foot accuracy, with differential correction (post-processing) for improved accuracy. A final report will summarize site observations, as well as include pertinent photograph, tables, and figures.

The total not-to-exceed cost for this proposed scope is provided in a separate Cost Proposal. The proposed costs cover items addressed in the first (Attachment C) and second addenda. Please note that we carry standard insurance, including \$3M in Professional Liability and General Contractor Liability insurance and a \$1M Business Owner's Policy. Certificates of insurance and tax-related documents are provided in Attachment D. Please also note that we are an EDGE-certified woman-owned business with the State of Ohio.

Field work is intended to be completed by August 15, 2016, and the proposed deliverables (Invasive Species Inventory and Assessment and Update of Plant Community Mapping Data) will be produced and available in draft form by September 15, 2016, and final copies by November 15, 2016. If you have any questions or comments, please call me at (614) 818-9156. Thank you for giving us the opportunity to work with the state of West Virginia and the Army National Guard on this project. We look forward to hearing from you.

Best Regards,



Mark A. Dilley
Professional Wetland Scientist, Senior Ecologist
mark@madscientistassociates.net

enclosures

PROPOSED SCOPE

MAD Scientist Associates, LLC (MAD) will complete an invasive species inventory & assessment, and update of plant community mapping data for the Camp Dawson army training site (Site). This study has been divided into the following phases and tasks:

I. Site Research & Field Preparation

MAD's lead botanists (Mark Dilley, Jenny Adkins) and GIS Specialist (Aaron Laver) will review existing documents on plant communities within the Site, as well as perform a desktop analysis of Site characteristics (soils, topography, and aerial photographs). This desktop review will help identify areas likely to contain invasive species, and potentially T&E species. Team will also research invasive plant species, and listed T&E species, reviewing their physical characteristics and habitat preferences.

II. Summer Survey Work Plan

MAD will compile a draft sampling methodology for review by Camp Dawson. This plan will detail sampling dates, team members, sampling goals, and data collection methods. Once approved, MAD will finalize the plan for implementation in June of 2016.

III. Meetings & Correspondence

MAD will have meetings and regular correspondence with Camp Dawson staff throughout the sampling period. The pre-work conference is factored into this phase, which will be completed within 15 days of contract award. During the sampling period, progress reports will be communicated as requested by Camp Dawson.

IV. GIS Analysis

MAD's GIS Specialist will head GIS analysis for field activities, as well as manage data (upload, post-process, differentially correct) following field work. Preliminary analysis will include review of existing vegetation data, high resolution orthoimagery, LANDSAT satellite imagery, national land cover database (NLCD) data products, topographic resources, soil maps, and parent material data to identify Species of Concern key areas and generate a survey grid in support of survey plan development. GIS data identifying survey locations and key areas will be integrated onto GPS units and physical maps will be generated during this phase for use in the field.

V. Field Work

Field work will be separated into three tasks:

1. Survey and Assessment of Invasive Species

MAD's survey teams, led by its lead botanists, will survey 652 acres comprising the Volkstone and Cantonment Areas (Figure A from RFP,

included in Attachment C) for the presence and cover of invasive species. Areas will be surveyed using a grid system based on the monitoring procedures identified in the summer survey work plan (based on the US Fish & Wildlife Monitoring Procedures for Wildlife Refuges). General habitat information will also be collected to help Camp Dawson determine threats and disturbances to the plant communities.

- 2. Threatened, Endangered, and Special Concern Species Survey**
MAD will visit known locations of special concern and/or T&E plant species (Figure B from RFP, included in Attachment C) to confirm their presence and record observations on population distribution, and habitat quality. Individual plants or populations will be documented using handheld GPS units (Trimble GeoExplorer 6000XH), capable of sub-foot accuracy. New occurrences of T&E or Special Concern species discovered during the invasive species mapping effort will be documented with photographs and GPS-recorded location data.
- 3. Survey of Newly Developed Land**
MAD will ground-truth habitat types following aerial review of newly-developed land (Figure C from RFP, included in Attachment C). Vegetative communities within these areas will be documented using photographs and handheld GPS units.

The primary identification reference in the field will be the Manual of Vascular Plants of Northeastern United States and Adjacent Canada (Gleason and Cronquist, 1991*).

All data collected during field work activities will be summarized in a final report (Phase VII).

VI. Database Management

Existing digital data, as well as newly collected data will be compiled into an updated database conformant with the National Vegetation Classification System and the National Guard Bureau Quality Assurance Plan (as stated in Attachment B of the RFQ). This process will be managed by MAD's GIS Specialist, who will work closely with Camp Dawson personnel.

VII. Report

A draft Invasive Species Inventory and Assessment report and Update of Plant Community Mapping Data will be produced and delivered to WVARNG for review and comment by September 15, 2016. After receiving comments from WVARNG, MAD will make any necessary changes and additions and provide a final report by November 15, 2016. These reports will summarize methodology, site findings, and include pertinent tables, photographs, and figures. Final adjustments to the database will also be completed during this phase and submitted by November 15, 2016.

* Gleason, H.A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. The New York Botanical Garden. Bronx, N.Y. 910 pp.

CERTIFICATION AND SIGNATURE PAGE

By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

MAD Scientist Associates, LLC

(Company)

Christy S. Diley CEO/Co-Owner
(Authorized Signature) (Representative Name, Title)

614.818.9156, 614.818.9157, 5/2/16

(Phone Number) (Fax Number) (Date)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ ADJ1600000021

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

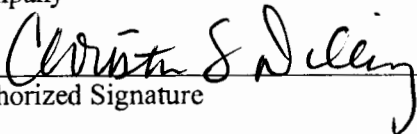
Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input checked="" type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

MAD Scientist Associates, LLC
Company


Authorized Signature

5/2/16
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

REQUEST FOR QUOTATION

CRFQ ADJ1600000021

**Invasive Species Inventory & Assessment, Update of Plant Community Mapping Data on
Camp Dawson Army Training Site
Kingwood, WV (Preston Co.)**

11. MISCELLANEOUS:

11.1. Contract Manager: During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Christine Dilley
Telephone Number: 614.818.9156
Fax Number: 614.818.9157
Email Address: chris@madscientistassociates.net

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: MAD Scientist Associates, LLC

Authorized Signature: *Christa J Dillee* Date: 5/2/16

State of Ohio

County of Franklin, to-wit:

Taken, subscribed, and sworn to before me this 2 day of MAY, 20 16

My Commission expires 12/19/2017, 20

AFFIX SEAL HERE

NOTARY PUBLIC *William Joseph McKinney*

Purchasing Affidavit (Revised 07/01/2012)



WILLIAM JOSEPH MCKINNEY
Notary Public
In and for the State of Ohio
My Commission Expires 12/19/2017

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with West Virginia Code, §5A-3-37. (Does not apply to construction contracts). West Virginia Code, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the West Virginia Code. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. Application is made for 2.5% vendor preference for the reason checked:

- Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or, Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or, Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,

2. Application is made for 2.5% vendor preference for the reason checked:

Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

3. Application is made for 2.5% vendor preference for the reason checked:

Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

4. Application is made for 5% vendor preference for the reason checked:

Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,

5. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,

6. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with West Virginia Code §5A-3-59 and West Virginia Code of State Rules.

X Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: MADScientist Associates, LLC

Signed: [Signature]

Date: 5/2/16

Title: CEO / Co-Owner

Attachment A

Experience & Qualifications



hereby grants

National Women's Business Enterprise Certification

to

MAD Scientist Associates, LLC

who has successfully met WBENC's standards as a Women's Business Enterprise (WBE).
This certification affirms the business is woman-owned, operated and controlled; and is valid through the date herein.

WBENC National WBE Certification was processed and validated by Ohio River Valley - Women's Business Council, a WBENC Regional Partner Organization.

Certification Granted: 3/31/2016

Expiration Date: 03/31/2017

WBENC National Certification Number: 2005128615

Authorized by Sheila Mixon, Executive Director
Ohio River Valley Women's Business Council




NAICS Codes: 541620, 611710

UNSPSC Codes: 77000000



MARK A DILLEY



 **Professional Wetland Scientist, Ecologist**
mark@madscientistassociates.net
(614) 818-9156 ext. 10

EDUCATION

Master of Science (2003)
Environmental Science
(Wetlands)
The Ohio State University

Bachelor of Science (1991)
Natural Resources
(Fisheries Management)
The Ohio State University

PUBLICATIONS & PRESENTATIONS

Using the Mitigation Process to Support
Wetland Restoration Efforts within the
Honey Creek Watershed; Water Mgmt.
Assoc. of Ohio 2009

Westerville Wetlands Workshop

Wetlands: A Multi-faceted Resource for
Every Community. Ohio Parks and
Recreation Association magazine.
Summer 2005.

Threatened Butterfly Benefits
from Cooperative Effort. Ohio
Parks and Recreation Association
magazine. Spring 2005.

PROFESSIONAL MEMBERSHIPS & CERTIFICATIONS

Society of Wetland Scientists-
Professional Wetland Scientist
(# [REDACTED] July 1998)

Ecological Society of America-Certified
Ecologist (June 1998)

Ohio Biological Survey, Board Member
Ohio Parks and Recreation Association,
Corporate Member

AWARDS

Distinguished Alumnus Award (OSU
School of Environment & Natural
Resources Alumni Society (April 2009)

City of Westerville V.I.S.I.O.N. Award
(Steve Wenger Service Award) for
environmental volunteerism (April 2006)

Merit Award, American Society of
Landscape Architects, Sustainable
Design (April 2005)

PROFESSIONAL EXPERIENCE

Mark has nearly 20 years experience as a field biologist, ecologist, and wetland scientist. His academic research has focused on biological monitoring of streams and rivers and atrazine (agricultural herbicide) fate and transport processes in constructed wetlands. As a consultant and co-owner of MAD Scientist & Associates, he is responsible for wetland delineation, permitting, assessment, and restoration, mitigation design and monitoring, and ecological surveys and ecological risk assessment. Through his years of field experience, Mark has become proficient in plant and animal identification and has numerous Threatened and Endangered species finds and county records to his credit.

Mark is experienced in the use of electrofishing, seining, and trap-netting to survey fish populations in lakes and rivers, and in invertebrate sampling using seines and multi-plate and Surber samplers. He is knowledgeable in the use of aquatic organisms as water and sediment quality indicators, including experience with U.S. EPA Rapid Bioassessment Protocols and Ohio EPA's Index of Biotic Integrity. Mark has conducted ecological surveys in over 11 states, at a variety of sites, including Department of Energy, NASA, and U.S. military facilities, landfills, and industrial sites. In his current role, he manages several dozen projects annually in the areas of wetland and ecological consulting for a wide variety of public and private clients.

SPECIAL TRAINING & SKILLS

- Contract Lecturer for *Wetland Ecology and Restoration* at The Ohio State University (Autumn 2012 to present)
- Waterway Permits and Ecological Training, Ohio Dept. of Transportation (September 2009)
- National Environmental Policy Act (NEPA) training, Ohio Dept. of Transportation (November 2008)
- Qualified Data Collector, Level 3 Fish and Habitat (QHEI) Certifications, Ohio EPA (August 2008)
- Endangered Species Consultation in Ohio, U.S. Fish and Wildlife Service (November 2005)
- Wetland Biocriteria/VIBI training course; Ohio EPA (Sept. 2004)
- Restoration of Rivers; The Ohio State University (August 2004)
- Ecological Engineering and Ecosystem Restoration; The Ohio State University (October 2003)
- Nationwide Permits Complete, Wetland Training Inst. (April 2002)
- Creation and Restoration of Wetlands for Mitigation of Wetland Loss; The Ohio State University (August 1999)
- Ecological Risk Assessment and Mgmt; Colorado State University (June 1994)
- Basic Wetland Delineation; Wetland Training Inst. (April 1992)
- OSHA 40-hour training and refresher courses

continued on next page

MAD Scientist Associates LLC • *Specialists in Ecological & Wetland Consulting*

253 N. State St., Suite 101 • Westerville, OH 43081

(614) 818-9156 • Fax (614) 818-9157 • www.madscientistassociates.net



RECENT WETLAND PROJECT EXPERIENCE

Jurisdictional Waters (Wetland and Stream) Delineation, Permitting, Mitigation and Management

City of Akron Combined Sewer Overflow Upgrade Wetland and Wildlife Permitting Assessment, Summit County, OH: Worked with AECOM and the City of Akron to investigate project sites associated with the City's CSO program. To develop a permitting strategy for the program, each location was investigated for the presence of suitable habitat for T&E species and wetlands and streams. The findings from each site were documented in a Wetland and Wildlife memo that identified any red flag issues. For planning purposes, site data were then compiled into a report that provided recommended steps and timeframes for State and Federal permitting at each location.

Northeast Ohio Regional Sewer District (NEORS) Dugway West Interceptor Relief Sewer (DWIRS) Threatened and Endangered Species Habitat and Wetland Assessment, Cuyahoga County, OH: Worked with AECOM on a NEORS sewer project, investigating the sewer project corridor for wetlands, streams, and habitat for Threatened and Endangered Species.

Atrium Medical Center permitting and mitigation, Warren and Miami Counties, OH: Completed individual permit for a health care provider in Middletown, Ohio. Helped evaluate wetland and stream mitigation options. Completed Mitigation Plans for both wetland and stream impacts and provided construction oversight to restore wetlands within a county park district and implement an on-site stream mitigation project.

Miami Valley Hospital South Campus permitting and mitigation, Montgomery and Miami Counties, OH: Completed isolated wetland permit application for a health care provider in Dayton, Ohio. Helped evaluate wetland mitigation options. Completed Mitigation Plan and provided construction oversight to restore wetlands on lands owned or managed by a county park district.

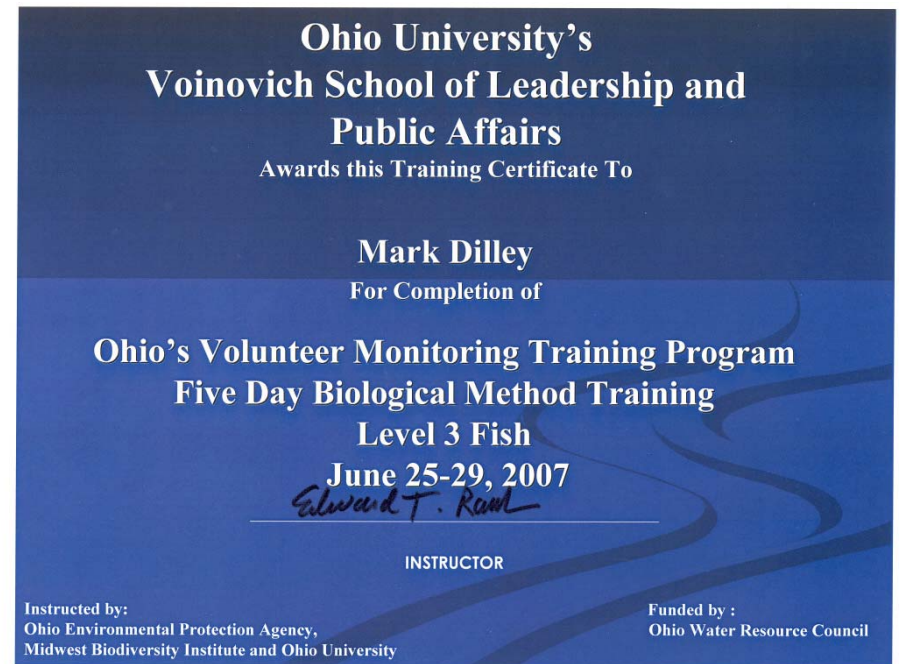
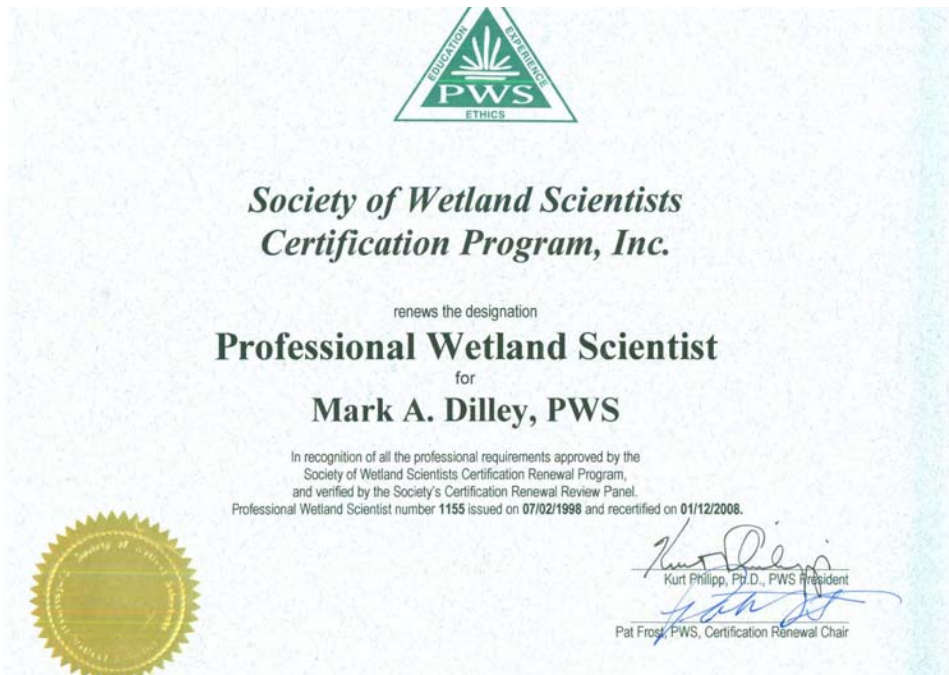
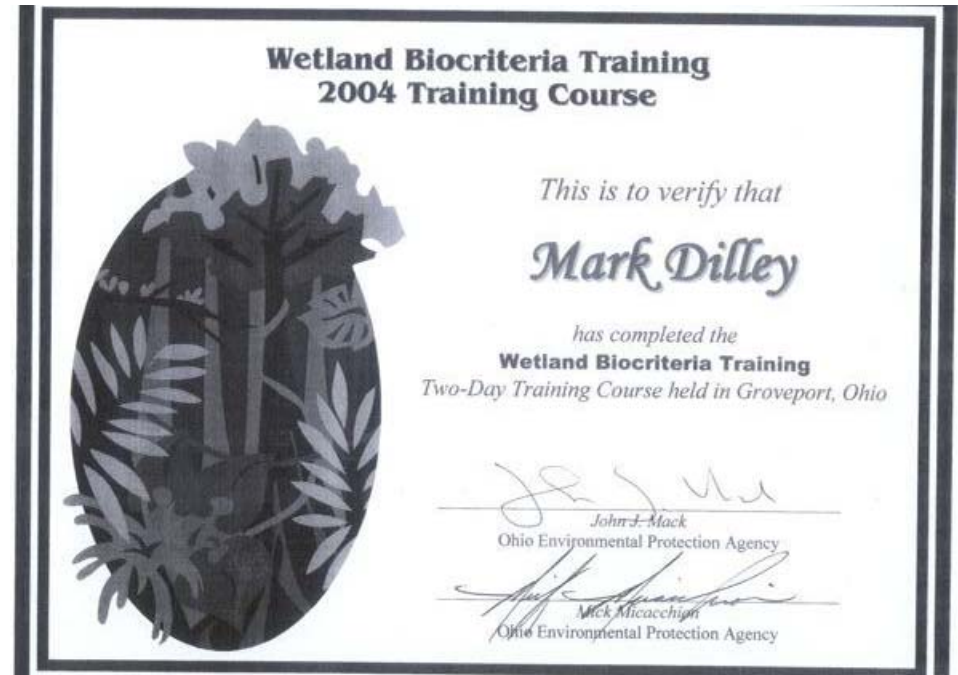
Boyer Nature Preserve vernal pool construction, Franklin County, OH: Coordinated with a local park department, local watershed group, permit applicant, and Ohio EPA to develop vernal pools for one acre of wetland mitigation within the Alum Creek watershed. Provided oversight for construction of a vernal pool complex. Also coordinated volunteer clean-up of the site and initial tree plantings. Work is on-going.

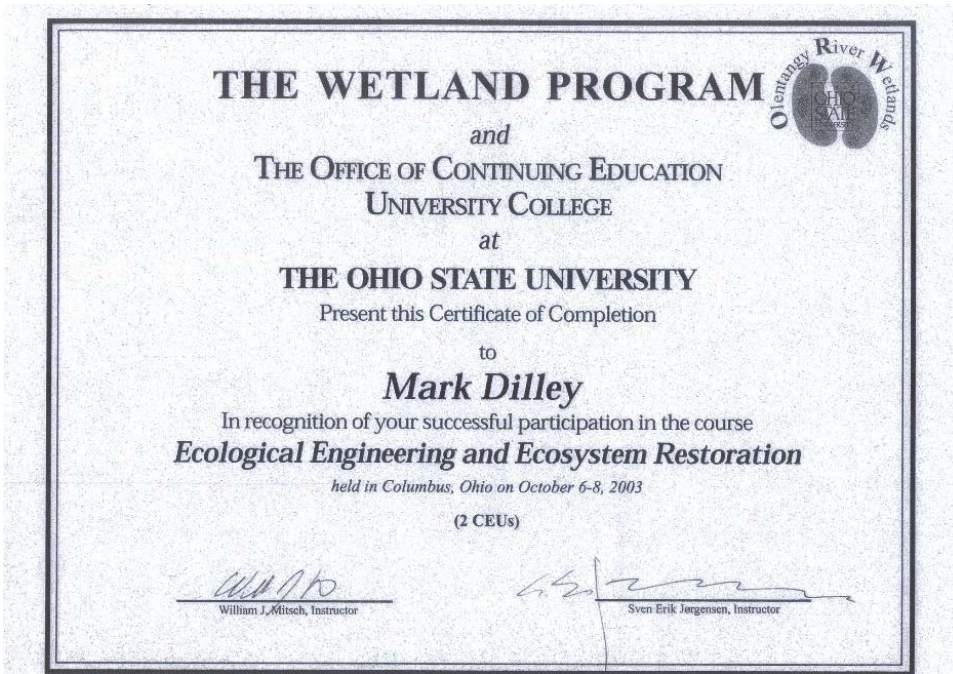
Meijer's Store stream mitigation invasive species control, Franklin County, OH: Coordinated control efforts, including cutting and herbicide treatments, to manage invasive hybrid and narrow-leaved cattail at a stream mitigation site south of Columbus, Ohio.

Euclid Creek flood control project and stream restoration, Cuyahoga County, OH: Conducted wetland determination and stream characterization for the rehabilitation of a U.S. Army Corps of Engineers flood control project near Lake Erie.

Southerly Wastewater Treatment Plant wetland restoration and enhancement, Cuyahoga County, OH: Developed an on-site mitigation plan for a public utility in Cleveland, Ohio. Negotiated permitting and mitigation issues with the U.S. Army Corps of Engineers and Ohio EPA. Assisted project team in developing specifications for bid document and evaluating submittals. Selected plant materials, provided oversight during installation, and advised utility on future management and monitoring activities. Corps representative described site as the "best first-year mitigation" he'd seen in his 20+ years of service.

Heritage Park Phase II permitting and mitigation, Franklin County, OH: Provided wetland delineation, verification, permitting, and mitigation services to a central Ohio municipal parks and recreation department. Worked with design team to minimize impacts to wetlands at the site, while meeting project objectives. Obtained individual permit (401/404) for 0.65-acre impact at site. Assisted in design of on-site mitigation areas. Five-year monitoring period completed in 2007; project met Ohio EPA performance criteria.





CERTIFICATE OF TRAINING

THIS CERTIFICATE VERIFIES THE
COMPLETION OF 6 HOURS OF
TRAINING FOR:

**"USING THE MIDWEST
INTERIM REGIONAL
SUPPLEMENT FOR
WETLAND DELINEATION"**

SPONSORED BY THE
ILLINOIS SOIL
CLASSIFIERS
ASSOCIATION
FEBRUARY 2009

Illinois
Soil
Classifiers
Association





Health, Safety and Environmental Training Program

This Certifies That

Mark Dilley

Has Successfully Completed

OSHA 8-HR HAZWOPER Refresher

Date Feb 8 2008 Location Westerville, OH

Dianne Grote Adams, CIH, Course Director

PESTICIDE APPLICATOR LICENSE

Notify in writing to the Pesticide & Fertilizer Regulation Section within 7 days of any change in your address.

MARK A DILLEY
253 N STATE ST. SUITE 101
WESTERVILLE, OH 430811472

OHIO DEPARTMENT OF AGRICULTURE



COMMERCIAL APPLICATOR
MARK A DILLEY
253 N STATE ST. SUITE 101
WESTERVILLE, OH 430811472

License # [REDACTED]
License expiration date: 9/30/2009
Recertification expiration date: 9/30/2009
Categories: 3A, CORE

197744

Licensee Signature Control # AGR 2993 (1/05)



OHIO DEPARTMENT OF AGRICULTURE
Director Robert J. Boggs
Division of Plant Industry/Pesticide & Fertilizer Regulation
8995 E. Main St. Reynoldsburg, OH 43068-3399
614-728-6987 Fax 614-728-4235 www.ohioagriculture.gov

Please notify our department within 15 days of any address change.

PESTICIDE BUSINESS LICENSE

License Number: 95848
License Expires: 9/30/2009
M.A.D. SCIENTIST & ASSOC LLC
MARK DILLEY
253 N STATE ST SUITE 101

Location:
M.A.D. SCIENTIST & ASSOC LLC
MARK DILLEY
1084 E COLLEGE AVE
WESTERVILLE, OH 43081



**US Army Corps
of Engineers®**
Engineer Research and
Development Center

Wetlands Regulatory Assistance Program

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region

U.S. Army Corps of Engineers

September 2008



endorsed by the National Technical Committee for Hydric Soils (Karl Hipple, chair).

Independent peer reviews were performed in accordance with Office of Management and Budget guidelines. The peer-review team consisted of Joseph Hmieleski, Chair, Lake County Stormwater Management Commission, Libertyville, IL; Hugh Crowell, Hull and Associates, Inc., Dublin, OH; Mark Dilley, MAD Scientist LLC, Westerville, OH; Eric Ellingson, Earth Source, Inc., Fort Wayne, IN; Richard Gitar, Fond du Lac Indian Reservation, Cloquet, MN; Judy Krieg, EarthView Environmental LLC, Coralville, IA; Frank Norman, Applied Ecological Services, Inc., Kansas City, MO; Joe Pagliara, Natural Resources Consulting, Inc., Stevens Point, WI; Stephen Parker, Adaptive Ecosystems, Inc., Grandview, MO; and Daniel Zay, DLZ, Inc., Lansing, MI.

Technical editors for this Regional Supplement were Dr. James S. Wakeley, Robert W. Lichvar, and Chris V. Noble, ERDC. Katherine Trott was the project proponent and coordinator at Headquarters, USACE. During the conduct of this work, Dr. Morris Mauney was Chief of the Wetlands and Coastal Ecology Branch; Dr. David Tazik was Chief, Ecosystem Evaluation and Engineering Division; Bob Lazor was Director of WRAP; and Dr. Elizabeth Fleming was Director, EL. COL Gary E. Johnston was Commander and Executive Director of ERDC. Dr. James R. Houston was Director.

The correct citation for this document is:

U. S. Army Corps of Engineers. 2008. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-27. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Natural Ohio

Division of Natural Areas and Preserves

Vol.28, No.2

Spring 2006



Irwin Prairie Hosts Special Visitor

On a cold and cloudy day in late January, visitors to Irwin Prairie State Nature Preserve observed Ohio's smallest and one of its rarest owls—the Northern saw-whet owl. Perched on a small pin oak along the preserve's boardwalk, the area soon became a spot to remember. As word spread of the saw-whet's visit, many people came from near and far to take a picture of this unique creature.

Northern saw-whet owls are only 7 inches tall, yet they are voracious predators, often taking prey as big as themselves. Small mammals are preferred but songbirds, frogs and even bats are eaten. When prey is plentiful, saw-whets will kill as many as six mice in rapid succession and then store them away for winter. When food is scarce, these owls will retrieve their kill and then thaw it by "brooding," or sitting on the frozen carcass—giving new meaning to defrosting dinner.

During the daylight hours, saw-whets roost in small conifers, grape vines or shrubs that offer protection from predators and the elements. When the sun goes down, they leave their roost and perch in an area that gives them a view of passing prey. When an opportunity presents itself, they will swoop down and with strong claws claim their prey.

(continued on page 5)

IN THIS ISSUE

from the chief.....	2
preserve spotlight	4
ohio natural landmark	5
new conservation plates	6
nature's calendar.....	7
natural areas discovery series	8

2005 Rare Plant Finds

THE TIME SPENT IN THE FIELD LAST YEAR BY BOTANISTS, BOTH AMATEUR AND PROFESSIONAL ALIKE, LED TO A VARIETY OF GREAT RARE PLANT FINDS. AS ALWAYS THERE WERE MORE FIRST-RATE FINDS THAN ROOM TO PRINT—SO HERE'S A GLANCE AT SOME OF THE BEST.

A new plant was discovered for Ohio—southern dewberry or coastal-plain dewberry (*Rubus trivialis*), which is a member of the brambles group, difficult for many botanists to identify. However, Hamilton County native Dan Boone did not have any trouble with this dewberry. Boone is a botanist who makes incredible finds year after year. While surveying for the Hamilton County Park District, he discovered it in a floodplain forest along the Ohio River in Clermont County. The population of this new rarity is quite disconnected from the rest of its range. The closest known sites are located in western Kentucky.

Boone also found the first site in more than 100 years for the small southern pearlwort (*Sagina decumbens*). Working with Barbara Lund of Adams County, he found this species in Portsmouth along the Ohio River. Not stopping there, he and fellow Hamilton County botanist Marjie Becus found the second site ever in Ohio for Missouri violet (*Viola missouriensis*) at East Fork State Park in Clermont County.

Another botanist whose field work always shines is Jim Bissell from the Cleveland Museum of Natural History. Bissell found a new sedge for Ohio, Mitchell's sedge (*Carex mitchelliana*), which he collected in 2001 (along with Beverly Danielson, a museum volunteer). He only just recently confirmed its identity. This sedge is very rare away from the Atlantic coast, but Bissell found it in a lake-plain seepage in Ashtabula County. Mitchell's sedge

(continued on page 3)

Rare Plants

(continued from page 1)

will be listed as state endangered on the new 2006-07 Ohio rare plant list.

Bissell, along with Charles Bier and Ephram Zimmerman from the Western Pennsylvania Conservancy, found the first record in northeast Ohio for the endangered Bicknell's crane's-bill (*Geranium bicknellii*) at the museum's North Kingsville Sand Barrens Preserve. This wildflower was only known from a couple of small populations in northwest Ohio.

Bissell also found a new population of the endangered Hill's pondweed (*Potamogeton hillii*) near Pymatuning Creek in Ashtabula County. This is the second extant location in the state. Fellow museum staffer, David Kriska, found a new record for the endangered swaying-rush (*Schoenoplectus subterminalis*) at Crystal Lake in Portage County. This natural lake, partially owned by The Nature Conservancy (TNC), continues to yield rare species. Crystal Lake now boasts six state endangered species and is the only site in Ohio for three of these species.

Jim McCormac, Division of Wildlife, continues to add new finds to his list. He found a new population of Olney's three-square (*Schoenoplectus americanus*), a plant he discovered for Ohio a few years ago. Along with Bill Whan and Jen Sauter, McCormac found it on Ottawa National Wildlife Refuge, adjacent to Crane Creek State Park. He and Mark Dilley of M.A.D. Scientist Consulting found another small population of the endangered spreading rock cress (*Arabis patens*) along the Scioto River in Franklin County. In Mercer County, McCormac and Marshal Moser of Auglaize County found a new population of the beautiful endangered iris, leafy blue flag (*Iris brevicaulis*), near St. Mary's River.

A group of botanists, including DNAP's Rick Gardner, Don Beam, Cathy Herman, Alice and Fritz Schmitthener and other members of the Friends of Wooster Memorial Park, found a new population of the endangered thin-leaved sedge (*Carex cephaloidea*) on a newly protected natural area in Wayne County.

Mentoring the next generation of botanists, Gardner, accompanied by his eight-year-old niece, Sara Protzman, found the fourth current site for the threatened midland sedge (*Carex mesochorea*) growing in his parent's woodlot in Butler County.

Gardner, McCormac, American Electric Power's Ray Showman and Ohio EPA's Brian Gara located a new population of the endangered grass, *Panicum yadkinense* in Vinton County. This is the third location for this inconspicuous grass. Also in Vinton County, Todd Hutchinson, an ecologist with the U.S. Forest Service, found a new population of the endangered Bartley's reed grass (*Calamagrostis porteri* subsp. *insperata*) in Zaleski State Forest.

TNC's Dave Minney is another botanist who consistently finds some of Ohio's most obscure plants. Minney co-discovered two new populations of two state endangered plants: short-fringed sedge (*Carex crinita* var. *brevicrinis*) and Tennessee pondweed (*Potamogeton tennesseensis*) in Adams County last year. This year he found additional populations with Gardner and John Howard of Adams County. Both species were only known from one location prior to Minney's discoveries. Botanizing in Adams County, Howard made his own discovery when he found a new site for the endangered dwarf hawthorn (*Crataegus uniflora*).

A trio of veterans, Minney, Gardner and Boone, found another population of Tennessee pondweed in Vinton County. But Minney's list of finds wasn't over yet. He also discovered the federal endangered running buffalo clover (*Trifolium stoloniferum*) in Lawrence County.

Division of Forestry's Brian Riley made a number of good finds in 2005 including three new locations of the endangered big-tree plum (*Prunus mexicana*), two in Adams County and the other in Scioto County, which was a first for that county.

Tim Walters, a botanist with The Mannik and Smith Group, found a new population of the threatened rock elm (*Ulmus thomasii*) in a wet woods in Williams County.

Michael Liptak, a botanist with EnviroScience, found a new locality in Franklin County for the threatened pale umbrella-sedge (*Cyperus acuminatus*).

The rare plant list wouldn't be complete without the moss and lichen categories. AEP's Showman found another new lichen for the state, *Canoparmelia amabilis*, which will be listed as endangered in Ohio.




A new Ohio lichen, *Canoparmelia amabilis*, was found at Acadia Cliffs State Nature Preserve.

Along with Gara, Showman found this lichen at Acadia Cliffs State Nature Preserve in Washington County. Kent State's Barb Andreas, Gardner and Diane Lucas of Lorain County found the rare moss, *Dichelyma capillaceum*, at Lake



Missouri violet

Katharine State Nature Preserve in Jackson County. It was also added to Ohio's new rare plant list.

As always, there were a number of great finds that we couldn't include here, but we'll be featuring more noteworthy finds in the Summer issue. For those of you already out in the woods, wetlands and prairies of Ohio, good luck! 

Rick Gardner
Heritage Botanist

Best plant finds of 2002

continued from page 3

TNC Botanist Rick Gardner and Richland County Park District's Steve McKee located swaying bulrush (*Schoenoplectus subterminalis*). This endangered plant, not seen since 1988, was only known from Mud Lake State Nature Preserve in Williams County.



triangle grape fern

Elsewhere in Summit County, Gardner also discovered a third known site for the bizarre saprophytic orchid, early coral-root (*Corallorhiza trifida*). Gardner also spotted the endangered Gattinger's foxglove (*Agalinis gattingeri*) in Darke County.

While exploring a deep, dark Hocking County hemlock gorge, Denison University Pteridologist Dr. Warren Hauk and his students found one of our smallest ferns, the triangle grape fern (*Botrychium lanceolatum*). This endangered species is about as high as the average thumb, and is only known at one other Ohio site.

Mark Dilley, a Columbus biological consultant, made another spectacular find of an endangered plant. While assessing a Ross County wetland, he stumbled into a staggeringly large population—10,000 plus plants—of burhead (*Echinodorus berteroi*), only the third known site. While inspecting those, Dilley noticed a different looking sedge, which proved to be pale umbrella-sedge (*Cyperus acuminatus*), also

endangered. The wetland supported thousands of those plants as well.

A new station for burhead was also found by Mike Busam of Butler County, thus extending the range of the local Gilmore Ponds' population.

Although belated, news reached us that Beverly Stamp of Cleveland found a station for pale umbrella-sedge back in 1999. These plants were in a wetland in the very urban location of the I-70/West Broad St. junction near downtown Columbus.

In other wetland finds, Ohio EPA Botanist John Mack located the gorgeous and threatened pink-flowered large marsh St. John's wort (*Triadenum tubulosum*) in a Jackson County swamp. Jason Hopkins of Kent State University also found it in Portage County.



false hop sedge

Also in Portage County, TNC's Gardner and Megan Wilkinson and the county park district's Brad Stemen, found new colonies of the endangered small bur-reed (*Sparganium chlorocarpum*), one of our rarest wetland plants.

Adams County resident John Howard found the obscure and parasitic pretty dodder (*Cuscuta indecora*) growing in his own backyard prairie. Other Adams County finds included: false melic (*Melica nitens*) by TNC's Rich McCarty and warty panic grass (*Panicum verrucosum*) by Gardner, Scott Howard and DNAP's Butch Grieszmer and McCormac.

An expedition to remote wetlands along the St. Marys River in Mercer

County produced the second known population for cuspidate dodder (*Cuscuta cuspidata*). Strangely, it was infesting another endangered species, bottomland aster (*Aster ontarionis*). Discoverers included TNC's Gardner, Terry Seidel, John Mack, Marshal Moser, a biological consultant from Lima, Tim Schetter of the Black Swamp Conservancy and DNAP's Michael Lee and McCormac.

Cleveland Museum of Natural History Botanist Jim Bissell added to his list of great finds. Along with Stan Stine, a Twinsburg naturalist, Bissell found a huge population of the threatened marsh spear grass (*Poa paludigina*) in Summit County. Bissell found an even rarer grass, the endangered sharp-glumed manna grass (*Glyceria acutiflora*) in Stark County while botanizing with Judy Semroc of Uniontown, Larry Rosche of Kent and Ohio EPA's Theresa Gordon.

Bissell also found two other endangered species—Canada St. John's-wort (*Hypericum canadense*) in Lake County and false hop sedge (*Carex lupuliformis*) in Ashtabula County. Somewhat belatedly, we report Bissell's find of the endangered smooth rose (*Rosa blanda*) at Kelleys Island in Erie County.



cuspidate dodder

It's not often that a large tree is overlooked, but at least one population of the endangered Spanish oak (*Quercus falcata*) was, until Shawnee State Park Manager Kevin Bradbury found the trees in a small Scioto County woods. While on another trip in Shawnee State Forest, Bradbury, Park Naturalist Jenny Richards and DNAP's McCormac located a population of the endangered twisted yellow-eyed-grass (*Xyris torta*). It was previously only known from the Oak Openings of Lucas County.

Endangered plant found in Westerville area wetland

By **LIZ PECEK**
ThisWeek Staff Writer

City officials and a local scientist have been keeping an eye on an endangered plant that was found in the 16-acre College Knoll Wetland over the summer.

About three to four dozen pale umbrella-sedge plants were discovered at the south end of the main wetland area by Mark Dilley, an independent environmental consultant who has worked with the city on various projects.

Pale umbrella-sedge has been considered an endangered species in Ohio since 1980, according to information on the Ohio Department of Natural Resources Web site. At about four inches tall, the pale um-

brella-sedge in College Knoll Wetland is easy to miss, Dilley said.

"It's a tiny thing," said Dilley, a Westerville resident. "It's an easy thing to overlook, but an interesting plant nonetheless."

Dilley said he visits the area monthly to monitor its recovery from an excavation project in 2000.

"I believe it demonstrates our ability to reclaim sites back to (their) natural setting within the city limits," Parks Superintendent Greg Outcalt said of the discovery.

After finding the pale umbrella-sedge, Dilley said he e-mailed photographs of it to Jim McCormac, a botanist with the Ohio Department of Natural Resources.

"It was a great find he made," McCormac said. "It takes a really keen

eye to find that."

McCormac said the plant is typically an annual, but could live for two or three years under certain conditions.

Pale umbrella-sedge, he said, does well in wet areas.

Outcalt said the area near the pale umbrella-sedge in College Knoll Wetland is not marked.

"(I'm) not sure we want to do that," he said. "If you draw attention to it, it may go away."

Outcalt said those who would like to know more about the plant can contact either him or Dilley.

In regard to the plant's future growth, Outcalt said it will be interesting to see how widely the pale umbrella-sedge spreads in the area — if at all.

"That'll tell us ...whether or not (the conditions) are favorable," he said.

According to McCormac, pale umbrella-sedge is known to be growing near Cincinnati, Toledo and Chillicothe.

College Knoll Wetland is located south of County Line Road between Michael and Juniper avenues. According to information provided by the Westerville Parks and Recreation Department, College Knoll Wetland was restored by the department in 1995 with financial assistance from the U.S. Fish and Wildlife Service. It has been monitored and managed by the department since the restoration.




Photo courtesy of Mark Dilley

lpecek@thisweeknews.com

Pale umbrella-sedge.

THIS WEEK IN WESTERVILLE
10/23/03

 **Environmental Scientist II, Lead Botanist**
jennya@madscientistassociates.net
(614) 818-9156 ext. 16

EDUCATION

Master of Education (2011)
Adult; Young Adult
Wright State University
Bachelor of Science (2009)
Biology
Wright State University

PUBLICATIONS & PRESENTATIONS

The Challenges & Prospects of Environmental Education in the 21st Century; Environmental Education Council of Ohio (February 2015)
Embracing Wetlands: Conservation, Recreation, and Education; OPRA Conference (February 2014)

PROFESSIONAL TRAININGS & CERTIFICATIONS

Pesticide Safety Education Program-Certified Commercial Applicator (# [REDACTED] Oct. 2011, 2015)
Regional Supplement Training to the ACOE Wetland Delineation Manual: Eastern Mountains & Piedmont Region V. 2.0 (May 2012)
Sedge, Rush, and Grass Webinar Training, The Swamp School (Dec. 2012)
OSHA 10-hour Hazard Recognition Training for Construction Industry (June 2013)
Ohio Bureau of Worker's Compensation 40-hour Hazardous Waste Operations & Emergency Response (March 2016)

PROFESSIONAL EXPERIENCE

Jenny has six years of experience working in the field of ecological consulting and natural resources. She currently has four years of experience working at MAD Scientist Associates, over which time she has refined her skills in botany with field experience and professional training. Her primary duties at MAD include, wetland delineations and site characterizations, specialized botanical surveys (VIBI, FQAI), planting plans, invasive species management, and environmental education activities. She has a history of working with park, city, and school districts on maintaining and managing their wetland, prairie, and forest ecosystems.

SPECIAL TRAINING & SKILLS

- Heavy equipment training (Five Rivers MetroParks, 2011-2012)
- Master of Silviculture Class (Five Rivers MetroParks, 2011)
- Wetland Delineation Training (The Swamp School, 2012)
- Ohio Rapid Assessment Training, Brian Gara (Ohio EPA, 2013)
- Sedge Workshop, Rick Gardner (Ohio Wesleyan University, 2014)
- Graminoid Workshop, Tim Walters (Lourdes College, 2015)

PROJECT EXPERIENCE HIGHLIGHTS

Botany and Floristic Study Related Experience

Vegetation Index of Biotic Integrity (VIBI) Study for Boettler Park Wetland Mitigation Site, Summit County, OH: Lead botanist for a VIBI study for extended monitoring period of this mitigation wetland (enhanced wetlands). 2015

Mayotte Design, VIBI Study of Meyer Ditch, Lucas County, Ohio: Lead botanist for a Year 5 VIBI assessment of the mitigation wetland. 2015

Shepherd's Corner, Floristic Inventory, Franklin County, OH: Completed a floristic inventory for this nature preserve and working farm as part of an ongoing land management program. 2015

Kleenco, Invasive Species Management, Clermont County, OH: Developed and carried out invasive species management plan for failing wetland and stream mitigation sites. Targeted species included: *Mysiophyllum spicatum*, *Lonicera maackii*, and *Elaeagnus umbellate*. 2015

Great Parks of Hamilton County, Floristic Quality Assessment, Hamilton County, Ohio: Lead botanist for the 2015 assessment of Mitchell Memorial Forest (195 plots). 2015

VIBI Study for South Shore Estates Wetland Mitigation Site, Auglaize County, Ohio: Lead botanist for a Year 5 VIBI assessment of the mitigation wetland. 2014

Great Parks of Hamilton County, Floristic Quality Assessment, Hamilton County, Ohio: Lead botanist for the 2014 assessment of Miami Whitewater Forest (197 plots). 2014

Rain Garden Design Challenge for Pickerington Local Schools, Franklin County, OH: Helped 7th grade students design and construct 3 rain gardens to intercept and "treat" runoff from school building. 2014

Dublin Division of Parks & Open Spaces, Floristic Quality Assessment & Ecological Survey, Franklin County, Ohio: Lead botanist for ecological characterization and FQAI for Bryson Woods. 2014

Kleenco, Invasive Species Management, Mahoning County, OH: Developed and carried out invasive species management plan for failing wetland mitigation sites. Targeted species included: *Lythrum salicaria*, *Typha x glauca*, *Frangula alnus*, *Phalaris arundinacea*, and *Ligustrum vulgare*. 2014-2015

Great Parks of Hamilton County, Floristic Quality Assessment, Hamilton County, Ohio: Assistant botanist for the 2013 assessment of Miami Whitewater Forest.

Rain Garden Development for Pickerington Local Schools, Franklin County, OH: Designed and constructed a 10' x15' rain garden with at-risk Jr. High School students within a developing outdoor learning space. 2013

Dublin Division of Parks & Open Spaces, Floristic Quality Assessment & Ecological Survey, Franklin County, Ohio: Assistant botanist for ecological characterization and FQAI for Wyandotte Woods, a X acre woodlot in Dublin, Ohio. 2013

Vegetation Index of Biotic Integrity (VIBI) Study for Atrium Medical Center Wetland Mitigation Site, Miami County, OH: Completed a Year 3 and Year 5 VIBI study as part of the required monitoring of this mitigation wetland. Established plot, identified all species present and estimated cover classes, entered data in VIBI spreadsheets and calculated VIBI score for inclusion in annual monitoring report. 2012-2014

Vegetation Index of Biotic Integrity (VIBI) Study for Akron General Health & Wellness Wetland Mitigation Site, Summit County, OH: Completed a Year 3 VIBI study as part of the required monitoring of this mitigation wetland. 2012

Vegetation Index of Biotic Integrity (VIBI) Study for Boettler Park Wetland Mitigation Site, Summit County, OH: Completed a VIBI study as part of the required monitoring of this mitigation wetland. Established plots, identified all species present and estimated cover classes, entered data in VIBI spreadsheets and calculated VIBI score for inclusion in annual monitoring report. 2012

Stream and Wetland Restoration & Planting Plans

Westerville City Schools, McVay Elementary Vernal Pool Enhancement, Franklin County, OH: Assisted in site design of vernal pool enhancement areas for local elementary school. Organized and led planting activities and invasive and noxious weed removal. 2015

City of Westerville, Highlands Park Wetlands Enhancement and Restoration, Franklin County, OH: Lead botanist for vegetation monitoring, supplemental plantings, and invasive plant management. 2013-2015

Miami County Park District, Lost Creek Reserve Wetland Restoration and Habitat Enhancement, Miami County, OH: Developed a planting plan to restore a floodplain and upland forest (20 acres) and 3 acres of a groundwater fed emergent marsh. Onsite work coordinated and overseen by MAD. 2015

Metro Development, Ravines at Rocky Ridge Wetland Mitigation for Illegal Fill, Franklin County, OH: After the removal of over 10,000 cubic yards of illegal fill, a restoration plan was developed which included a planting plan and yearly monitoring requirements. 225 native trees and shrubs were selected for the restoration of this wetland floodway. 2015

Dawson Dairy Farm, Wetland Mitigation, Shelby County, OH: To compensate for illegal clearing within a wetland, a wetland enhancement and restoration plan was developed which included earthwork plans and detailed planting plans. Over 1,000 native trees and shrubs, along with native seed were selected and installed. 2015

Atrium Medical Center, Stream Mitigation & Riparian Corridor Enhancement, Warren County, OH: Designed planting plan for riparian corridor failing to meet permit requirements. Selected 300 native trees and shrubs, along with soil amendments for stream mitigation sites. Monitoring plan was also developed to document survival and project success. 2015

City of Westerville, Spring Valley Greenway Stream Enhancement and Restoration, Franklin County, OH: Developed a riparian planting plan for approximately 0.5 acre of enhanced stream banks for a headwater stream (tributary to Alum Creek). Organized volunteer events for planting woody material and removal of invasive species. Oversaw all planting activities. 2015

Franklin County Soil & Water Conservation District, Crawford Farms Stormwater Detention Basin Retrofit, Franklin County, OH: Consulted FCSWCD on planting plan, coordinated deliveries, oversaw planting events, and assisted with monitoring vegetative communities. 2015

American Electric Power, Cardinal Plant Wetland Mitigation, Jefferson County, OH: Developed a wetland planting plan for a 0.3 acre constructed wetland. Included an initial seeding, tree and shrub planting, and the installment of approximately 950 native plugs. 2015

New Albany-Plains School, Stormwater Wetland Basin, Franklin County, OH: Developed an upland and wetland planting plan for approximately 2 acres of a detention basin designed to treat Stormwater runoff through an emergent wetland system. Included an initial seeding, tree and shrub planting, and the installment of approximately 10,000 native plugs. 2014

City of Westerville, Highlands Park Wetlands Enhancement and Restoration, Franklin County, OH: Developed a wetland planting plan for approximately 3 acres of a newly constructed flow-through wetland. Included an initial seeding, tree and shrub planting, and the installment of approximately 14,000 native plugs. 2012-2014

City of Westerville, Boyer Nature Preserve, Franklin County, OH: Assisted in organizing a planting event to replace recently removed invasive honeysuckle in a wet woods adjoining a vernal pool and marsh complex. 2012-2015

City of Westerville, Otterbein Lake, Franklin County, OH: Organized and executed a planting plan for a shoreline restoration project along Otterbein Lake. Plants included approximately 10 native tree and shrubs species which were placed to reduce shoreline erosion as well as replace removed invasives. 2012

Columbus Regional Airport Authority, Franklin County, OH: Developed a riparian planting plan for approximately 1,500 linear feet a stream mitigation project. 2012

Reforestation Initiative, Montgomery County, OH: Examined several forested sites for desirable, native, trees and shrubs on lands owned by Five Rivers MetroParks for a large-scale planting event to replace failing ash stands and invasive brush. 2011

CERTIFICATE OF COMPLETION

Grasses, Sedges and Rushes Workshop

127 graminoids in four days!

To

Jenny Adkins

August 18-21, 2015

Farnsworth Metropark, Toledo Area Metroparks,
Waterville, Ohio



[STE]



Timothy L. Walters

Timothy L. Walters Ph.D.

Certificate of Training Wetland Delineation and Regional Supplement Updates

This certifies that

Jenny Adkins

has participated in 36 hours of field and classroom instruction.

Date: October 5, 2012



Swamp School, LLC

702 OBERLIN RD, SUITE 400
RALEIGH, NC 27605
1-877-479-2673
www.swampschool.org



Marc Seelinger

SIGNATURE OF AUTHORIZATION



Aaron M Laver

Environmental Scientist I, GIS Specialist

aaron@madscientistassociates.net

(614) 818-9156 ext. 14



EDUCATION

Bachelor of Science (2014)
Environmental Science
Water Science Specialization
The Ohio State University

PROFESSIONAL TRAININGS, MEMBERSHIPS, & CERTIFICATIONS

Wetland Delineation (2015)

Ohio Rapid Assessment Method
(ORAM; 2016)

Fish-Sampling Techniques of Ohio's
Agencies, The Ohio State University
(2014)

Going Places with Spatial Analysis,
Esri (2015)

Ohio Boating Certification, NASBLA

First Aid/CPR, American Red Cross

Airman's Leadership School, USAF

Air Force Munitions Apprentice System,
USAF

Basic Military Training, USAF

Environmental Professionals Network,
The Ohio State University, member

American Fisheries Society, member

Ecological Society of America, member

PROFESSIONAL EXPERIENCE

Aaron has been employed at MAD Scientist Associates (MAD) since 2014. As an environmental consultant, Aaron conducts site research using remote sensing technology and standard field methodologies. He is highly skilled in the use of GIS applications, including ArcGIS, Quantum GIS (QGIS), FUSION, and GRASS. He is proficient in the construction of custom-built analytic operations using GIS model builders and Python scripting, performance of data analysis within large databases using Structured Query Language (SQL), conversion of digital work products to computer-aided design (CAD) file formats, and customization of maps and figures using HTML/CSS.

Aaron has an educational focus in aquatic ecology, and has worked with The Ohio State University, Ohio Division of Natural Resources, and MAD Scientist Associates to conduct ecological surveys concerning several of Ohio's threatened and endangered species. Aaron has over two years of experience identifying flora and fauna in Ohio and surrounding states. He routinely performs wetland delineations, invasive plant species management activities, site characterizations, and assists with specialized botanical surveys (VIBI, FQAI).

SPECIAL TRAINING & SKILLS

Ohio Rapid Assessment Method Training (Ohio EPA, 2016)

Wetland Delineation & Regional Supplement Training (Swamp School, 2015)

Bat Population Monitoring Using Acoustic Devices and Sound Frequency Analysis (Ohio Department of Natural Resources - Division of Wildlife, 2014)

Rescue Diver, PADI (2014)

Forklift (Up to 10,000 lbs) & Tow Equipment, USAF (2010)

PROJECT EXPERIENCE HIGHLIGHTS

CDM Smith City of Columbus – Division of Water Watershed Master Plan, Franklin County, Ohio (Task 3, 2015): Obtained, researched, analyzed, formatted, and mapped City of Columbus watersheds' water quality data from local, state, and federal organizations to supplement City-managed information. 2014-2015.

CDM Smith City of Columbus – Division of Water Watershed Master Plan (Task 1, 2015), Franklin County, Ohio: Performed GIS analysis to determine potential wetland delineation sites on City of Columbus land along major water-source reservoirs. Performed wetland determinations on suspect properties as appropriate. 2014-2015.

Stone Environmental Junction at Jewett Wetland Delineation, Harrison County, Ohio: Performed GIS analysis to determine likely wetland areas across an ~700-acre site in Harrison County, OH. Upon completion of GIS analysis, conducted 22 wetland determinations, 15 wetland delineations, and 12 HHEI stream characterizations across the site. 2015.

Ohio Valley Conservation Coalition Watson Trust Habitat Management and Restoration Plan, Jackson County, OH: Performed a GIS analysis, wetland and stream determination, and ecological characterization across a 160-acre site. Developed a management plan with goals of enhancing, restoring, and remediating land to optimize the site for plant and wildlife habitat. 2015.

City of Dublin—Division of Parks and Open Space Brandon Park Ecological Characterization and Pond Enhancement Feasibility Investigation, Franklin County, OH: Conducted an ecological characterization study addressing ecosystem functionality of a pond located within Brandon Park. Developed management recommendations for the pond and addressed feasibility of enhancing the feature to sustain a recreational fishery. 2015.

KCI Coldwater Creek Treatment Train, Mercer County, OH: Conducted GIS analysis and figure generation associated with permitting for a wetland treatment train along Coldwater Creek near Grand Lake St. Marys. 2015.

North Point Engineering Cardinal Dairy Delineation, De Kalb County, Indiana: Conducted wetland delineation, site mapping, and findings report for a 160-acre site. 2015.

CT Consultants Geneva, Jurisdictional Waters and Isolated Wetlands Assessment, Ashtabula County, OH: Performed JWIWA, QHEI, T/E Bat Roosting Habitat assessment, ecological characterization, and ORAM assessment of a sewer expansion site within an unnamed tributary of Wheeler Creek. 2015.

Romanelli and Hughes Glenmead Wetland Delineation, Delaware County, Ohio: Conducted preliminary GIS site analysis, wetland delineation, site mapping, and findings memorandum for a 160-acre site. 2015.

Great Parks of Hamilton County, Floristic Quality Assessment, Hamilton County, Ohio: Assistant botanist for the assessment of Miami Whitewater Forest. 2014.

Environmental Design Group, Upper Cuyahoga Watershed Wetland Consulting, Geauga and Portage Counties, Ohio: Evaluated sites for potential wetland preservation, restoration, and enhancement credits, delineated general wetland boundaries. 2014.

Cox-Colvin Husky Energy Lima Plant Delineation, Allen County, Ohio: Evaluated a 31-acre site for potential roosting and hibernacula habitat for the federally endangered Indiana bat and proposed as endangered northern long-eared bat. Assisted with wetland delineation on site. 2014.

USDA-NRCS, Brush Creek Structure 14 Dam Rehabilitation Project Biological Baseline, Mercer County, West Virginia: Assisted with a full ecological characterization of a 16-acre site, which included with a survey to determine the presence or absence of the Federally Threatened Virginia meadowsweet (*Spiraea virginiana*). 2014.

Spring Valley Biological Assessment, Franklin County, Ohio: Surveyed stream reaches to establish stream quality using QHEI, HHEI, and biological indicators. Sampled fish, macroinvertebrate, and amphibian species. 2014.

Atrium Medical Center Mitigated Wetland Monitoring, Miami County, Ohio: Conducted vegetation surveys throughout mitigated wetland to assess compliance with Army Corps standards. Identified and removed invasive species present on site. 2014.

City of Westerville Highlands Park Wetland Monitoring, Franklin County, Ohio: Performed weekly water quality assessments to monitor wetland function and to evaluate success of mitigation efforts. Monitors and removes invasive species. 2014.

Miami County Parks District Twin Arches Riparian Monitoring, Miami County, Ohio: Performed annual riparian zone quality assessments to monitor riparian function and to evaluate success of mitigation efforts through the use of vegetation surveys and woody plant species DBH. Located, identified, and logged (using GPS) invasive species presence. 2014.

Vegetation Index of Biotic Integrity (VIBI) Study for Atrium Medical Center Wetland Mitigation Site, Miami County, OH: Assisted with a Year 5 VIBI study as part of the required monitoring of a mitigation wetland. 2014.

Certificate of Training Wetland Delineation & Regional Supplement Training

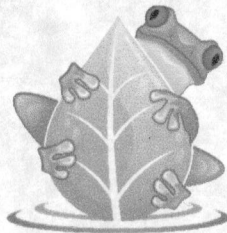
This certifies that

Aaron M. Laver

has participated in 36 hours of classroom & field instruction.

Date: May 1, 2015

This course has been pre-approved by the SWSPCP as meeting standards for content and instruction and, upon successful completion, has been judged to be immediately eligible to receive credits and/or points toward SWSPCP Professional Certification or SWSPCP Professional Certification Renewal.



Swamp School, LLC

RALEIGH, NC 27603
1-877-479-2673

www.SwampSchool.org



Marc Seelinger
SIGNATURE OF AUTHORIZATION

Certificate of Completion

This is to certify that Aaron Laver successfully completed the Going Places with Spatial Analysis online course on April 21, 2015

Linda Beale

Linda Beale, Instructor

David DiBiase

David DiBiase, Instructor



Certificate no: UC-DZWDEF3V
Certificate url: [ude.my/UC-DZWDEF3V](https://udemy.com/UC-DZWDEF3V)

Attachment B
Literature Resources

Author	Title	Region	Type	Comments
Alexander C. Martin	Weeds	US	F	Pocket Golden Guide
Allan Pentecost	Introduction to Freshwater Algae. 1984		Aglae	
Andreas, Barbara K.	The Vascular Flora of the Glaciated Allegheny Plateau Region of Ohio	OH		Bulletin of the Ohio Biological Survey New Series Volume 8 Number 1
Bailey, L. H.	How Plants Get Their Names			
Barnes, Thomas G. and S. Wilson Francis	Wildflowers and Ferns of Kentucky	KY	F, FN	
Barnes, Thomas G., Deborah White and Marc Evans	Rare Wildflowers of Kentucky	KY	F	
Brandenburg, David M.	National Wildlife Federation Field Guide to Wildflowers of North America	US		
Braun, E. Lucy	The Woody Plants of Ohio - Trees, Shrubs, and Woody Climbers -Native, Naturalized, and Escaped	OH	T,Sh,V	2 copies
Britton and Brown	An Illustrated Flora of the Northern United States and Canada Volume 1: Ferns to Buckwheat	REG		
Britton and Brown	An Illustrated Flora of the Northern United States and Canada Volume 2: Amaranth to Polypremum	REG		
Britton and Brown	An Illustrated Flora of the Northern United States and Canada Volume 3: Gentian to Thistle	REG		
Brockman, C. Frank	Trees of North America	US	T	Includes Canada
Brodo, Irwin M., Sylvia D. Sharnoff, and Stephen Sharnoff	Lichens of North America			
Brown, Lauren	Grasses: An Identification Guide	REG	G	
Cavender, James C. and Eduardo M. Vadell	Cellular Slime Molds of Ohio			Ohio Biological Survey Bulletin New Series Vol. 16, No. 1
Chadde, Steve W.	A Great Lakes Wetland Flora - A complete guide to the aquatic and wetland plants of the Upper Midwest	REG	W	2nd edition
Chester, Edward, W. R. Jensen, et. al.	The Nut Trees of Land Between the Lakes	REG	T	
Cobb, Boughton	A Field Guide to Ferns and their related families - Northeastern and Central North America	REG		Peterson Field Guide
Conard, Henry S. and Paul L Redfearn Jr.	How to Know the Mosses and Liverworts			2nd edition
Cooperrider, Tom S. Allison W. Cusick, and John T. Kartesz, editors	Seventh Catalog of the Vascular Plants of Ohio			
Core, Earl L. and Nelle P. Ammons	Woody Plants in Winter	REG	T, Sh, V	

US = United States
REG = Region
OH = Ohio
(other states indicated
by 2 letter postal code)

F = Flowers
FN = Ferns
FU = Fungi
T = Trees
Sh = Shrubs
V = Woody Vines

G = Grasses
S = Sedges
R = Rushes
W - Wetland

Author	Title	Region	Type	Comments
Craighead, John J., Frank.C. Craighead Jr. and Ray. J. Davis	A field guide to Rocky Mountain wildflowers : northern Arizona and New Mexico to British Columbia.	RM	F	Peterson Field Guide
Crow and Hellquist	Aquatic and Wetland Plants of Northeastern North America Volume 1: Pteridiophytes, Gymnosperms, and angiosperms: Dicotyledons. 2000	REG	W	
Crow and Hellquist	Aquatic and Wetland Plants of Northeastern North America Volume 2: Angiosperms: Monocotyledons. 2000	REG	W	
Cusick, Allison W. and Gene M. Silberhorn	The Vascular Plants of Unglaciated Ohio	OH		Bulletin of the Ohio Biological Survey New Series Volume 5 Number 4
Cynthia A. Aulbach-Smith and Steven J. de Kozlowski	Aquatic and Wetland Plants of South Carolina.1996	SC	W	
Donald Cox	A Naturalist's Guide to Wetland Plants. 2002	Eastern N	W	two copies
E. Lucy Braun	The Monocotyledoneae: Cattails to Orchids	OH		
Ellis, William H. and Edward Chester	Summer and Fall Wildflowers of Land Between the Lakes	REG	F	Tennessee Valley Authority
Ellis, William H. and Edward Chester	Trees and Shrubs of Land Between the Lakes	REG	T, Sh	Tennessee Valley Authority
Foster, Steven and James A Duke G.W. Prescott	A Field Guide to Medicinal Plants and Herbs - Eastern and Central North America How to know the freshwater algae. Third edition. 1978			Peterson Field Guide
Gleason and Cronquist	Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Second Edition		Aglae	
Hallowell, Anne C. and Barbara G. Hallowell	Fern Finder - a guide to native ferns of northeastern and central North America	REG	FN	
Haragan, Patricia Dalton	Weeds of Kentucky and Adjacent States - A Field Guide	R	F	
Harlow, William M.	Fruit Key and Twig Key to Trees and Shrubs	REG	T, Sh	Northeast
Harlow, William M.	Trees of the Eastern and Central United States and Canada	US	T	Includes Canada
Harrington, H. D.	How to Identify Grasses and Grasslike Plants		G,S,R	
Harrington, H. D.	How to Identify Plants			
Harris, James G.and Melinda Woolf Harris	Plant Identification Terminology - an Illustrated Glossary			
Henn, Robert L.	Wildflowers of Ohio	OH		
Hipp, Andrew L.	Field Guide to Wisconsin Sedges: an introduction to the genus Carex (Cyperaceae)	WI	S	
Hitchcock, A.S. (revised by Agnes Chase)	Manual of the Grasses of the United States - Volume One	US	G	Second edition
Hitchcock, A.S. (revised by Agnes Chase)	Manual of the Grasses of the United States - Volume Two	US	G	Second edition

US = United States
REG = Region
OH = Ohio
(other states indicated
by 2 letter postal code)

F = Flowers
FN = Ferns
FU = Fungi
T = Trees
Sh = Shrubs
V = Woody Vines

G = Grasses
S = Sedges
R = Rushes
W - Wetland

<u>Author</u>	<u>Title</u>	<u>Region</u>	<u>Type</u>	<u>Comments</u>
Holmgren, Noel. H.	Illustrated companion to Gleason and Cronquist's manual			
James Castner	Photographic Atlas of Botany and Guide to Plant Identification. 2004			
Keller, Harold W. and Karl L. Braun	Myxomycetes of Ohio: Their Systematics, Biology and Use in Teaching			Ohio Biological Survey Bulletin New Series Vol. 13, No. 2
Kershner, Bruce, Danial Mathews, et.al.	National Wildlife Federation Field Guide to Trees of North America	US	T	Includes Canada
Knobel, Edward	Field Guide to the Grasses, Sedges and Rushes of the United States	REG	G,S,R	
Levine, Carol	A Guide to Wildflowers in Winter			
Lincoff, Gary H.	The Audubon Society Field Guide to North American Mushrooms	US	FU	
Lincoff, Gary H. (ed.)	Simon & Schuster's Guide to Mushrooms		FU	
Little, Elbert L.	The Audubon Society Field Guide to North American Trees - Eastern Region	REG	T	
Little, Elbert L.	The Audubon Society Field Guide to North American Trees - Western Region	REG	T	
Loughmiller, Cambell and Lynn	Texas Wildflowers - A Field Guide	TX	F	
McQueen, Cyrus B.	Field Guide to the Peat Mosses of Boreal North America	US		
Miller, Dorcas S.	Berry Finder - a guide to native plants with fleshy fruits			
Miller, Howard and Samuel Lamb	Oaks of North America	US	T	
Mohlenbrock, Robert H.	Sedges: Carex -The Illustrated Flora of Illinois	IL	S	
Neelands, R.W.	Important Trees of Eastern Forests	REG	T	USDA - Forest Service
Neil Hotchkiss	Common Marsh, Underwater and Floating-leaved Plants of the US and Canada. 1967		W	
Newcomb, Lawrence	Newcomb's Wildflower Guide	REG	F	two copies
Niehaus, Theodore F.	A Field Guide to Southwestern and Texas Wildflowers	REG	F	Peterson Field Guide
Niering, William A. and Nancy C. Olmstead	The Audubon Society Field Guide to North American Wildflowers - Eastern Region	REG	F	
Norman Fassett	A Manual of Aquatic Plants. 1957		W	
Perine, Bill and Dennis Profant	Trees, Shrubs and Vines of Southeastern Ohio and Appalachia	REG	T, Sh, V	
Peterson, Roger Tory and Margaret McKenny	A Field Guide to Wildflowers - Northeastern and North-central North America			Peterson Field Guide
Petrides, George A.	A Field Guide to Eastern Trees - Eastern United States and Canada	US		Peterson Field Guide, Includes Canada
Petrides, George A.	A field guide to Trees and Shrubs : Northeastern and north-central United States and southeastern and south-central Canada	REG	T, Sh	Second edition

F = Flowers

US = United States

FN = Ferns

REG = Region

FU = Fungi

OH = Ohio

T = Trees

(other states indicated
by 2 letter postal code)

Sh = Shrubs

V = Woody Vines

G = Grasses

S = Sedges

R = Rushes

W - Wetland

<u>Author</u>	<u>Title</u>	<u>Region</u>	<u>Type</u>	<u>Comments</u>
Phillips, Haskell C.	Lichens and Ferns of Land Between the Lakes			
Pohl, R.W	How to Know the Grasses	US	G	
Pojar, Jim and Andy MacKinnon	Plants of the Pacific Northwest Coast	PNW		
Polese, Jean-Marie	The Pocket Guide to Mushrooms		FU	
Ronald Jones	Plant Life of Kentucky	KY		
Schaffner, John H.	The Grasses of Ohio	OH	G	Bulletin 9 of the Ohio Biological Survey Volume II Number 5
Shanks, R. E. and A. J. Sharp	Summer Key to Trees of Tennessee and the Great Smokies	TN	T	
Showman, Ray E. and Don G. Flenniken	The Macrolichens of Ohio	OH	L	
Sibley, David A.	The Sibley Guide to Trees	US	T	
Snider, Jerry A. and Barbara K. Andreas	A Catalog and Atlas of the Mosses of Ohio			Ohio Biological Survey - Miscellaneous Contribution No. 2
Spellenberg, Richard	Familiar Flowers of North America - Easter Region	REG	F	
Spellenberg, Richard	The Audubon Society Field Guide to North American Wildflowers - Western Region	REG	F	
Stein, John, Denise Binion and Robert Acciavatti	Field Guide to Native Oak species of Eastern North America	REG	T	
Sundberg, Walter J. and John A. Richardson	Mushrooms and Other Fungi of Land Between the Lakes	REG	FU	
Symunds, George W.D.	The Shrub Identification Book	US	Sh, V	Includes ground covers
Symunds, George W.D.	The Tree Identification Book	US	T	
T. Richard Fisher	The Dicotyledoneae of Ohio Part 3: Asteraceae	OH		
Theodore Dudley	Gray's Manual of Botany Volume 2: Biosystematics, Floristic and Phylogeny Series	REG		
Tom S. Cooperrider	The Dicotyledoneae of Ohio Part 2: Linaceae through Campanulaceae	OH		two copies
Trelease, William	Winter Botany	REG	T, Sh	Mostly Northern US
Verb, R.G., et al.	Checklist of Algal Taxa from Ohio's Unglaciated Western Allegheny Plateau, Exclusive of the Ohio River	2006	Aglae	Ohio Biological Survey
Watts, May Theilgaard & Tom Watts	Winter Tree Finder	REG	T	
Weishaupt, Clara G.	A Descriptive Key to the Grasses of Ohio Based on Vegetative Characters	OH	G	
Welch, Winona H.	Mosses of Indiana	IN	M	
Wharton, Mary E. and Roger W. Barbour	Trees and Shrubs of Kentucky	KY	T, Sh	
Wiley, Farida A.	Ferns of Northeastern United States	REG	FN	New England and Mid-Atlantic States

US = United States
REG = Region
OH = Ohio
(other states indicated
by 2 letter postal code)

F = Flowers
FN = Ferns
FU = Fungi
T = Trees
Sh = Shrubs
V = Woody Vines

G = Grasses
S = Sedges
R = Rushes
W = Wetland

<u>Author</u>	<u>Title</u>	<u>Region</u>	<u>Type</u>	<u>Comments</u>
Windle, Phyllis N., rhonda H. Kranz, and Monica La	Invasibe Species in Ohio - Pathways, Policies, and Costs	OH		Union of Concerned Scientists
Zim, Herbert S. and Alexander C. Martin	Flowers - A Guide to Familiar American Flowers	US	F	Pocket Golden Guide
Zim, Herbert S. and Alexander C. Martin	Trees - A Guide to Familiar American Trees	US	T	Pocket Golden Guide

US = United States
REG = Region
OH = Ohio
(other states indicated
by 2 letter postal code)

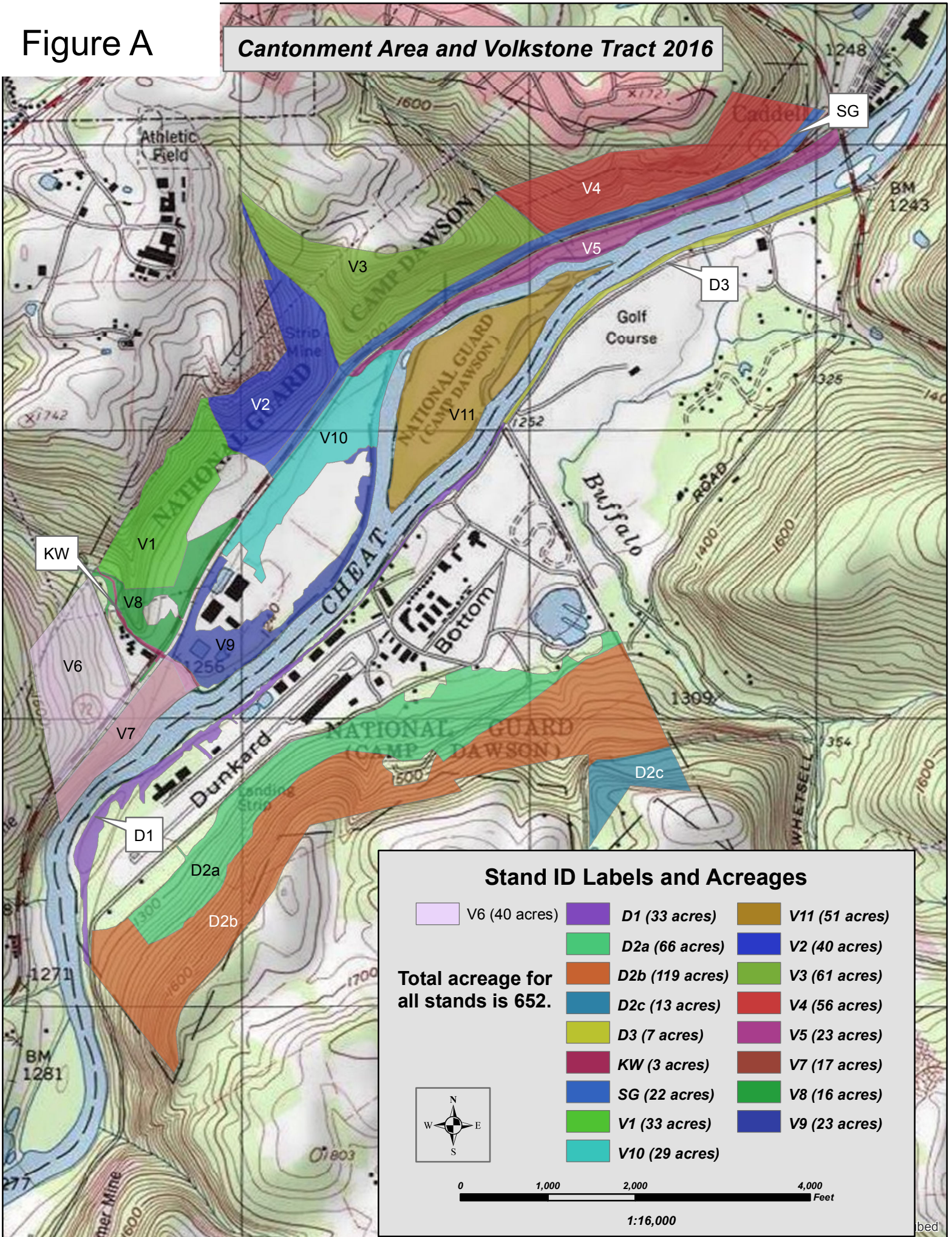
F = Flowers
FN = Ferns
FU = Fungi
T = Trees
Sh = Shrubs
V = Woody Vines

G = Grasses
S = Sedges
R = Rushes
W - Wetland

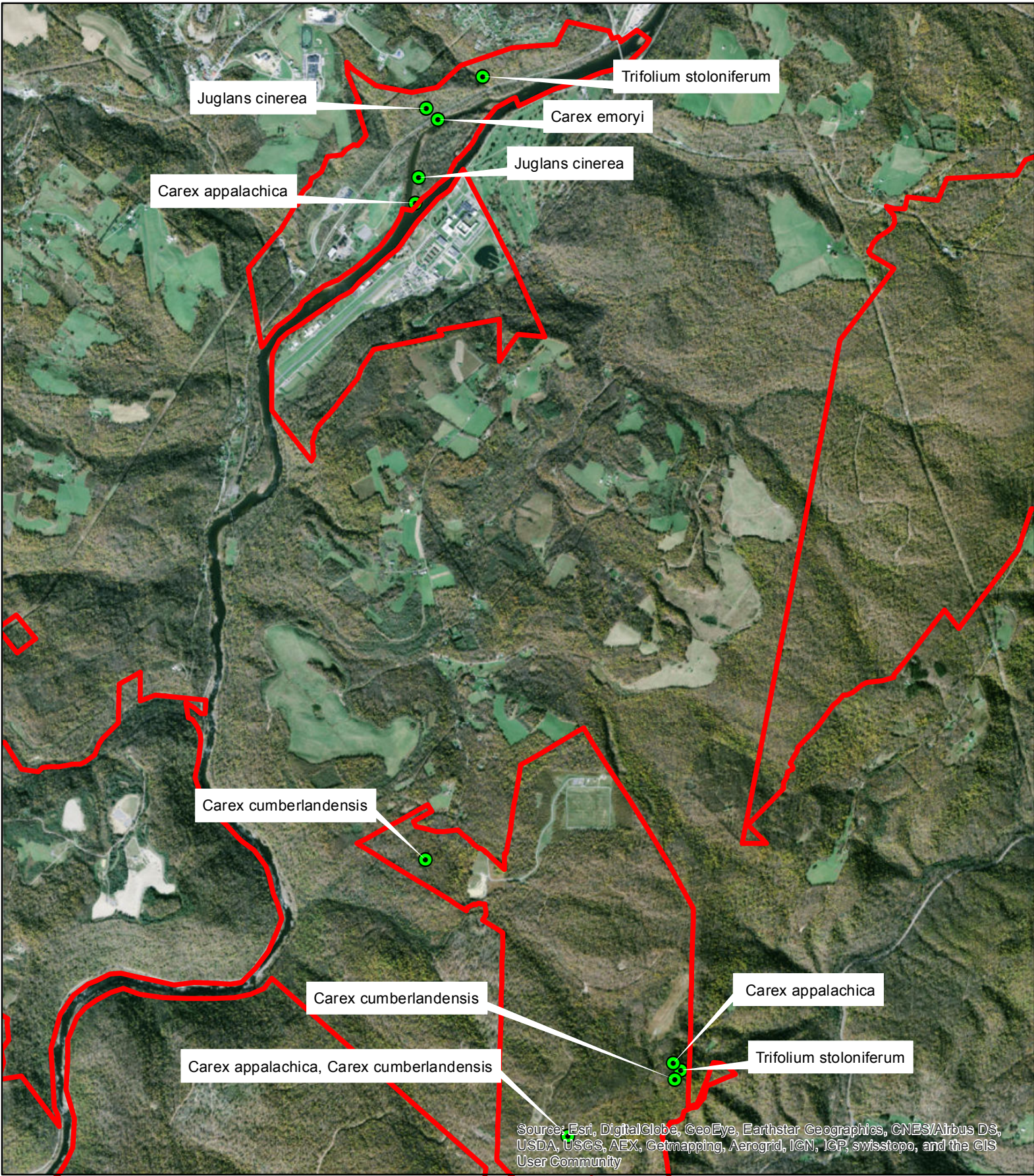
Attachment C
Addendums to RFP

Figure A

Cantonment Area and Volkstone Tract 2016



Camp Dawson Species of Special Concern (Figure B)



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, ICP, swisstopo, and the GIS User Community

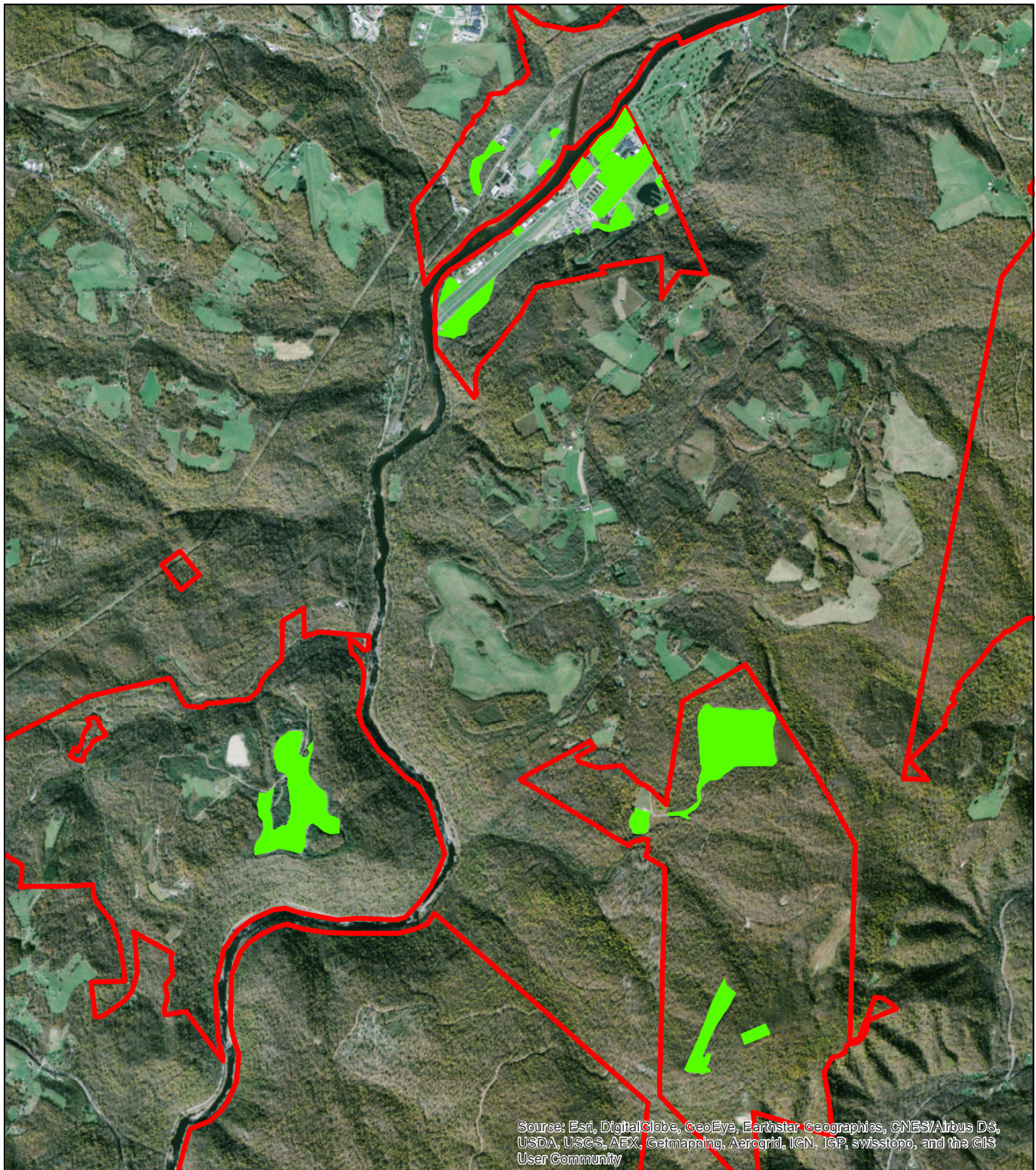


● Species of Special Concern
▭ Training Areas

0 0.5 1 Miles



1:50,000

Camp Dawson Developed Areas (Figure C)



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



 Developed Areas (275.8 Acres)
 Training Areas

0 0.5 1
Miles

1:50,000

Attachment D

Insurance & Tax Documents

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

Print or type
See Specific Instructions on page 2.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
MAD Scientist Associates, LLC

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification; check only **one** of the following seven boxes:
 Individual/sole proprietor or single-member LLC
 Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____
 Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner.
 Other (see instructions) ▶ _____

C Corporation S Corporation Partnership Trust/estate

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
 Exempt payee code (if any) _____
 Exemption from FATCA reporting code (if any) _____
(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.)
253 N State St, Ste 101

6 City, state, and ZIP code
Westerville, OH 43081

7 List account number(s) here (optional)

Requester's name and address (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number

			-		-				
--	--	--	---	--	---	--	--	--	--

or

Employer identification number

2	0	-	1	1	2	6	8	5	5
---	---	---	---	---	---	---	---	---	---

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here Signature of U.S. person ▶ *Christa S. Wiley* Date ▶ *7/20/15*

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
 - Form 1099-C (canceled debt)
 - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding?* on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
12/11/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Associated Insurance Agencies 63 Commerce Park Drive Westerville, OH 43082	CONTACT NAME: Stephanie L Hasson	FAX (A/C, No):	
	PHONE (A/C, No, Ext):	E-MAIL ADDRESS: shasson@iuainc.com	
INSURED MAD Scientist Associates LLC 253 N State Street, Suite 101 Westerville, OH 430812560	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A: Motorists Mutual Insurance Co		
	INSURER B:		
	INSURER C:		
	INSURER D:		
	INSURER E:		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR			3326586420	08/09/2015	08/09/2016	EACH OCCURRENCE	\$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 100,000
							MED EXP (Any one person)	\$ 5,000
							PERSONAL & ADV INJURY	\$ 1,000,000
							GENERAL AGGREGATE	\$ 2,000,000
							PRODUCTS - COMP/OP AGG	\$ 2,000,000
								\$
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
							BODILY INJURY (Per person)	\$
							BODILY INJURY (Per accident)	\$
							PROPERTY DAMAGE (Per accident)	\$
								\$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	\$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	\$
	DED RETENTION \$							\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) if yes, describe under DESCRIPTION OF OPERATIONS below						PER STATUTE	OTH-ER
							E.L. EACH ACCIDENT	\$
							E.L. DISEASE - EA EMPLOYEE	\$
							E.L. DISEASE - POLICY LIMIT	\$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER Eastern Kentucky University Jones 117, COP 8A 521 Lancaster Ave Richmond, KY 40475	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE <i>Stephanie L Hasson</i>

© 1988-2014 ACORD CORPORATION. All rights reserved.



**Bureau of Workers'
Compensation**

30 W. Spring St.
Columbus, OH 43215

Certificate of Ohio Workers' Compensation

This certifies that the employer listed below participates in the Ohio State Insurance Fund as required by law. Therefore, the employer is entitled to the rights and benefits of the fund for the period specified. This certificate is only valid if premiums and assessments, including installments, are paid by the applicable due date. To verify coverage, visit www.bwc.ohio.gov, or call 1-800-644-6292.

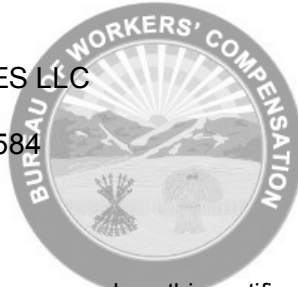
This certificate must be conspicuously posted.

Policy number and employer

1504265

MAD SCIENTIST ASSOCIATES LLC
253 N STATE ST STE 101
WESTERVILLE, OH 43081-1584

www.bwc.ohio.gov
Issued by:



Period specified below

07/01/2015 through
06/30/2016

Stephen Bucher
Administrator/CEO

You can reproduce this certificate as needed.

Ohio Bureau of Workers' Compensation

Required Posting

Effective Oct. 13, 2004, Section 4123.54 of the Ohio Revised Code requires notice of rebuttable presumption. Rebuttable presumption means an employee may dispute or prove untrue the presumption (or belief) that alcohol or a controlled substance not prescribed by the employee's physician is the proximate cause (main reason) of the work-related injury.

The burden of proof is on the employee to prove the presence of alcohol or a controlled substance was not the proximate cause of the work-related injury. An employee who tests positive or refuses to submit to chemical testing may be disqualified for compensation and benefits under the Workers' Compensation Act.



**Bureau of Workers'
Compensation**

You must post this language with the Certificate of Ohio Workers' Compensation