

Welcome to the Project Wingspan seed collection training!



Please take this time to sign in and fill out the waiver/pre-assessment forms

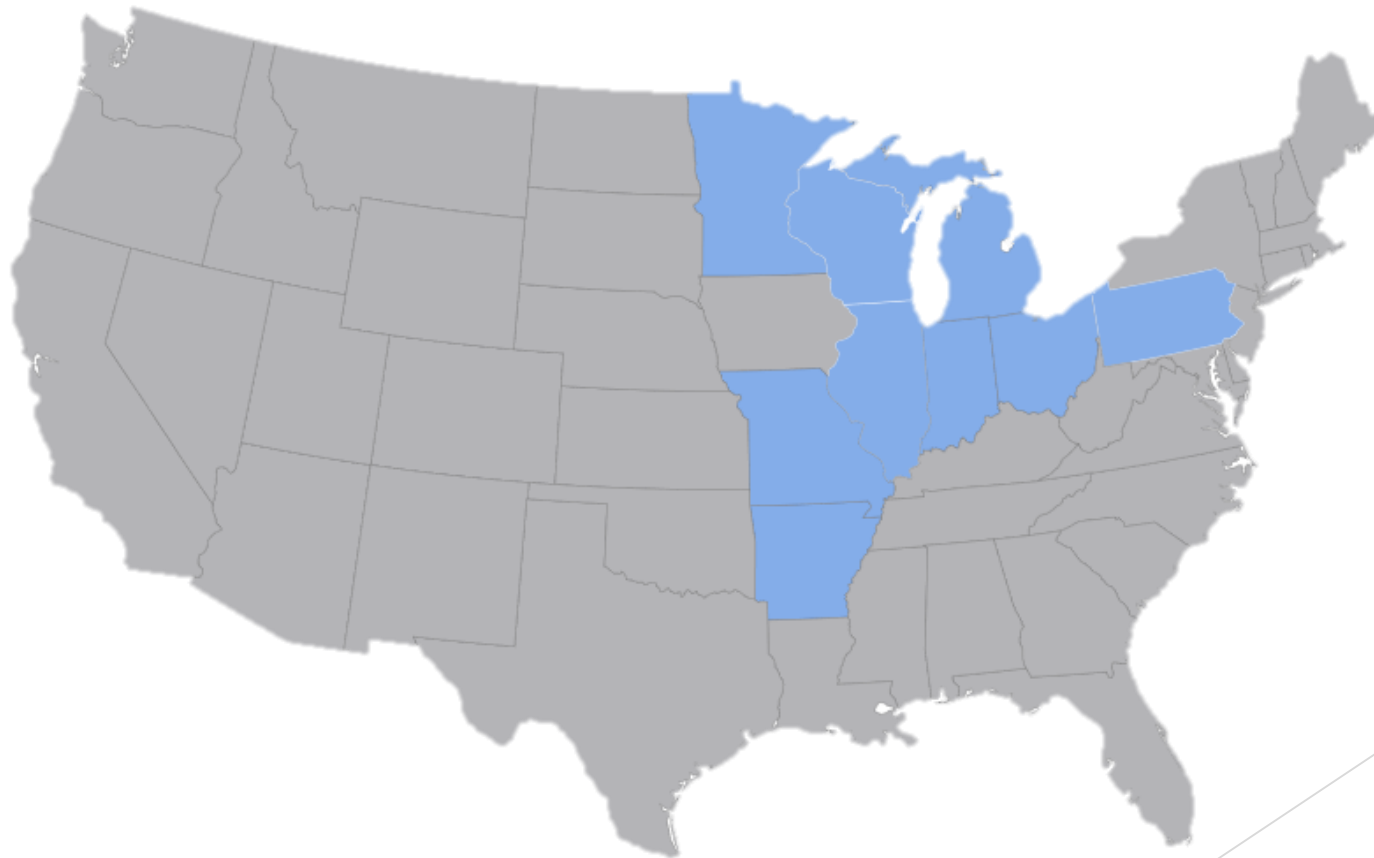


Project Wingspan:

Landscape Enhancement for Imperiled Pollinators
of the Midwest

Tips for Plant ID and
Seed Collection and Storage

Establish a regional seed collecting
program to create increased
connectivity across the landscape



Provide technical assistance and training for seed collection



Training and Communication

- 🌱 Team Leads need to be well versed in plant ID
- 🌱 Volunteers can collect alongside Team Leads if they are unfamiliar with plants
- 🌱 Team Leads can mark plants for Collection Volunteers who may be inconsistent in plant ID



Pollinator Partnership
www.pollinator.org
415-362-1137
ab@pollinator.org



What kinds of landscapes work best?

- ▶ State/federal parks and lands
- ▶ ROWs (utilities, roadsides, etc.)
- ▶ Botanical gardens with native prairies
- ▶ Farms
- ▶ Tribal Lands
- ▶ Private Lands
- ▶ Corporate Lands
- ▶ Rail Lines



How to approach landscapes?

- ▶ Send emails to groups like
 - ▶ National Association of Conservation Districts
 - ▶ American Farm Bureau Federation
 - ▶ Master Naturalists groups
 - ▶ Farm Cooperatives
 - ▶ Land Trusts
 - ▶ Parks and their friends groups



How to approach landscapes?

POLLINATOR PARTNERSHIP

Project Wingspan: Landscape Enhancement for Imperiled Pollinators of the Midwest

As you may know, the iconic monarch butterfly (*Danais plexippus*) and its spectacular migration are in jeopardy. Their North American numbers have suffered a steep decline of approximately 90% over the past two decades, and in 2014 the U.S. Fish and Wildlife Service was petitioned to protect the monarch butterfly under the Endangered Species Act (with a listing decision expected for summer 2019). Like the monarch, the rusty patched bumble bee (RPBB) was a common species 20 years ago, with a range across 28 states and two Canadian provinces. RPBB (*Bombus affinis*) populations have also seen a swift decline since the 1990s, which earned it placement on the endangered species list in 2017 – with a distinction of becoming the first bee in the contiguous 48 states to be declared endangered. The species has now only been observed as a few small patches of populations across what is estimated to be only 0.1% of its historical range.



Project Wingspan (PW) is a two-year project sponsored by a grant from the National Fish and Wildlife Foundation to the non-profit Pollinator Partnership (P2), which is leading a coalition of partners in an effort to enhance land across the Midwest to support our imperiled pollinators. The grant provides \$149,000 to be matched by \$385,500 of matching and in-kind contributions from the partners.



PW will increase monarch and RPBB habitat by building off the success of P2's, 2017-2019 Monarch Wings Across the Eastern Broadleaf Forest Program, (MWAEBF), and by engaging public land managers and private land stewards throughout the 8-state target region of Arkansas, Illinois, Indiana, Michigan, Missouri, Ohio, Pennsylvania, and Wisconsin through a series of monarch habitat enhancement activities, with the goal of establishing 10,000, acres of monarch and RPBB habitat.

A core group of partners including P2, U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program, Illinois Department of Natural Resources (DNR) – Mason State Nursery, U.S. Forest Service, Ohio Pollinator Habitat Initiative, Michigan DNR, Indiana DNR, Holden Forests & Gardens, the University of Arkansas Center for Advanced Spatial Technologies, Michigan State University, Kettle Moraine Land Trust, Pennsylvania Natural Heritage Program, and Pheasants Forever will work together to ensure the activities below are well-executed to achieve a comprehensive and effective outcome. Additional satellite partners (a growing list that includes, but is not limited to, those noted at the end of this document) have been secured to maximize the efforts of the core partners.

Pollinator Partnership • 423 Washington Street 5th FL San Francisco CA 94111 • 415-362-1137 • www.pollinator.org

Seed Collecting for Monarchs and the Endangered Rusty Patched Bumble Bee!

The Pollinator Partnership has joined forces with several organizations and agencies to launch our new initiative, Project Wingspan, and we need your help! The project will be collecting seed throughout the states of Ohio, Indiana, Illinois, Pennsylvania, Wisconsin, and Michigan.



We are looking for enthusiastic seed collecting volunteers in all 6 states to help identify and collect milkweed and other valuable native forage plants. As a seed collecting volunteer you will be provided with training and be making valuable contributions to supporting migrating monarchs and the imperiled rusty patched bumble bee.

No seed collecting experience is required, but basic plant knowledge is preferred.

Project Wingspan is also looking for landowners and public land managers with robust native plant populations, who are interested in supporting local habitat restoration efforts by serving as native seed collection sites.

To sign-up as a volunteer seed collector please fill out the online form here: <https://tinyurl.com/Wingspan-volunteer>.

To see our list of target plants and sign-up as a seed collection location please fill out the online form here: <https://tinyurl.com/PWseedsite>



A special thanks to our sponsor **ComEd**

Pollinator Partnership • 423 Washington Street 5th FL San Francisco CA 94111 • 415-362-1137 • www.pollinator.org

Habitat Wanted

Pollinator Partnership invites public land managers and private landowners with at least one acre of land in WI, MI, PA, OH, IN, IL, MO, and AR who are committed to long-term conservation of monarch, rusty patched bumble bee, and other rare pollinator habitat to be a part of

Project Wingspan!



To participate complete the preliminary online survey if your site qualifies, you will get a **FREE** on-site review by Pollinator Partnership's Monarch & Pollinator Habitat Coordinator who will be able to offer habitat development guidance. Plant material awards will be given to selected sites for habitat enhancement.

Are you committed to enhancing your land for monarch butterflies, rusty patched bumble bees and other imperiled pollinators?

Visit this link to complete the survey today <https://pollinator.org/wingspan/survey>

Survey Deadline: **June 15, 2019**

For questions please e-mail Elizabeth Kaufman at ek@pollinator.org

Pollinator Partnership
423 Washington Street 5th FL San Francisco CA 94111
415-362-1137 • www.pollinator.org

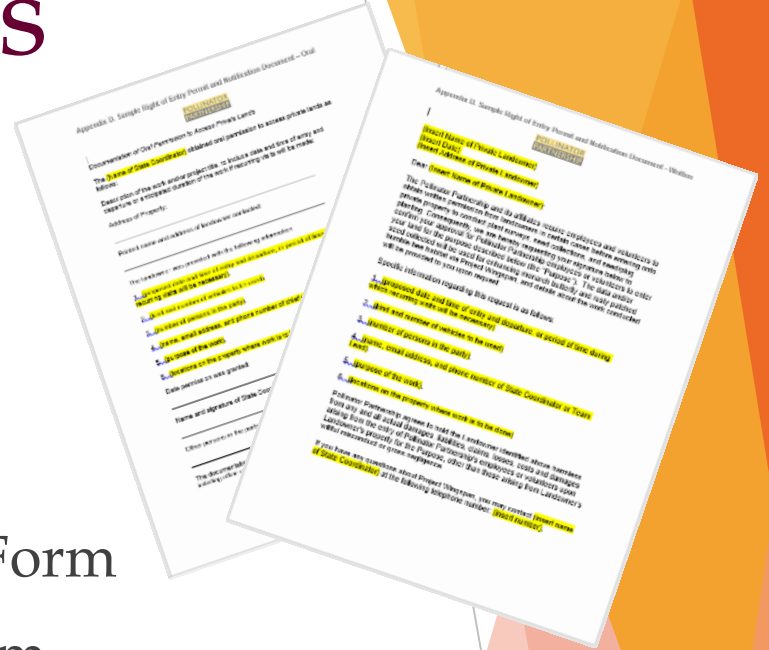


A special thanks to our sponsor **ComEd**

Obtain permission to access property



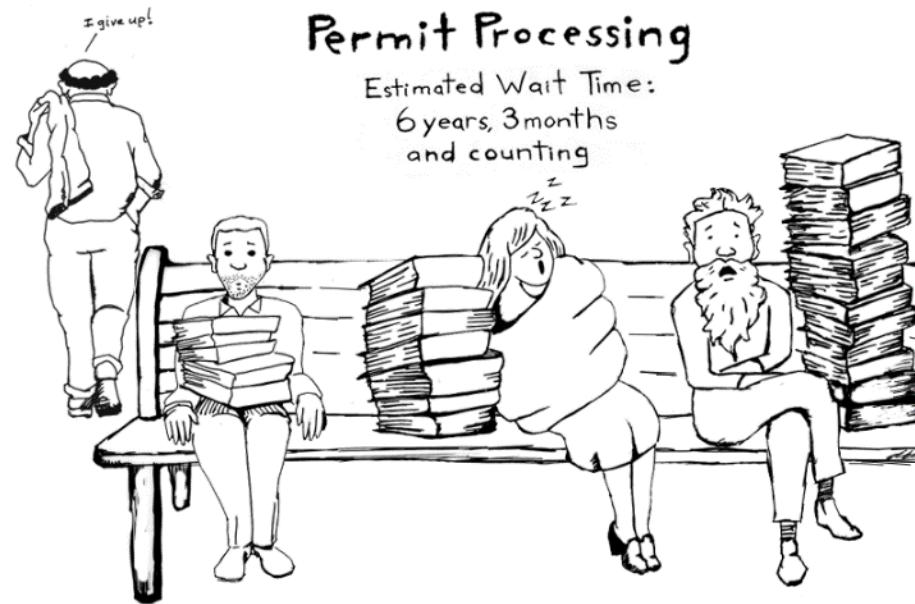
- ▶ Property Entry Formal Permission Form
- ▶ Property Entry Oral Permission Form
- ▶ **Volunteer Waiver / Hold Harmless Form**



Turn this in
before leaving
today!

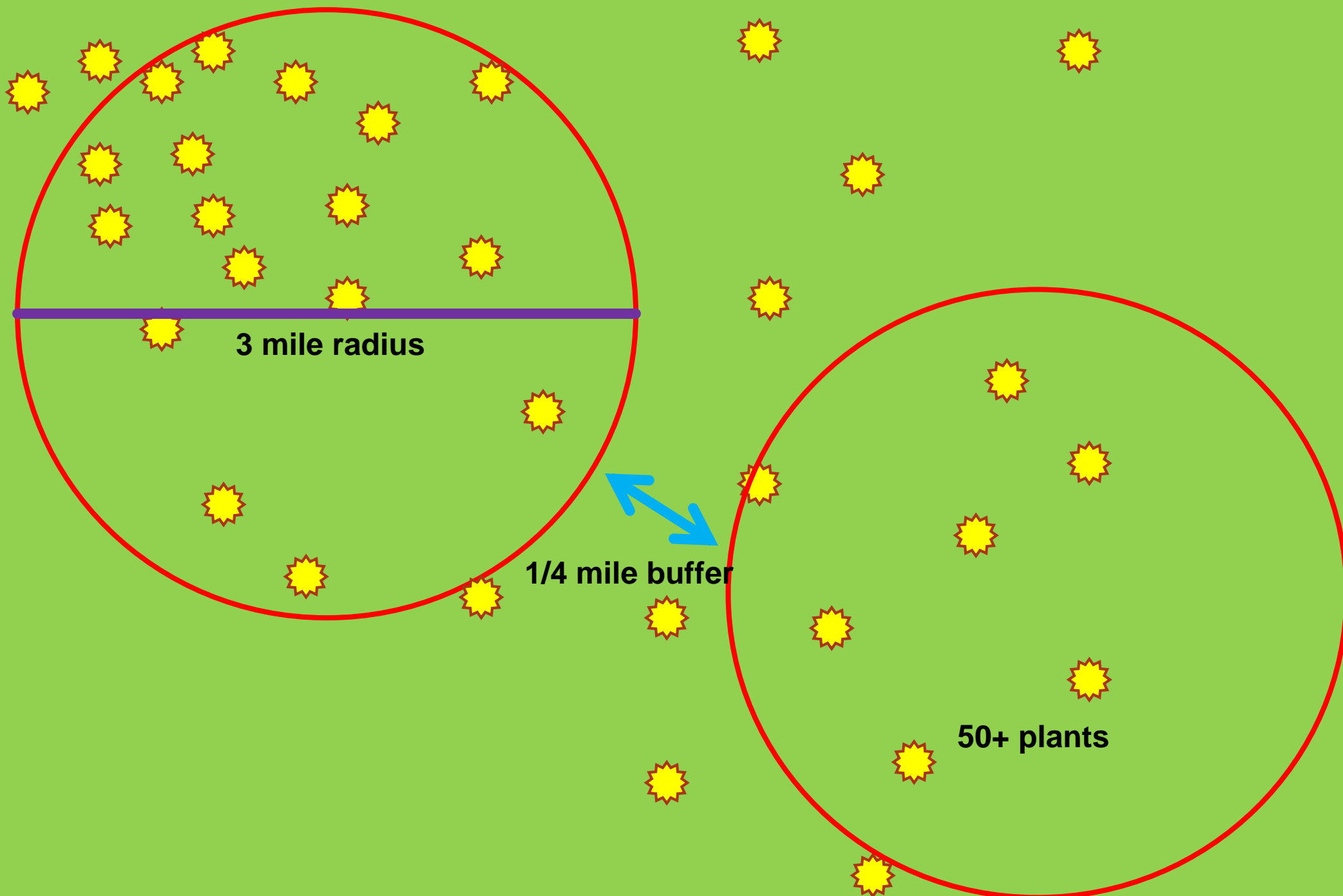
Preliminary Site Visits and Permission to Collect

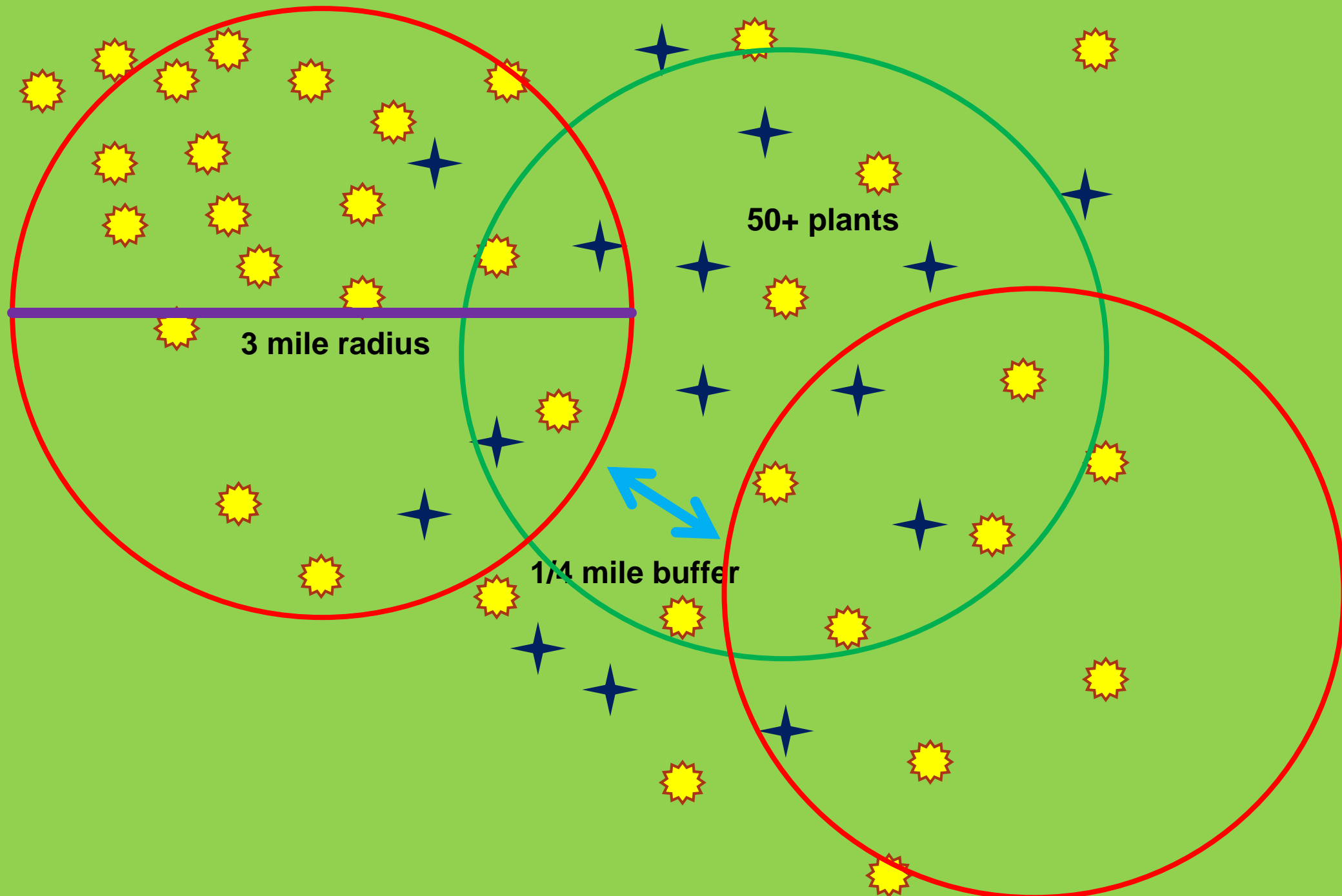
- ▶ Scout potential sites
- ▶ Assess target population
- ▶ Plan ahead for Permits
- ▶ Hold Harmless Documents



What makes a population?

- ▶ A group of one species of plants living within the same collection site, continuous in range, and generally uniform in appearance; one population
- ▶ Consider plants within a 3 mile radius around the main collection site to be the same population
- ▶ To gain the most representatively balanced sample of seeds, collecting should be conducted in an even and random method from **at least 50 plants but more whenever possible**
- ▶ Different collections of the same species should be at least 1/4 mile apart to ensure they are two separate populations





How to assess a population:

- ▶ Scout the site while plants are flowering and confirm the target plants are there
- ▶ Only collect from sites with a minimum of 50 harvestable individuals in the population (can be spread out)...but the more, the better
- ▶ Check with the land owner and see if it is okay to mark the populations (flagging tape, pin flags, or yarn)
- ▶ Scout again during seed set to estimate when the collection should be scheduled
- ▶ Perform a cut test on the seed to determine seed maturity and amount of bug damage

Is the seed ready?

Visually Assessing the Seed

- ▶ Look for changes in fruit and seed color
- ▶ Fruits should be splitting or breaking open
- ▶ Seeds will rattle
- ▶ Seeds will be hard and dry
- ▶ Some seeds have already dispersed



Cut Tests

How do we know if the seed is viable?

► What is it?

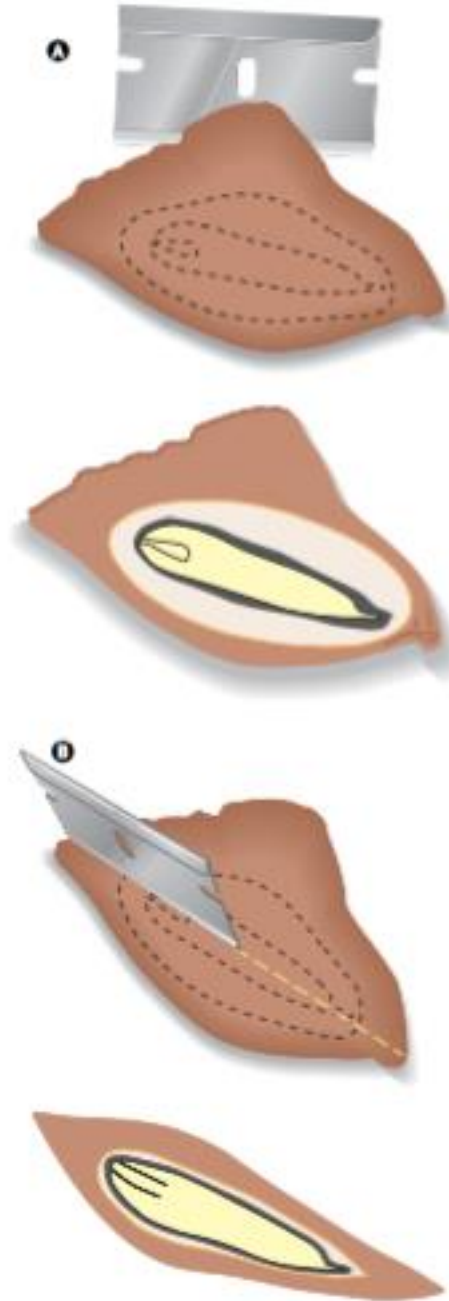
- A method of testing seeds by cutting them open to see if their internal tissues are fully developed and undamaged

► Tells the collector:

- If the seeds are mature enough
- If seeds have been damaged (aids in determining the amount of seed needed)

How to perform a cut test:

- ▶ Cut seed longitudinally on a firm surface
- ▶ Use a clean, sharp razor blade & push downwards through the middle of the seed with constant pressure
- ▶ Examine the seed contents



Seeds reach their maximum viability and peak maturity at the time of natural seed shed

Mature Seed:

- ▶ Seed maturity is usually based on the presence of a fully developed embryo

Immature Seed:

- ▶ Have a softer outer seed coat and an inner tissue that can be milky, and generally not as firm as that found in mature seed

Empty Seed:

- ▶ Likely the result of insect damage or failure to mature



<https://ssaw.org.au/2016/07/01/testing-seed-viability/>

What to collect

What goes in the bag?

- ▶ Seed heads
- ▶ Seed pods
- ▶ Fruits



What does not go in the bag?

- ▶ Weeds
- ▶ Woody materials
- ▶ Stems/branches
- ▶ Leaves
- ▶ Insects
- ▶ Rocks
- ▶ Clippers
- ▶ Sunglasses



Beware of Weeds!

- Attention to weeds is crucial!
- Do not accidentally collect weed seeds along with the desired species. It is difficult, and in many cases impossible, to eliminate weed seed contamination once it is in a collection.



University of Minnesota Extension - Source: Lisa Behnken

Collecting Techniques

How to collect randomly and not exceed 20%:

- ▶ Collect widely throughout the whole site
 - Do not stay in one small area, as the plants might be related
- ▶ Make sure to include plants that are in different microhabitats throughout the site (wetter, drier, steeper areas)
- ▶ Do not avoid plants that look different or are smaller than the others of the same species
- ▶ Only collect from every 5th plant or 20% of the seed pods present on each individual



How to collect



Photos: Amber Barnes





Photos: Amber Barnes





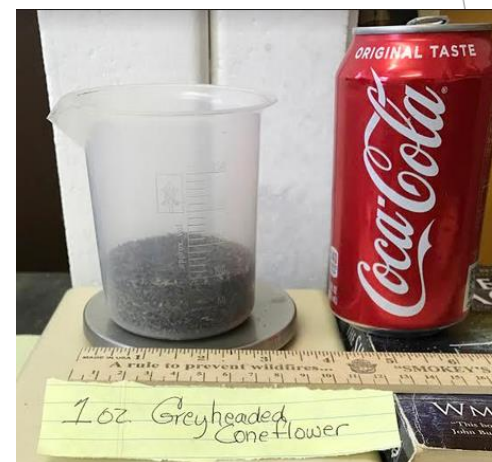
Photos: Amber Barnes



Photos: Amber Barnes

How much seed is in an ideal collection?

- ▶ The goal for each collection is a minimum of 1 ounce of cleaned seed.
- ▶ Collections resulting in larger than an ounce *are encouraged whenever possible*.
- ▶ Here are a few photos to illustrate what an ounce of some of our target species looks like, with a can of Coke for size reference.



General Seed Collection Information

- ▶ Examine a small representative sample of seeds before you collect
- ▶ Seed should be dry, dark, and loose in its shell
- ▶ Do not collect empty or damaged seeds
- ▶ Estimate the number plants you collect from
- ▶ Take care of what you have collected
- ▶ Email or call State Coordinator after collection has been made



Labeling your seeds

Labeling your seed collection

- ▶ Plant name in Latin
- ▶ Common name
- ▶ Collection date
- ▶ Site location name
- ▶ County, State
- ▶ State Collection Zone*
- ▶ Collector(s) names
- ▶ Unique Seed Collection Reference ID Number
- ▶ If multiple bags are needed to hold the seed from one collection, make sure to mark them 1 of 2, 2 of 2

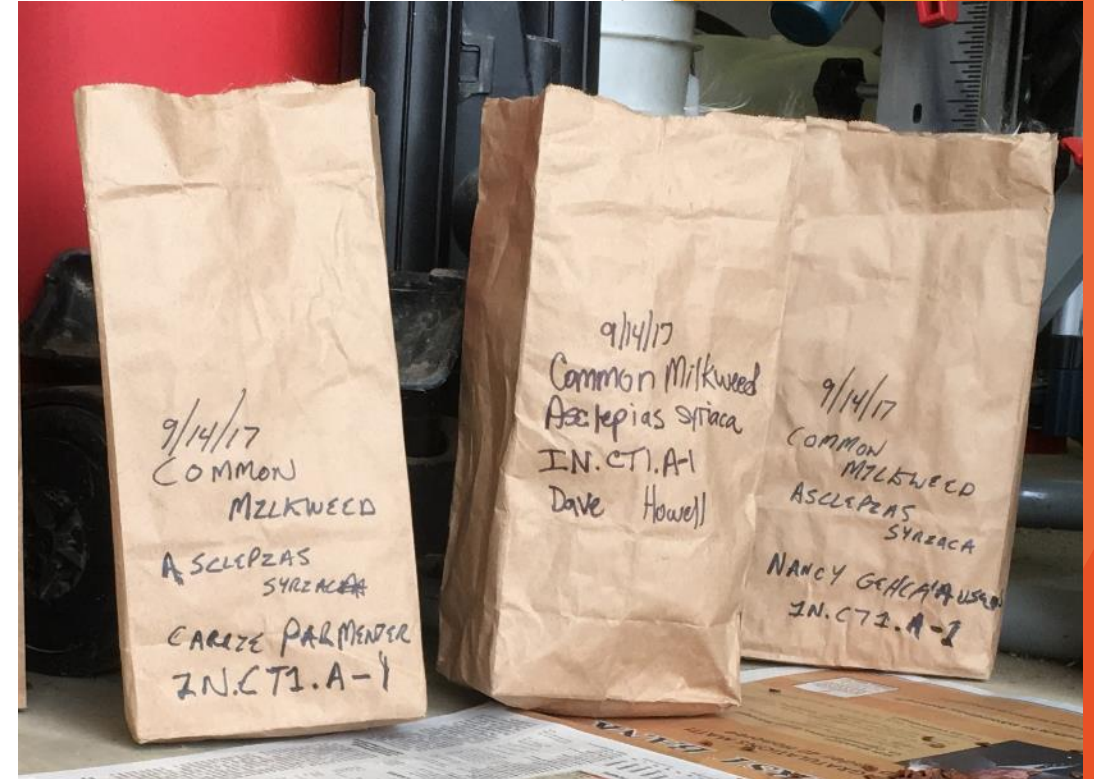


Photo Documentation and GIS App

- ▶ At least three photos should be taken for each collection:
- ▶ Landscape level / population
- ▶ Individual plants
- ▶ Material collected (seed)
- ▶ When possible, close up of flower and leaf structure



Field Documentation and Data Forms

- ▶ Record data in the field
- ▶ Fill out a separate data form for each species collected, even if the collection occurs at the same location
- ▶ Do not forget your Seed Collection Reference ID Number

Make a copy for your records and send a copy with your seed

Project Wingspan Field Data Form

COLLECTION TEAM INFORMATION					
Seed Collection Team Reference ID:		Project Site ID:		Collection Number:	
Date(s) Collected:		Collection Time:		Number of Volunteers:	
Collector Names (Circle data collector):					
Seed Collection Zone (circle the color):	Green (north)	Orange (central or west)	Blue (south)		
SEED COLLECTION DATA:					
Scientific Name:			Common Name:		
Number of Plants Sampled:			Photograph Taken:	Y or N	
LOCATION DATA:					

[illegible]

This sheet will help you track:

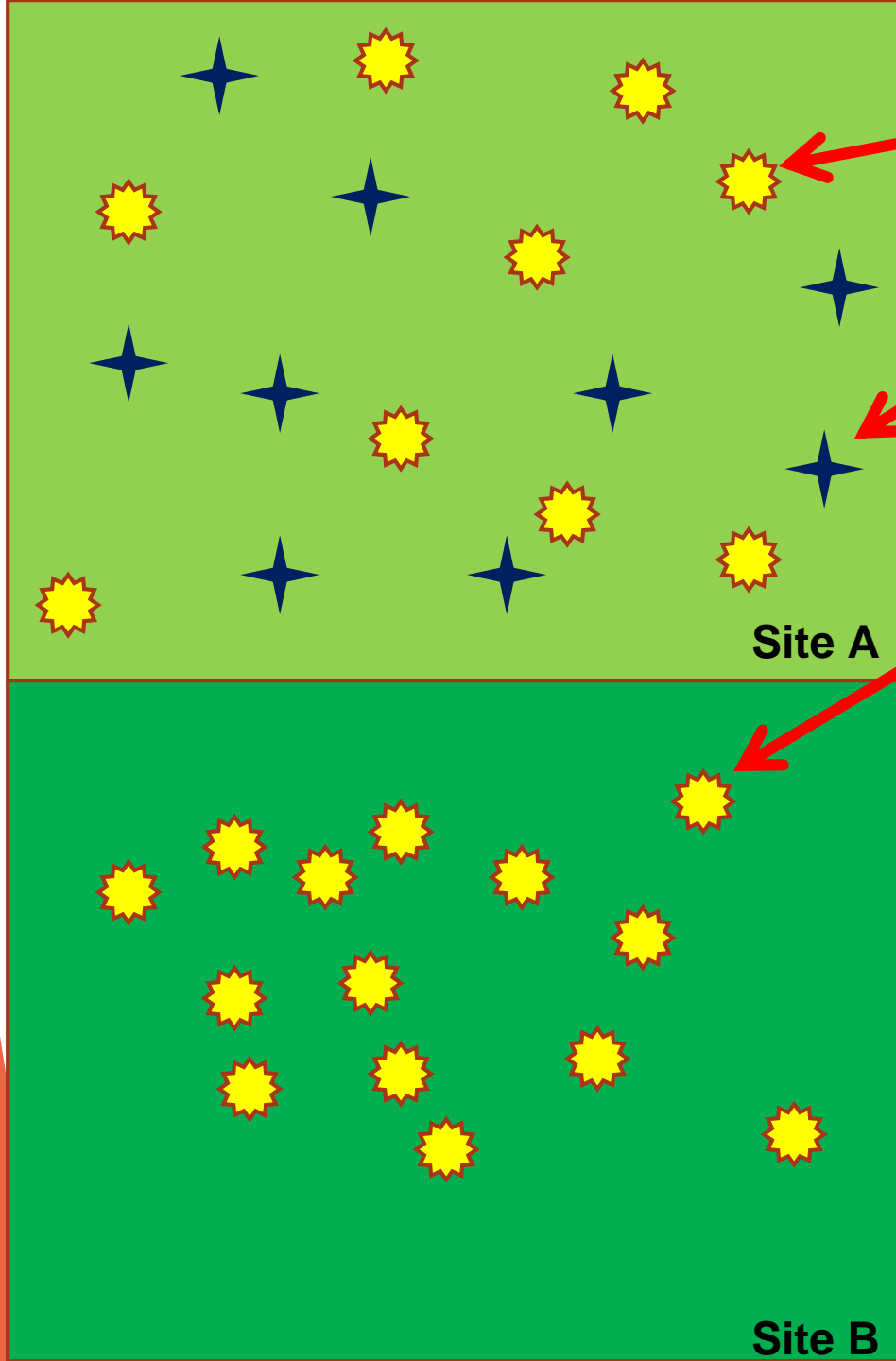
- ▶ Which species have been collected from what site
- ▶ Collection and shipping dates
- ▶ Your collection IDs (avoiding accidental duplicates)

Seed Collection Reference ID Number Format

Collection Team ID.Site ID-Collection Number

Example: IL.CT1.A-1

Collection Team ID will be assigned by your State Coordinator



IL.CT1.A-1

IL.CT1.A-2

IL.CT1.B-3

- ▶ Each population gets it's own collection number
- ▶ Each site gets it's own site ID
- ▶ Collection numbers do not start over for each site, they run consecutively throughout the season

MWAEBF Field Data Form

COLLECTION TEAM INFORMATION				
Seed Collection Team Reference ID:		Project Site ID:		Collection Number:
Date(s) Collected:		Collection Time:		Number of Volunteers:
Collector Names (Circle data collector):				
SEED COLLECTION DATA:				
Scientific Name:		Common Name:		
Number of Plants Sampled:		Photograph Taken:	Y or N	
LOCATION DATA:				
State:		County:		Land Owner:
Permission Filed:	Y or N	GPS Data Recorded:	Y or N	Managed Area Name:
Latitude:		Longitude:		
Directions: Provide detailed directions to the collection site. Refer to nearby landmarks, roads, and towns. Include parking information and directions from parking area to collection site.				
HABITAT DATA				
Current Temperature:		Current Humidity:		Land Use Type:
Non-Target Associated Species:				
SCOUTING INFORMATION: Target plant species in bloom but not ready for collection				
Scientific Name:		Common Name:		Approx. Number of Plants Present:
Scientific Name:		Common Name:		Approx. Number of Plants Present:
Scientific Name:		Common Name:		Approx. Number of Plants Present:
Scientific Name:		Common Name:		Approx. Number of Plants Present:
Scientific Name:		Common Name:		Approx. Number of Plants Present:
Scientific Name:		Common Name:		Approx. Number of Plants Present:
Scientific Name:		Common Name:		Approx. Number of Plants Present:
Notes:				

Mock Collection

- Seed collection team OH.CT1 made their first collection of the season at 12:30 pm on April 24, 2017 at project site A.
- The collection team was comprised of 4 volunteers: Jane Doe (the data collector), Ravi Patel, Tyrone Jones, and Cindy Lee.
- They collected from about 57 plants of the species *Asclepias incarnata* (swamp milkweed).
- Site A is a park called Acacia, which is owned by Cleveland Metroparks, and it is located in Cuyahoga County, Ohio.
- Permission was filed in advance and the volunteers used their GIS App to record the GPS location of the site. The coordinates are: 41.50442, -81.49128.
- While at the site, they noticed that there were other target species present, but not ready for collection since they were currently in bloom. These were *Monarda fistulosa* (wild bergamot ~35 plants) and *Coreopsis tripteris* (tall coreopsis ~58 plants)
- The team also identified a few non-target associated species at the site: unknown grasses, red clover, Queen Ann's lace, goldenrod, and multiflora rose.

Project Wingspan Field Data Form

COLLECTION TEAM INFORMATION					
Seed Collection Team Reference ID:	OH.CT1	Project Site ID:	A	Collection Number:	1
Date(s) Collected:	4-24-17	Collection Time:	12:30 pm	Number of Volunteers:	4
Collector Names (Circle data collector):	Jane Doe, Ravi Patel, Tyrone Jones, Cindy Lee				
Seed Collection Zone (circle the color):	Green (north) Orange (central or west) Blue (south)				
SEED COLLECTION DATA:					
Scientific Name:	Asclepias incarnata		Common Name:	Swamp milkweed	
Number of Plants Sampled:	57		Photograph Taken:	Y or N	
LOCATION DATA:					
State:	Ohio	County:	Cuyahoga	Land Owner:	Cleveland Metroparks
Permission Filed:	Y or N	GPS Data Recorded:	Y or N	Managed Area Name:	Acacia
Latitude:	41.504442		Longitude:	-81.491285	
Directions: Provide detailed directions to the collection site. Refer to nearby landmarks, roads, and towns. Include parking information and directions from parking area to collection site.					
Headed north on I-271 toward Lyndhurst, took Brainard Rd exit. Turned right onto Cedar Rd. Turned right, into the Acacia Reservation parking lot. Found the marked trail and walked about 50 meters to the collection field, located on the left side of the trail.					
HABITAT DATA					
Non-Target Associated Species:	Unknown grasses, red clover, queen ann's lace, goldenrod, and multiflora rose.			Land Use Type:	
SCOUTING INFORMATION: Target plant species in bloom but not ready for collection					
Scientific Name:	Monarda fistulosa	Common Name:	wild bergamot	Approx. Number of Plants Present:	35
Scientific Name:	Coreopsis tripteris	Common Name:	tall coreopsis	Approx. Number of Plants Present:	58
Scientific Name:		Common Name:		Approx. Number of Plants Present:	
Scientific Name:		Common Name:		Approx. Number of Plants Present:	
Scientific Name:		Common Name:		Approx. Number of Plants Present:	
Scientific Name:		Common Name:		Approx. Number of Plants Present:	
Scientific Name:		Common Name:		Approx. Number of Plants Present:	
Notes:					

Drying Your Seeds

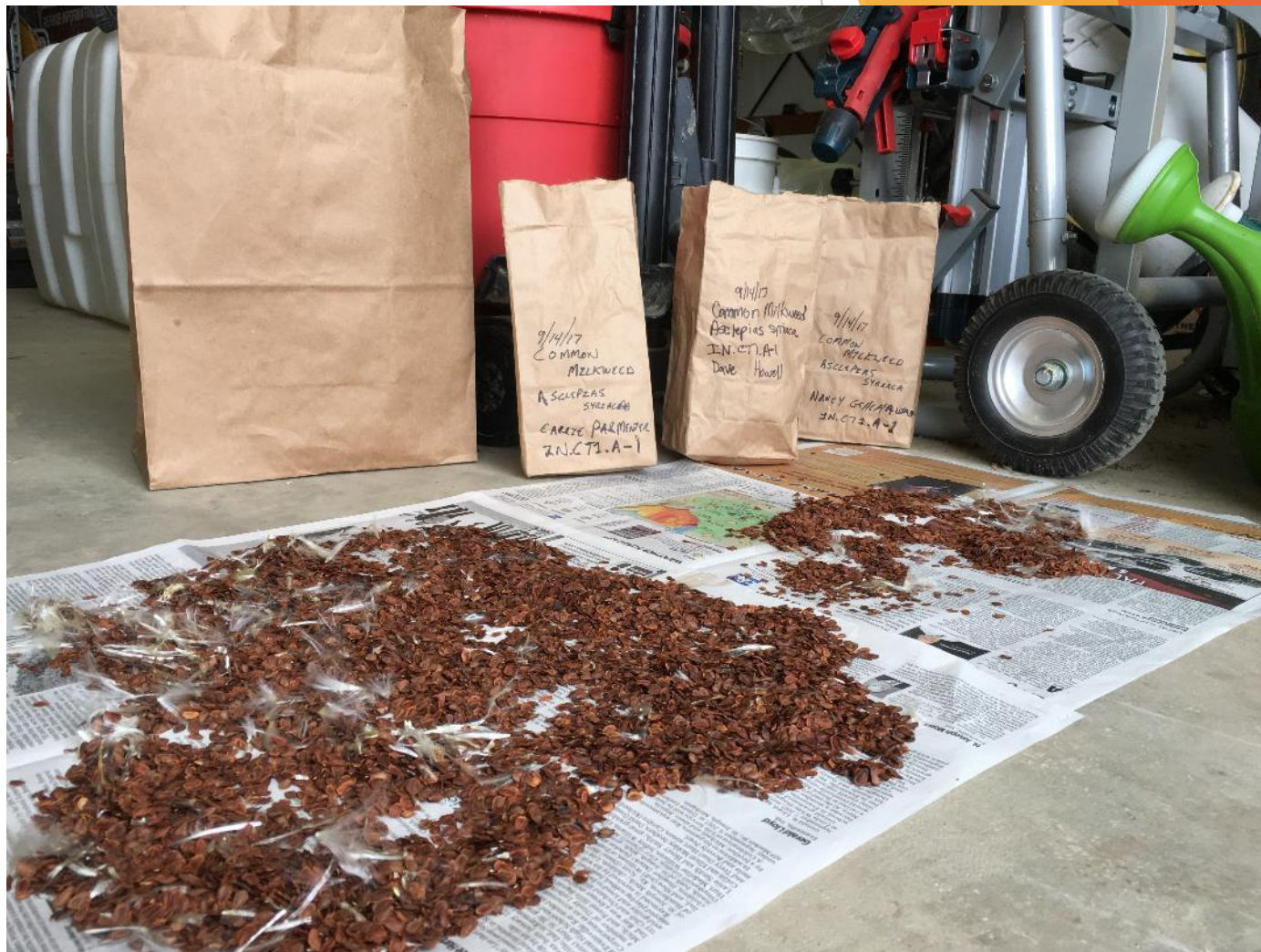
Seed should be dried for at least 3 days prior to shipping in a dry, dark room with low humidity

If you have space:

- ▶ Lay out newspaper and spread the collection out – 1 layer thick
- ▶ A fan on its lowest setting, gently blowing over the seed can expedite the drying process

If you don't have space:

- ▶ Leave the seed in the bag, but leave the bag open and stir the seeds at least once a day
- ▶ A fan on its lowest setting, gently blowing over the bag can expedite the drying process



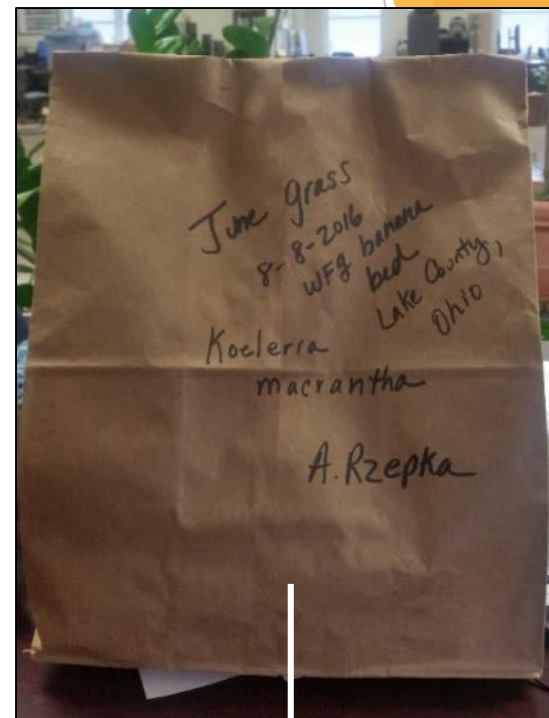
Storing Your Seeds

Only if unable to ship seed immediately to Mason State Nursery

- ▶ Clean seed – remove all chaff
- ▶ Put seed into a paper bag
- ▶ Put seed in a dry, dark room with low humidity until they can be mailed
- ▶ If the collection bag is different from the storage bag, transfer the label information

It is okay to hold on to collections for a week or so in order to send them in bulk, but please do not store them for multiple months and send all collections at once. This is not ideal for the seed and puts a lot of stress on the seed cleaning facility

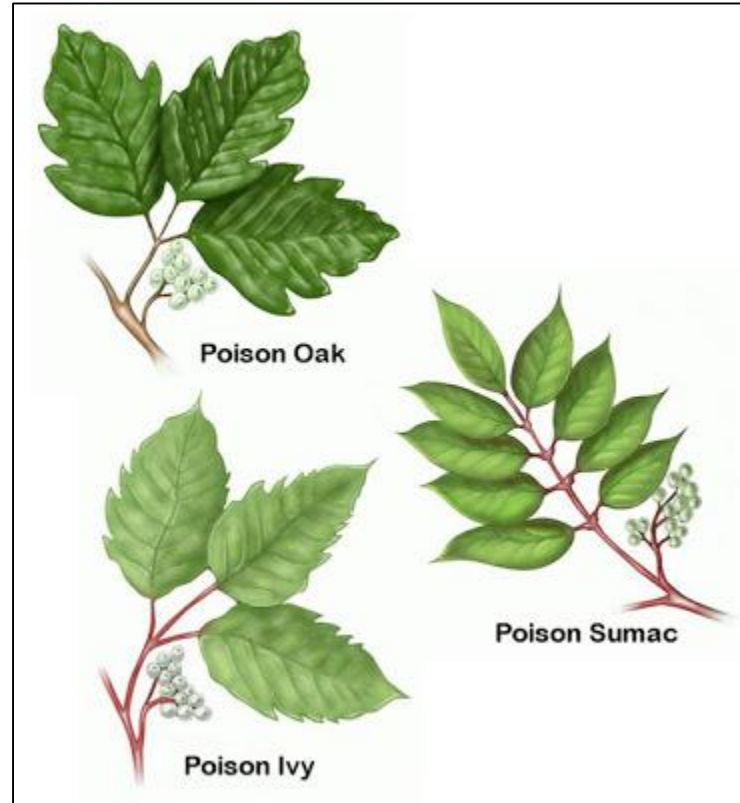
Big paper grocery bag



Tiny coin envelope

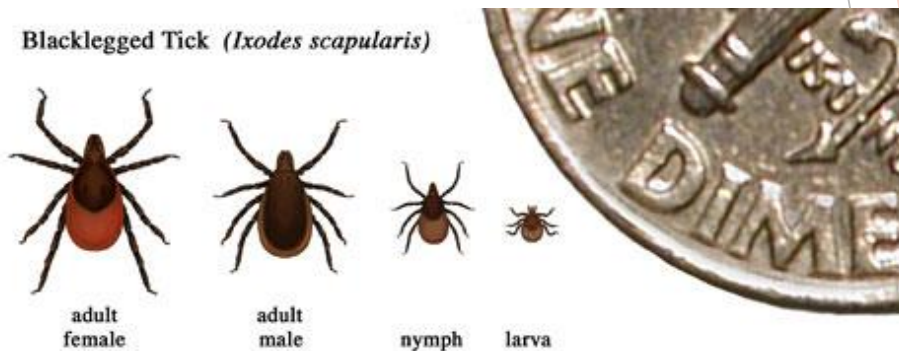
Other things to keep in mind

- ▶ Safety Concerns
- ▶ Controlling the spread of noxious weeds
- ▶ GIS App



Safety Concerns

- ▶ Be careful when handling milkweed pods
- ▶ Remember to hydrate
- ▶ Wear bright clothes near roads
- ▶ Check for ticks and chiggers
- ▶ Keep an eye out for poison ivy, poison oak, poison sumac, wild parsnip, and giant hogweed



Controlling the Spread of Noxious Weeds

- ▶ Educate yourself before you visit the site
- ▶ **Come clean**
- ▶ Pay attention to your surroundings
- ▶ **Leave clean**



Send us your photos!

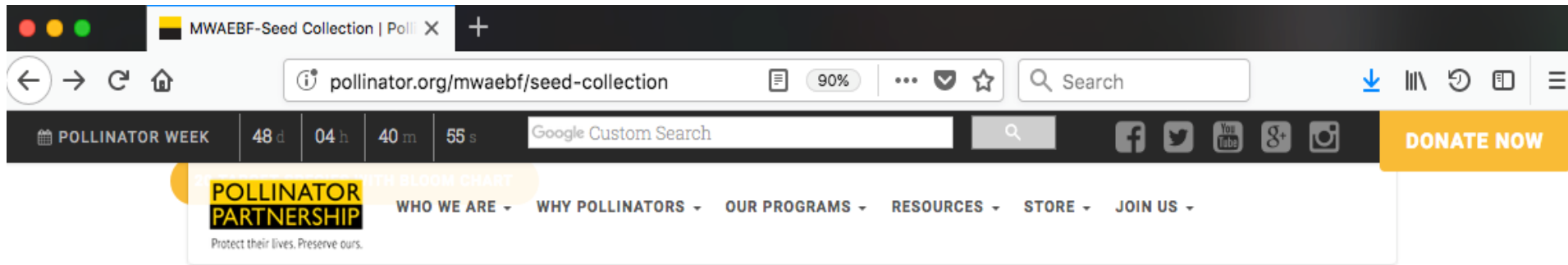
A picture is worth a thousand words. Please take some photos of your Collection Teams scouting, collecting, or cleaning seeds and send them to Amber Barnes (ab@pollinator.org)!

P2 can then use these photos on social media and grant materials to promote the wonderful on-the-ground work that our volunteers are doing and raise awareness to the plight of the monarch and rusty patched bumble bee.



Photo Credit: Heath Hamilton

Please Log Your Volunteer Hours!



Don't Forget to Log those volunteer hours!

Thank you for volunteering with the MWAEBF project! After each volunteer activity in which you participate, please fill out our volunteer hour tracking form for your state. These activities include: seed collection events, in-person trainings, seed cleaning events, scouting potential collection sites, or any other MWAEBF volunteer activity.

Filling out our form helps us show how many volunteer hours have gone into this project and is an important metric when presenting the success of our project to the National Fish and Wildlife Foundation. This information can also be useful in tracking your time and mileage for a tax write-off so make sure to keep your copy of the responses for your records! Your copy will be emailed to you after the fill out the online form.

ARKANSAS

ILLINOIS

INDIANA

MISSOURI

OHIO

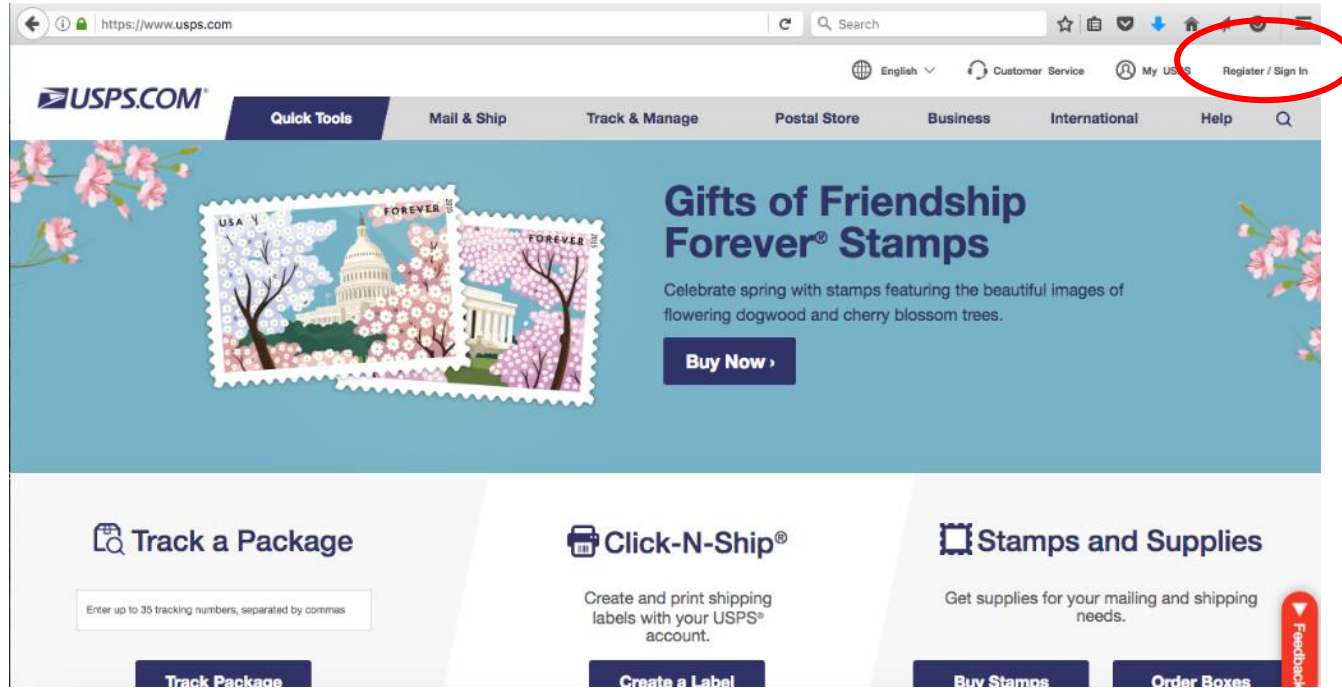
The volunteer hour tracking form can be found at the bottom of our Seed Collection Training page at:
<https://www.pollinator.org/wingspan/seed-collection>

Sending Your Seeds

- ▶ Ship your seeds via USPS
- ▶ Unless directed otherwise, ship your seeds directly to Mason State Nursery
- ▶ Do not mail your seeds out on Thursday or Friday
- ▶ Always check the estimated delivery before mailing to ensure seed arrives before the weekend
- ▶ **Send a copy of the field data form with each collection (keep the original copy for yourself) and make sure the bag is also labeled**
- ▶ Use a free USPS priority mail flat rate box

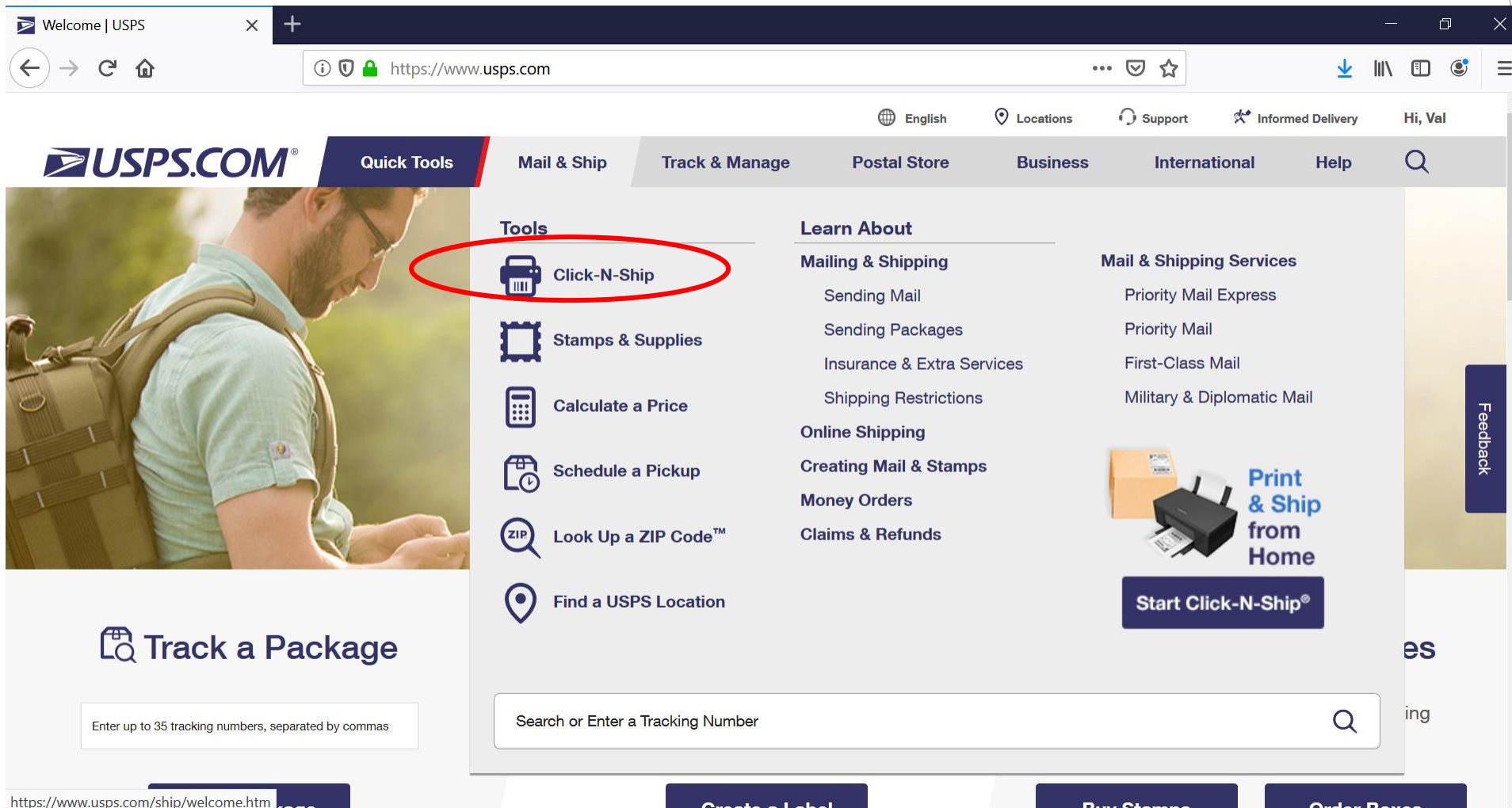


How to ship via USPS:



- ▶ Visit www.usps.com
- ▶ Click the Register/Sign In option to access the project USPS account
- ▶ Log in to the project USPS account
 - Contact State Coordinator or Pollinator Partnership for login credentials.

How to ship via USPS:



- ▶ Hover cursor over “Mail & Ship” tab and select “Click-N-Ship” from the drop down menu

How to ship via USPS:

Where are you sending to?

To Address [USE ADDRESS BOOK](#)

*** Country**

UNITED STATES

*** First and Last Name and/or Company Name**

*** First Name**
Dave

M.I.

*** Last Name**
Horvath

Company
IDNR, Mason State Nursery

*** Street Address**
17855 N. County Rd. 2400 E

Apt / Suite / Other

*** City**
Topeka

*** State**
IL - ILLINOIS

ZIP Code™
61567

Reference Number
You may enter up to 10 characters.

This number is for your reference only.**Additional Actions**
☐ Save this to my address book.
☐ Notify recipient of shipping.
You may request an email to be automatically sent to the recipient, including label number and your selected ship date.
☐ Hold For Pickup**Want to ship to multiple addresses? Start a batch.**
Batch orders are used to send up to 20 multiple identical packages to different addresses.
[Start a Batch Order](#)

► Send seed to:

Holly Frainer
IDNR, Mason State Nursery
17855 County Road 2400 E
Topeka, Illinois 61567

How to ship via USPS:

Enter a shipping date.

* Choose a Shipping Date

Thursday 03/30/17

- ▶ Select same day shipping to ensure seed is delivered ASAP

Enter package details.

☒ I am Shipping Flat Rate

If it fits, it ships® anywhere in the U.S. up to 70 lbs.

☐ Enter Package Weight

If the weight you entered is less than the actual weight of the package, the Postal Service™ will require additional postage either at the time of mailing or delivery.

lbs

oz

What are common weights? [i](#)

☐ This package has a dimension measuring over 12".

Enter package value.

Please enter a package value greater than zero.

\$

Maximum allowed is \$5,000.00

- ▶ Select “I am Shipping Flat Rate”
- ▶ Leave package value option blank

How to ship via USPS:

Select a service type.

Selecting a Priority Mail® Flat Rate product or a Priority Mail Express™ Flat Rate product requires the USPS-provided packaging.

Price based on shipping a package from ZIP Code™ 94111 to 61567 on 05/24/2019.

If you plan to ship Live Animals, please go to your local [Post Office](#).

* Choose a Service Type

Priority Mail®

PACKAGE TYPE	EXPECTED DELIVERY	SHIPPING PRICE
<input type="radio"/> Priority Mail® Flat Rate Envelope 12-1/2" x 9-1/2"	May 28, 2019 // 3-Day Delivery	\$7.35
<input type="radio"/> Priority Mail® Small Flat Rate Box 5-3/8" x 8-5/8" x 1-5/8"	May 28, 2019 // 3-Day Delivery	\$7.90
<input type="radio"/> Priority Mail® Medium Flat Rate Box 11" x 8-1/2" x 5-1/2" 13-5/8" x 11-7/8" x 3-3/8"	May 28, 2019 // 3-Day Delivery	\$14.35
<input type="radio"/> Priority Mail® Padded Flat Rate Envelope 9-1/2" x 12-1/2"	May 28, 2019 // 3-Day Delivery	\$8.00
<input type="radio"/> Priority Mail® Large Flat Rate Box 23-11/16" x 11-3/4" x 3" 12-1/4" x 12-1/4" x 6"	May 28, 2019 // 3-Day Delivery	\$19.95

- ▶ Select "Priority Mail" under "Choose a Service Type"
- ▶ Once all fields are complete click "view available Services and Prices"
- ▶ Select the appropriate size option e.g. "Priority Mail Medium Flat Rate Box"
- ▶ Be sure the scheduled delivery date falls before the weekend

How to ship via USPS:

Create Label

Preferences

Shipping History

Address Book

Shipping Cart (1)

	SHIPPING ADDRESS	PACKAGE INFO	SERVICE	PRICE
(1 of 1) Edit Delete	DAVE HORVATH IDNR, MASON STATE NURSERY 17855 COUNTY ROAD 2400 E TOPEKA, IL 61567-9419	Ship Date: 05/24/19 Value: \$0.00 From: 94111	Priority Mail® 3-Day Medium Flat Rate Box USPS Tracking® Label Total	\$14.35 Free \$14.35
Delete All			Order Total (1) \$14.35	
<div>Create Another Label</div>			<div>Next: Billing Information</div>	

- ▶ Review the order to ensure the information is correct
- ▶ Click “Next: Billing Information”

How to ship via USPS:

Billing Information

ORDER TOTAL

\$14.35

*Indicates a required field

Paying with a credit card or PayPal® is safe and easy. All the information is encrypted and transmitted securely. For more details, see our [Privacy Policy](#).

☐ Use a Credit Card ^{\$13.65}



☒ Use PayPal®



Complete your transaction with PayPal®. (You'll return to USPS.com to print your labels)



*I certify that my mailing complies with all applicable laws and U.S. Postal Service® regulations and does not contain any nonmailable or undeclared hazardous materials. Almost all hazardous materials (e.g., many common consumer and household goods such as perfumes and aerosols) are prohibited in international mail and in shipments sent to APO, FPO and DPO locations. Mailability information can be found in *Publication 52, Hazardous, Restricted, and Perishable Mail Manual*, the *Domestic Mail Manual* and the *International Mail Manual*. These publications are available online at <http://pe.usps.gov>.

Electronic products containing lithium batteries, such as cell phones and laptops, are subject to additional restrictions in international mail.

Any mailing containing cigarettes or smokeless tobacco must be presented to a Postal Service™ employee at a Retail Post Office™ location for proper acceptance.

Back

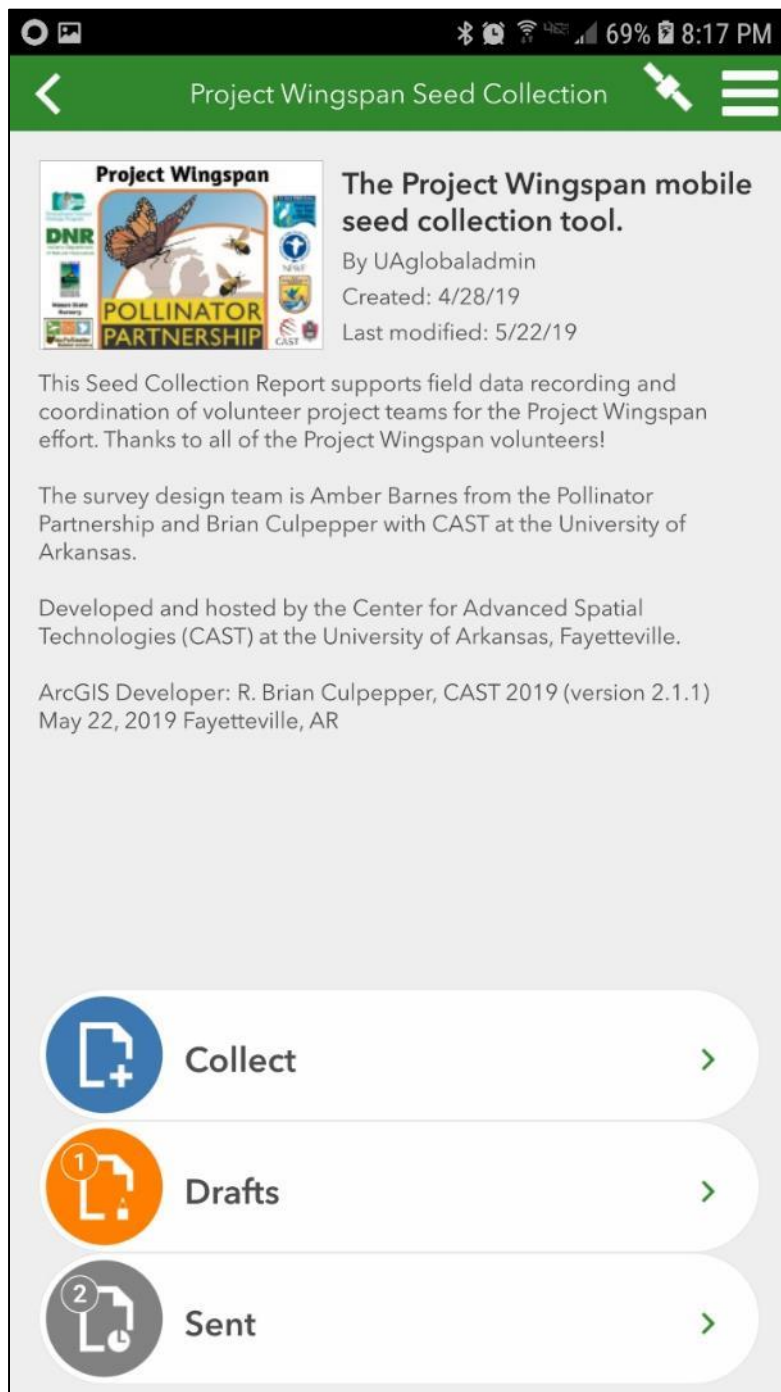
Pay and Print

- ▶ Check the box agreeing that your shipment doesn't contain anything hazardous or illegal
- ▶ Select "Pay Pal" as the payment method
- ▶ Team Leads can get the Pay Pal login information from State Coordinator or P2

How to ship via USPS:

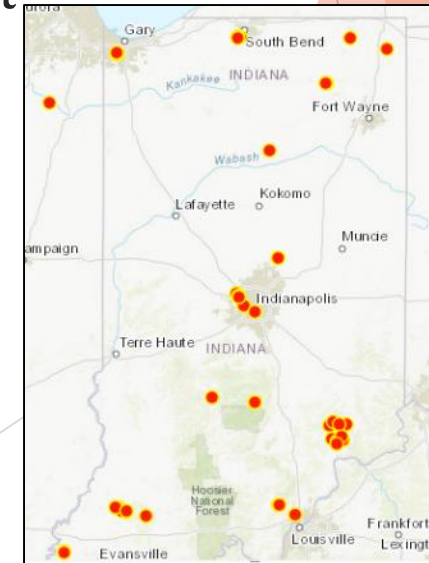
- ▶ You have now paid for the postage
- ▶ Print the label and securely tape it to the top of the box
- ▶ You can either:
 - ▶ Hand deliver the package to any USPS Post Office
 - ▶ Schedule a pickup with your daily mail pickup
- ▶ Make sure:
 - ▶ The package is received by a postal worker on the same day
 - ▶ The package is never left in an uncontrolled, hot, or humid environment
- ▶ See Seed Collection Protocol – provided by your state lead - for all of these instructions

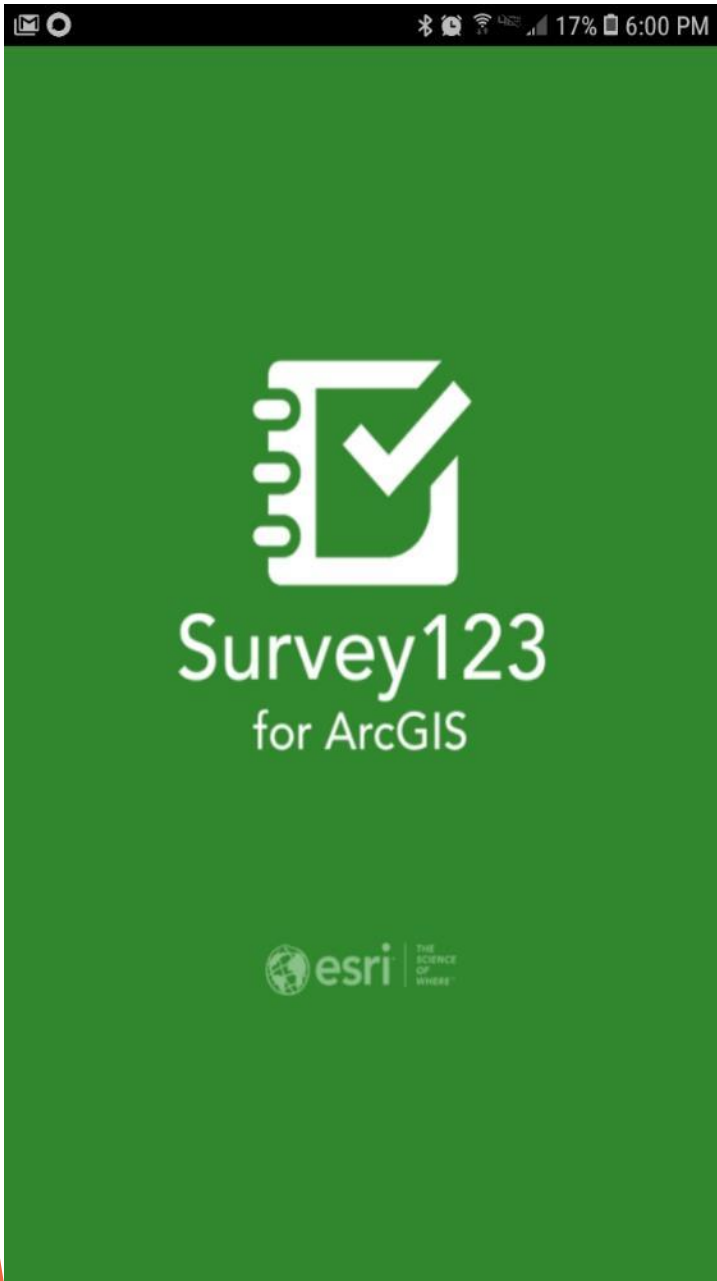




GIS App

- ▶ Partnership with University of Arkansas CAST
- ▶ Allows us to geospatially track the seed collections
- ▶ Database for site/plant photos
- ▶ Database will help with the seed distribution effort
- ▶ Providing valuable modeling information to CAST
- ▶ **Does not** replace the paper form





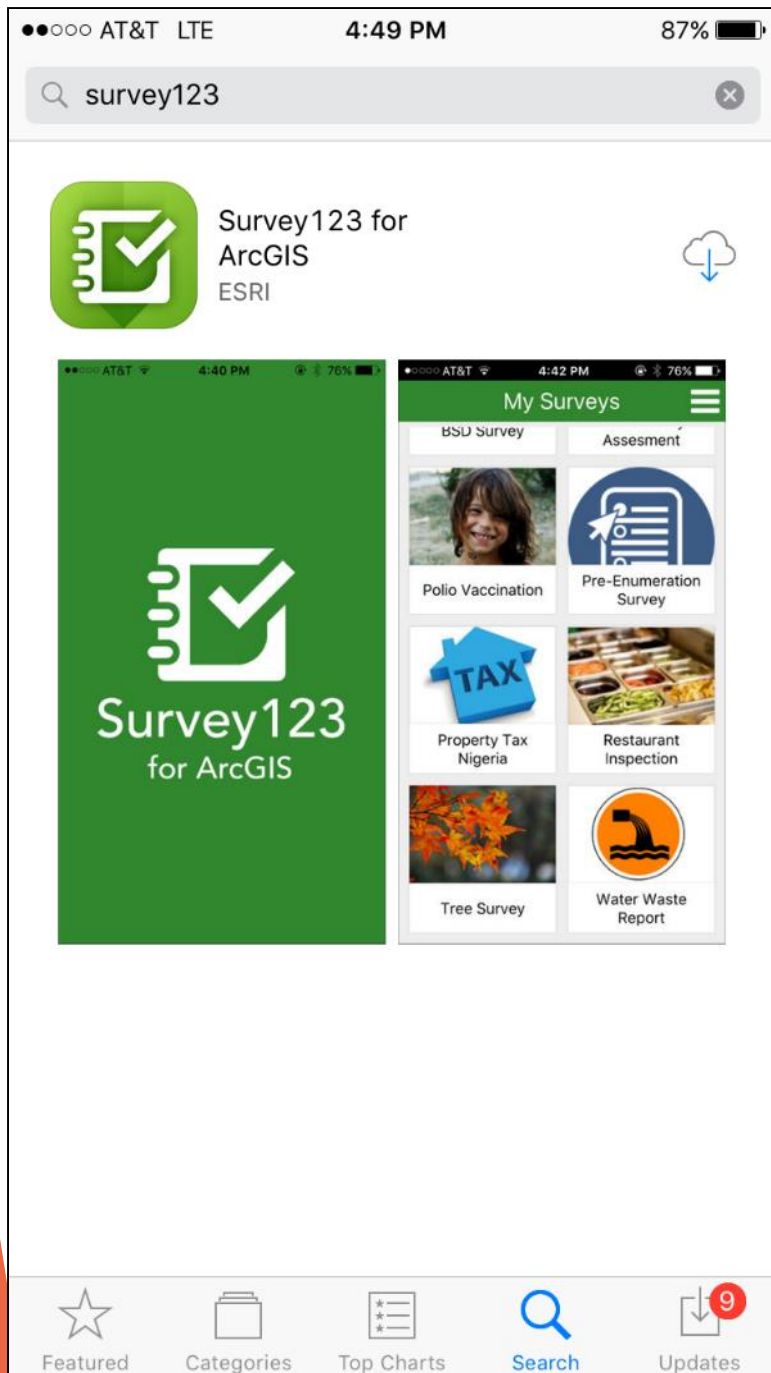
Survey 123

Seed Collection Report Training

Completed using:

- ▶ Web browser OR Free mobile app called "Survey123 for ArcGIS"
 - ▶ Apple, Windows Mobile or Android devices
 - ▶ See seed collection manual for browser and desktop instructions
- ▶ 1-2 designated Seed Collection Reporters per team
- ▶ The paper 'field data sheet' **still needs to be completed**, and **copies filed/kept** by the State Coordinator or Team Leaders

The browser version compatible with entering data from your desktop can be found here: <https://arcg.is/10ye09>



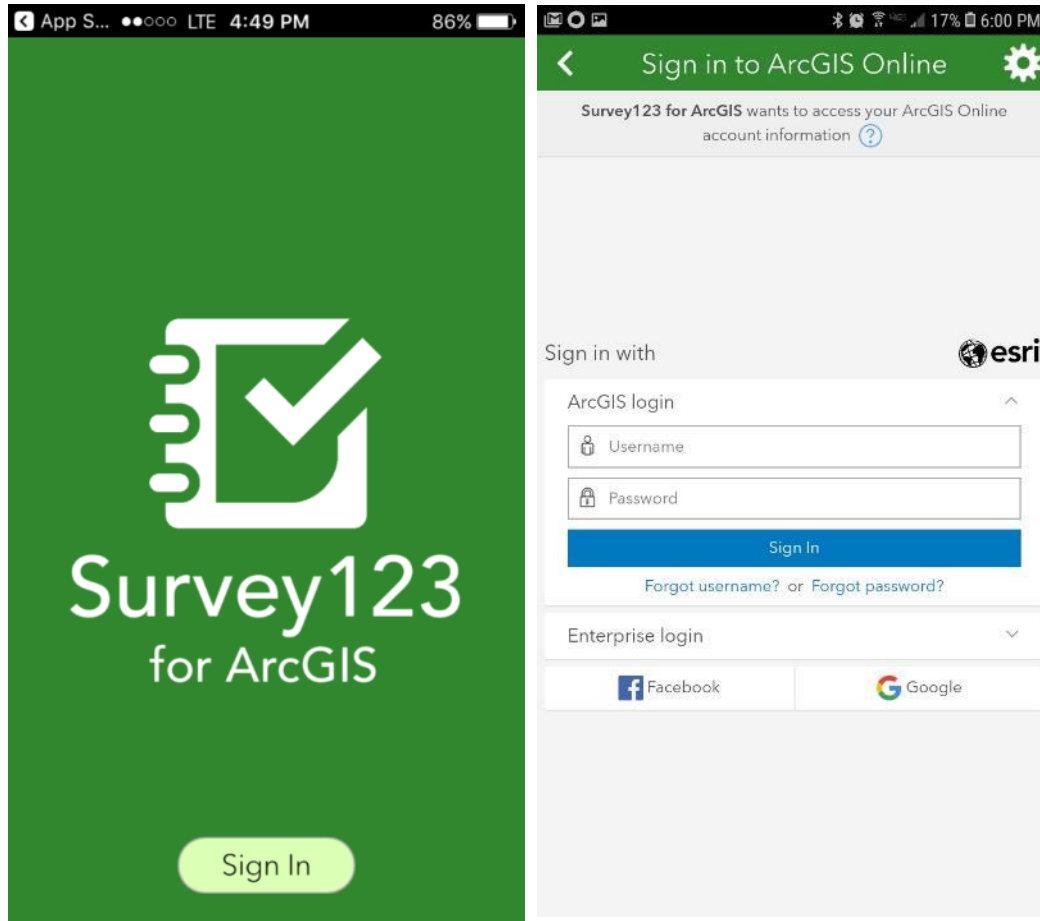
1.) To download the **Survey123 for ArcGIS** app on your smart phone, first navigate to the App Store

**Tip: Free apps may require your password before download for Installation*

2.) Search for “**Survey123 for ArcGIS.**” This app was developed by ESRI, Inc.

- Locate and install

Check for UPDATES to your *Survey123 for ArcGIS* (mobile app), before fieldwork day or data upload day



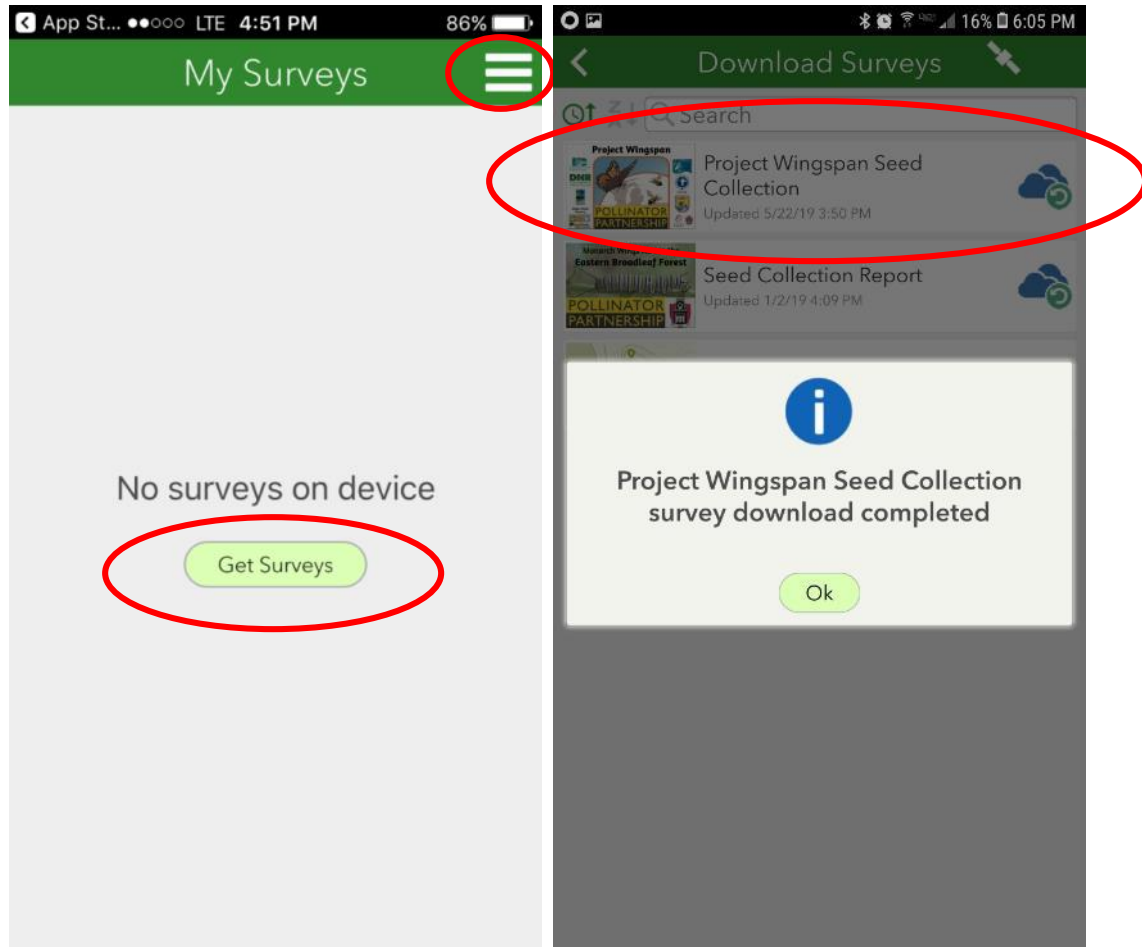
3.) After install, use your credentials to **Sign-in** to the Survey123 for ArcGIS application

Normally you will use the credentials provided to you by your State Coordinator and Brian Culpepper

Today, we're using a set of temporary credentials made specifically for this training.

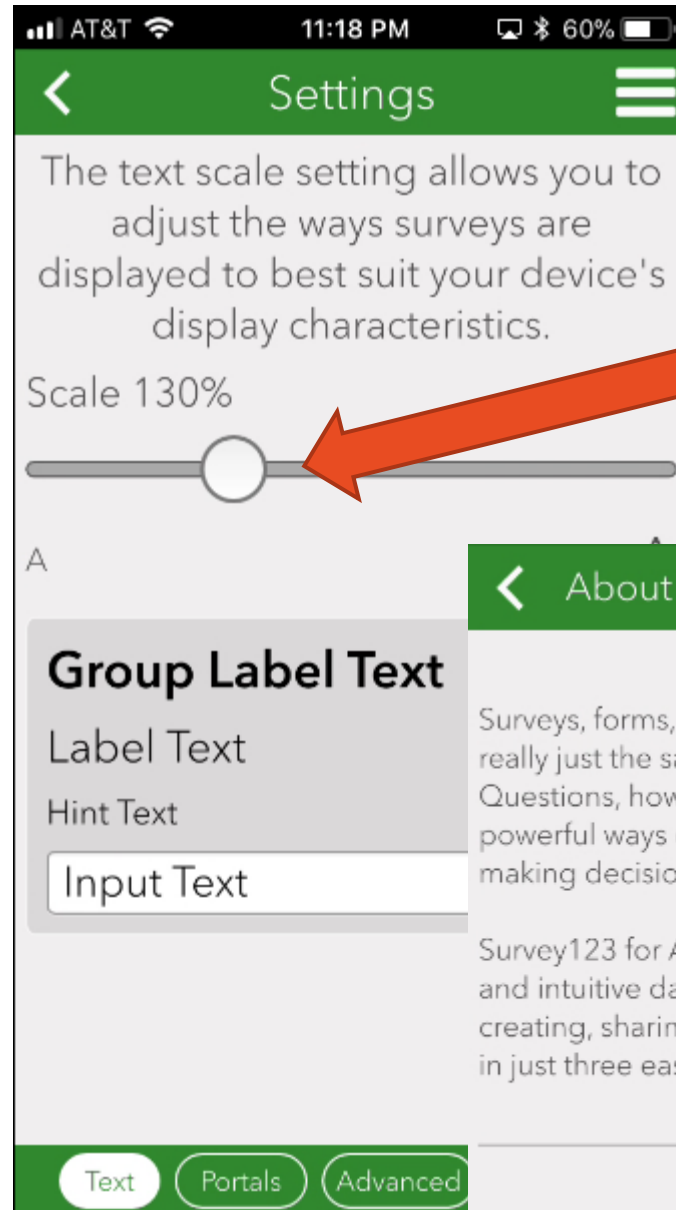
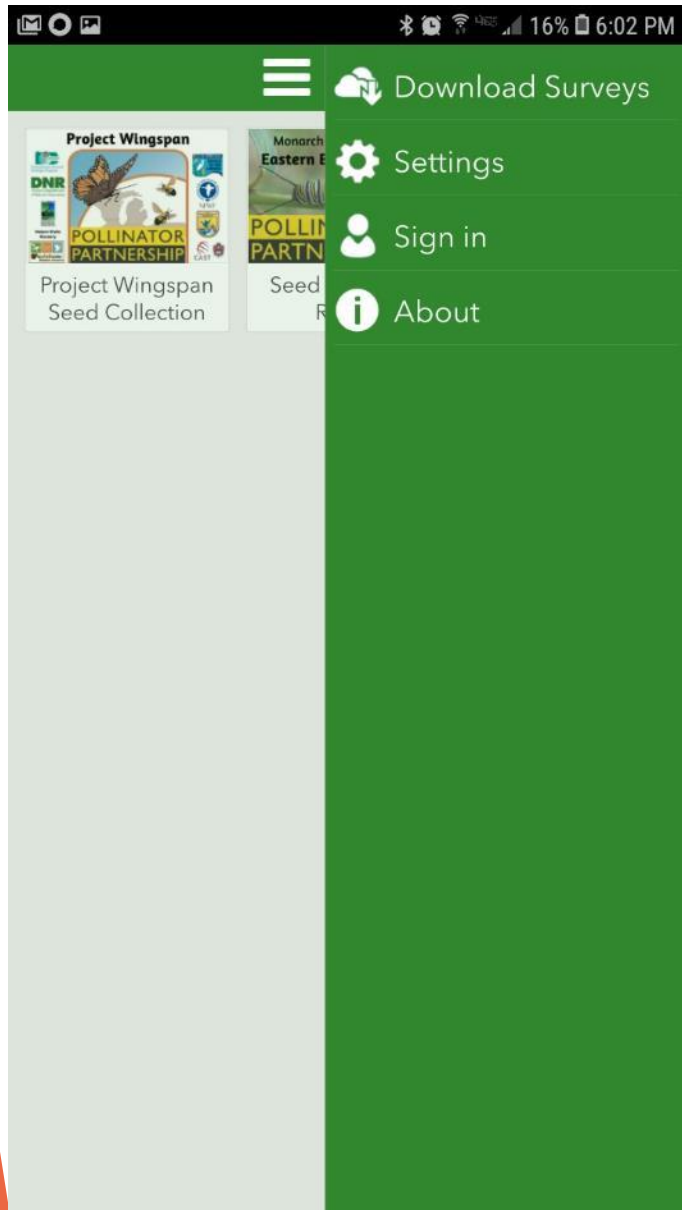
This temporary log-in information will not be used for seed collection. Use these for today's training *only* so that your contact info is related to your seed collections.

Username: pwstate_wi
Password: pwseed2019

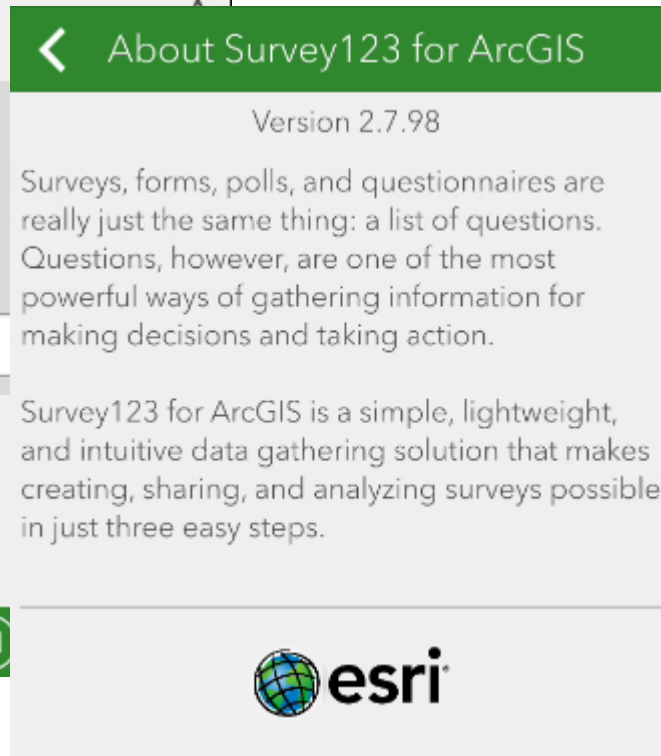


4.) Next, you will need to download the Seed Collector Report survey

- ▶ Click “Download Surveys”
- ▶ To download: Select “Project Wingspan Seed Collection”
- ▶ It should now display in the “My Surveys” home screen



Adjust as needed

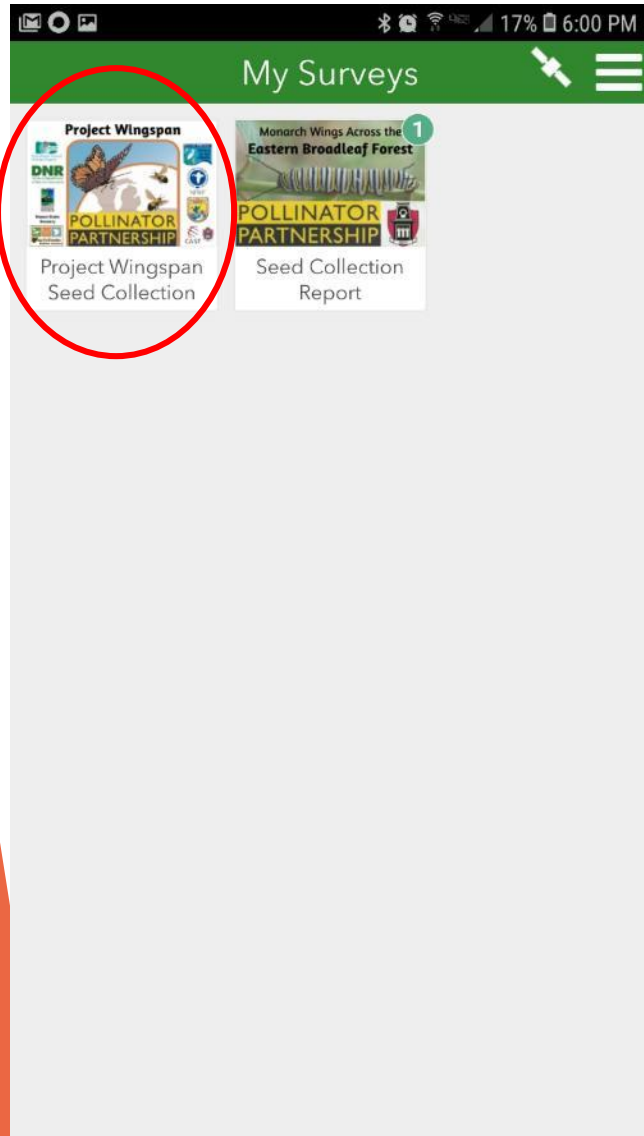


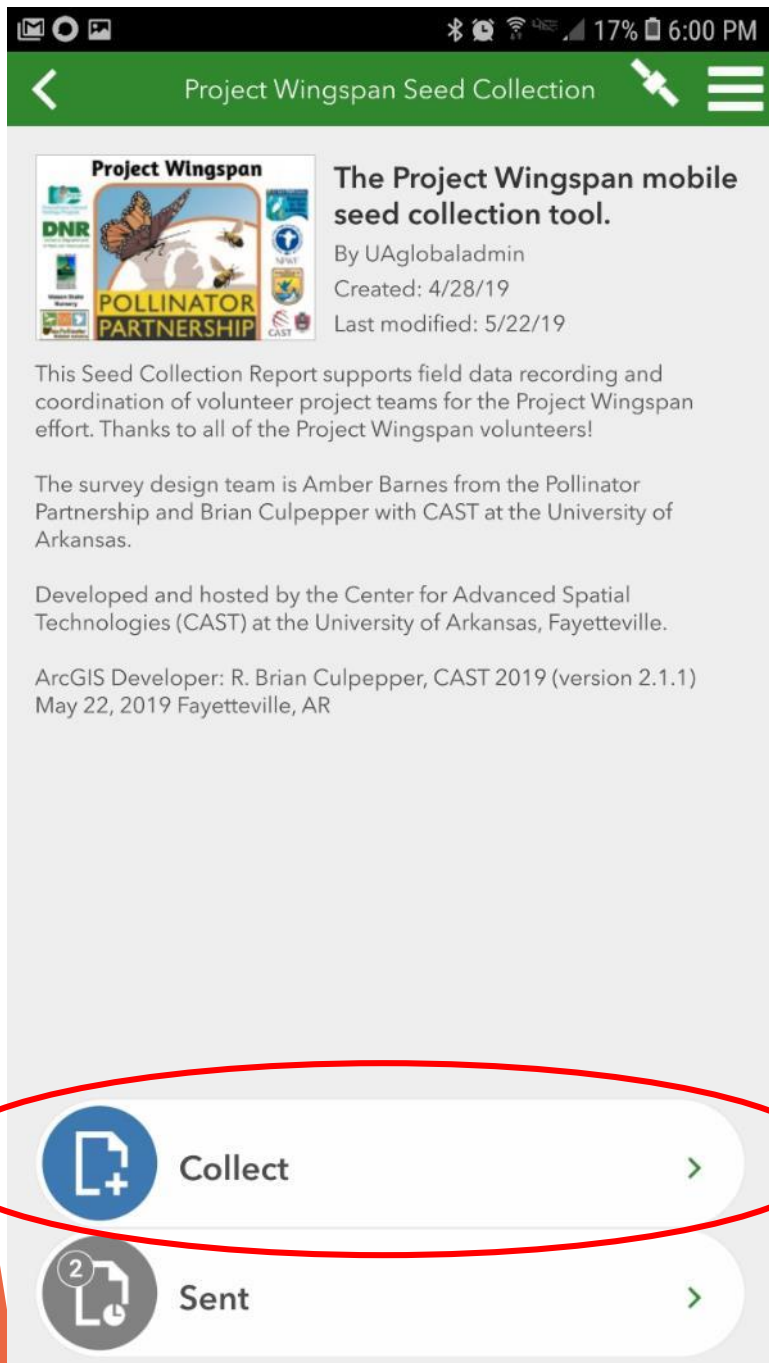
Using the App in the field:

1.) Now that you've installed the app and downloaded the survey, you are all set to begin collecting data!

- ▶ This survey app can be used when 'off-line'
- ▶ *However*, once you return to cell service or wi-fi, you must remember to submit those 'draft' survey responses so that they are sent to the database

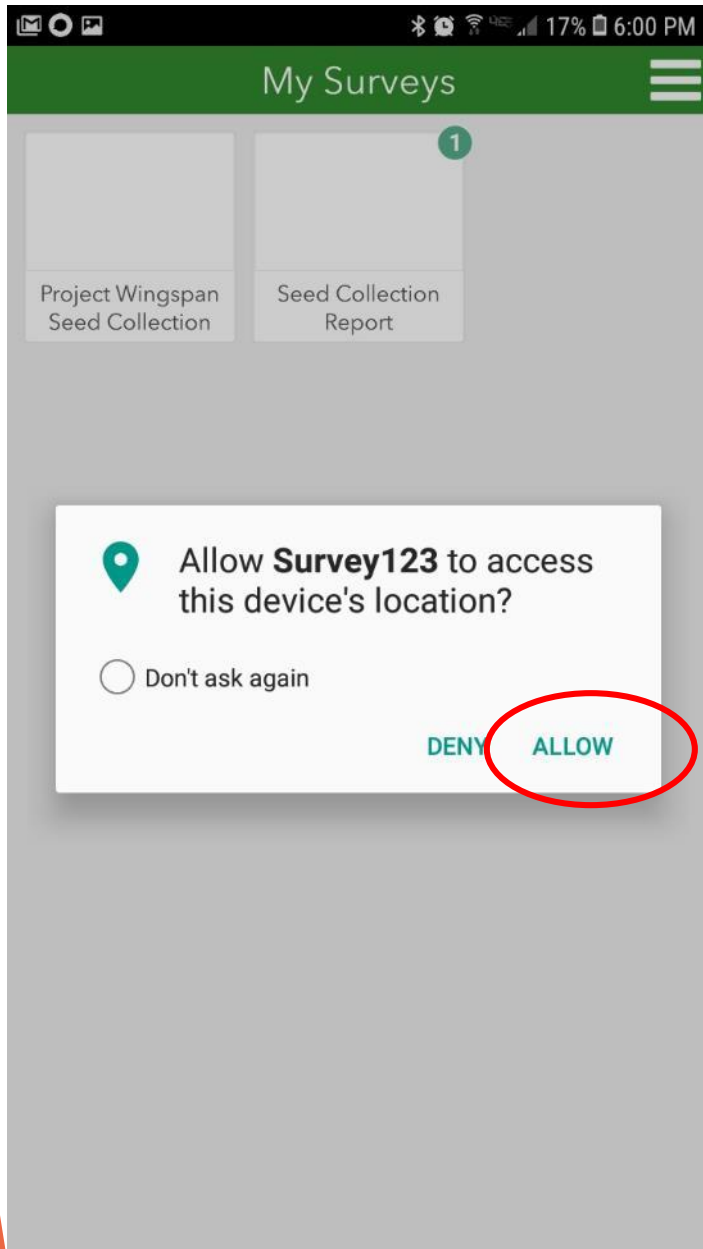
2.) Select Seed Collection Report on the “My Surveys” home page to be directed to the survey's home page





3.) To begin collecting data, select the “Collect” button at the bottom of the Seed Collection Report home page





**TURN - ON LOCATION SERVICES BEFORE
OPENING Survey123**

**4.) Select “Allow” so that the
app can auto-locate your point
based on your phone’s GPS
coordinates**

15% 6:08 PM

PW Seed Collector v2.1

▼ Seed Collection Details

Data Recorder Name: *

Last name only.

Enter TEST here for training

Collection Team and Project Site ID: *

e.g. OH.CT1.A - Please follow the Naming conventions dictated within the P2 training guide.

Collection Number: *

Please enter this Seed Collection Number following the training material guidelines.

- 1 +

Seed Collection Date: *

When did the Seed Collection occur?

Friday, May 24, 2019

State Name: *

Which State is this seed collection located?

County Name: *

Please select a county or begin typing to shorten the pick list.

✓

5.) Fill out the form starting with “Data Recorder Name”

- ▶ TODAY ONLY - enter **TEST** as the name
- ▶ Note that fields marked with asterisks are required in order to submit the survey

6.) Refer to the training manual for the appropriate Collection Team and Project Site ID formats

- Your State Coordinator will assign each team an unique Collection Team ID

Collection Team and Project Site ID: *

e.g. OH.CT1.A - Please follow the Naming conventions dictated within the P2 training guide.

Collection Number: *

Please enter this Seed Collection Number following the training material guidelines.

- 1 +

Seed Collection Date: *

When did the Seed Collection occur?

Friday, May 24, 2019

State Name: *

Which State is this seed collection located?

County Name: *

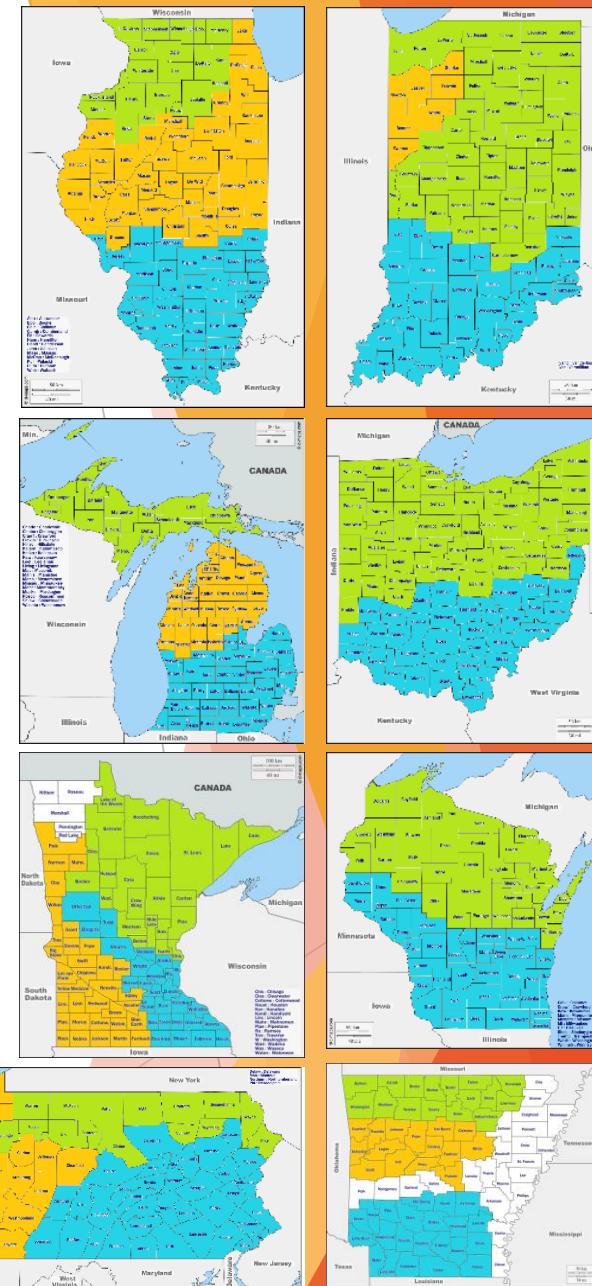
Please select a county or begin typing to shorten the pick list.

Collection Zone:

The Project Wingspan Collection Zone for this county is:

7.) State and County fields are drop down menus

- ▶ You must select your state first to get the appropriate list of counties
- ▶ To get to your county quickly, start typing the name and the drop box will narrow down the choices for you
- ▶ Once State and County have been filled out, your Collection Zone color will automatically fill in with the correct color code.
 - You can use this to fill out the paper form if you don't remember the collection zone color.



PW Seed Collector v2.1

Collecti
The Projec

Locate the
Enable **Locat**
the map to p
long. collecte

No Location
Position sou

Pr

© OpenStree

WGS84 G

Seed Spe

Target Pla
Were any oth
please.

Collection
Include peop

which state is this seed collection located?

County Name: *

Please select a county or begin typing to shorten the pick list.

Collection Zone:

The Project Wingspan Collection Zone for this county is:

Locate the Seed Collection Site:

Enable **Location Services** on your mobile device, and ZOOM into the map to precisely locate the site. The map marker is the lat./long. collected when you submit this survey.

41.797°N 79.400°W

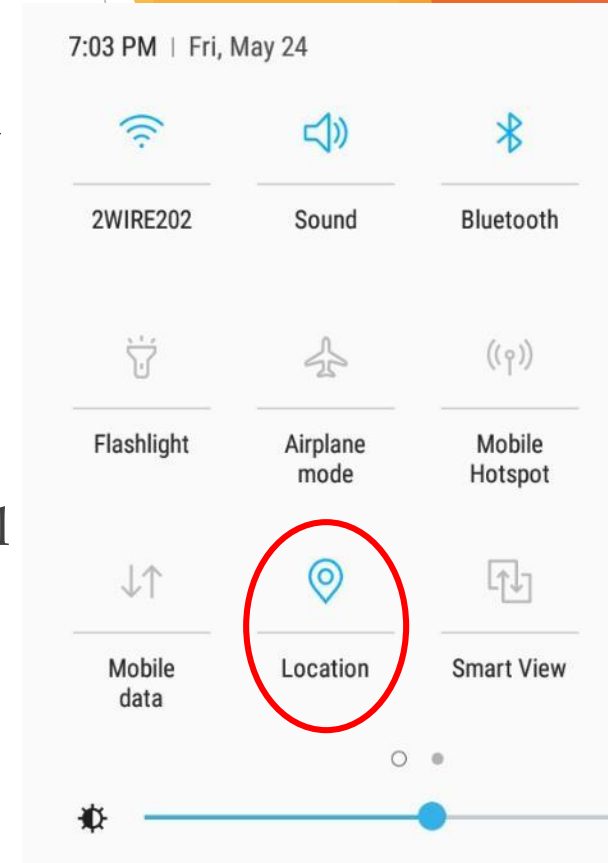
© OpenStreetMap contributors

WGS84 Geographic (lat long):
41.79669972939172 -79.40046167001206

Seed Species Collected: *

8.) Locating the collection site:

- ▶ Make sure you turn on the location services on your device before opening the app.
- ▶ If location services are not on, the app will not be able to auto locate you and will show up red. You will need to close the app, turn the location on, and then re-open the app.
- ▶ If the top of the map is green you should be good to go!



PW Seed Collector v2.1

Which state is this seed collection located?

County Name: *

Please select a county or begin typing to shorten the pick list.

Collection Zone:

The Project Wingspan Collection Zone for this county is:

Locate the Seed Collection Site:

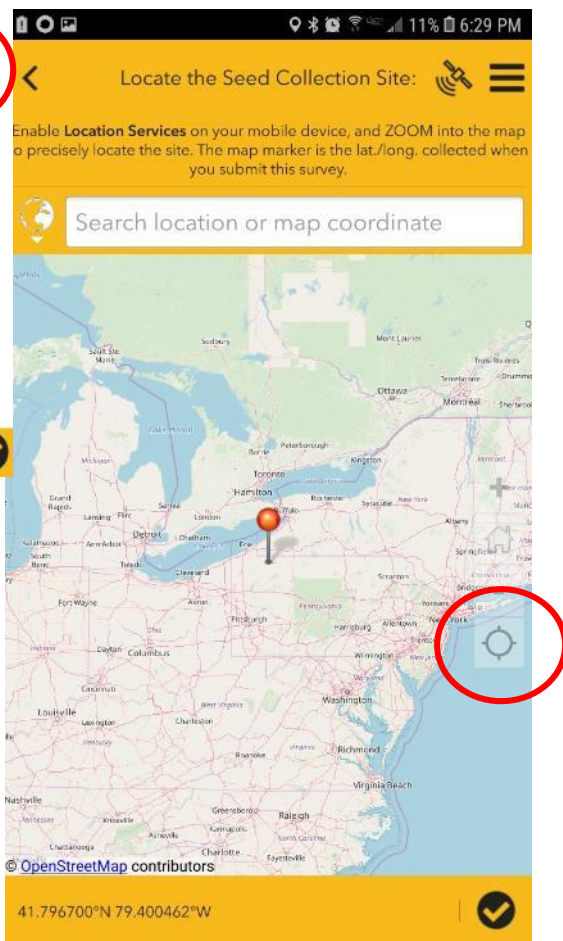
Enable **Location Services** on your mobile device, and **ZOOM** into the map to precisely locate the site. The map marker is the lat/long. collected when you submit this survey.

41.797°N 79.400°W

WGS84 Geographic (lat long):

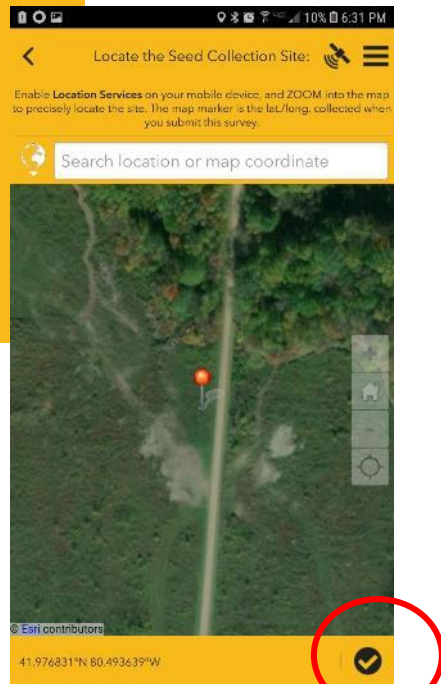
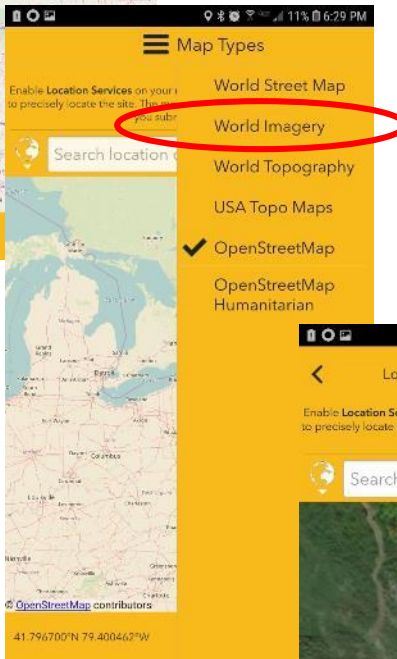
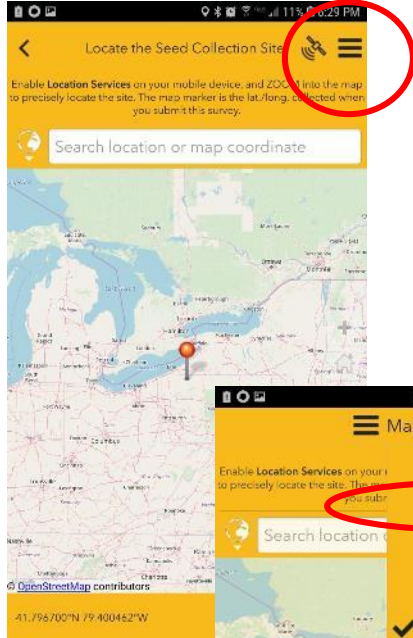
41.79669972939172 -79.40046167001206

Seed Species Collected: *



8.) Locating the collection site:

- ▶ To auto-locate: select the bullseye on the small map
- ▶ If you have bad satellite reception, you may want to check the location to ensure accuracy of your point.
- ▶ Tap the map - this will open the map up larger
- ▶ You can toggle between the blue arrow and bullseye buttons to switch between auto-locate and manual-locate



8.) Locating the collection site:

- ▶ Switching to “World Imagery” may help you determine your exact location based on nearby features
- ▶ To manually locate the collection site, select the map and drag the pin to the appropriate location
- ▶ Pinch to zoom or use the “+” or “-” buttons
- ▶ When satisfied with the position of your point, select the yellow check mark at the bottom-right of the screen to confirm your location

Seed Species Collected: *

☐ smooth blue aster

☒ New England aster

☐ Ohio spiderwort

Target Plant Species In Bloom:

Were any other target plant species in bloom? Select all that were, please.

Collection Site Photo:

Include people and try to capture the collection area character

Plant Photo:

Please include the actual plants or group of plants collected at this site.



9.) Select the species being collected

- ▶ Each collection gets a unique collection ID
- ▶ If collecting 2 species from the same site, on the same day, two separate collection surveys must be filled out
- ▶ Same goes for the paper forms

10.) Scout the site and record if other target species are present, but not ready for collection

- ▶ To assist with plant ID, you can see its key features from the plant profiles by clicking the small image next to the name of the species

11.) Photos can be submitted in two ways:

- ▶ Click the camera icon to take a photo directly through the app. ***recommended***
- ▶ Click the folder icon to select a photo from your saved pictures.

Note:

- ▶ The **first three** photo fields are **necessary** for **each** seed collection report.

- Collection Site
- Plant
- Seed

- ▶ The last three are optional.

- Leaf
- Data Sheet
- Social Media Photo

Survey123 for ArcGIS

PW Seed Collector v1.1

foxtongue beardtongue
narrowleaf mountainmint

Target Plant Species In Bloom:
Were any other target plant species in bloom? Select all that were, please.

Collection Site Photo:
Include people and try to capture the collection area character.

Plant Photo:
Please include the actual plants or group of plants collected from at this site.

Seed Photo:
High-contrast, clear image including an item for image scale such as a coin.

Survey123 for ArcGIS

PW Seed Collector v1.1

Seed Photo:
High-contrast, clear image including an item for image scale such as a coin.

Leaf Photo:
A clear leaf photo from the plant(s) that seed was collected.

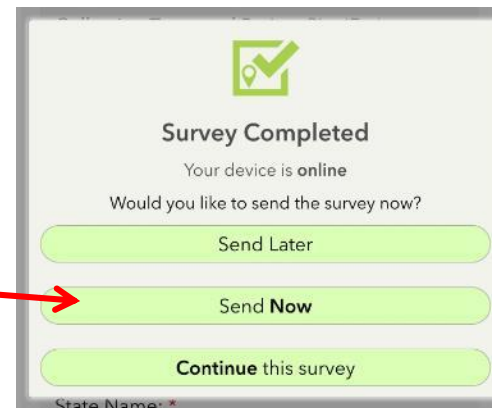
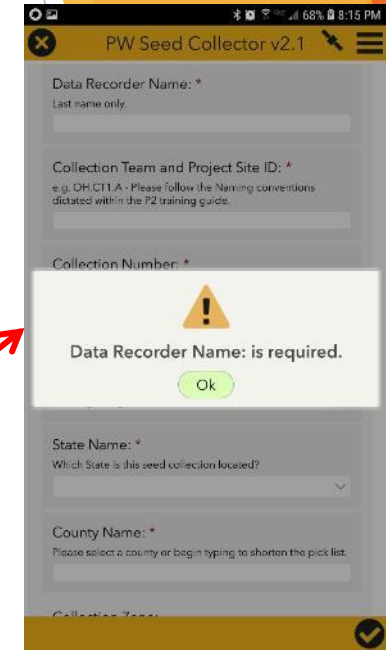
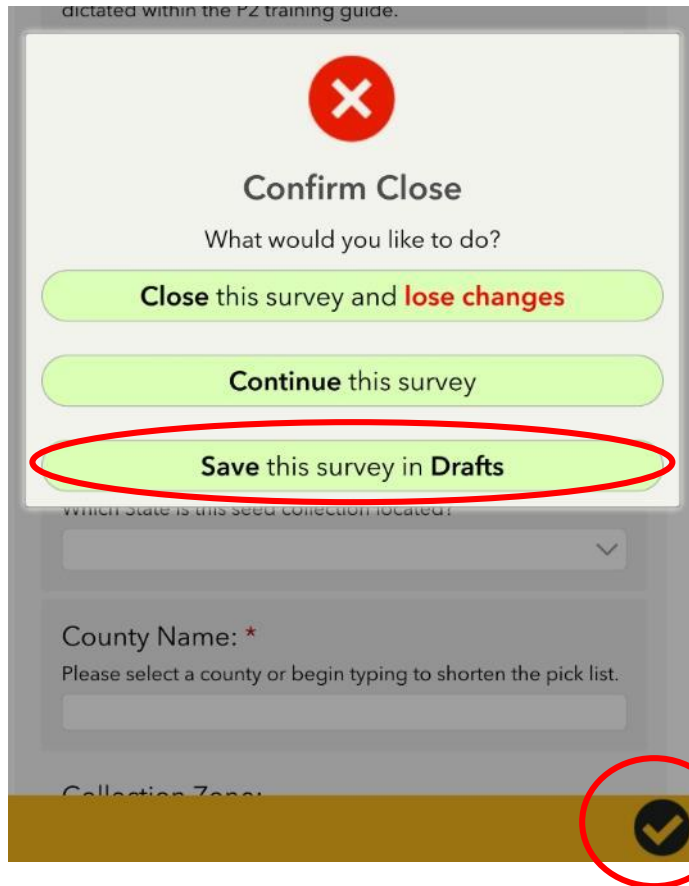
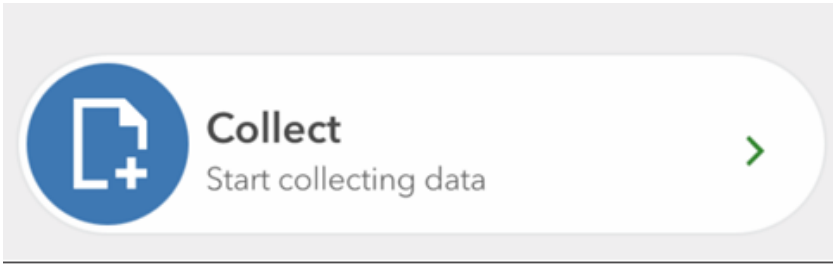
Data Sheet Photo:
A photo of the field notes taken during this seed collection.

Social Media Photo:
A photo suitable for P2 publication or educational materials.

Land Cover Type: *
Which Land Cover category best describes this seed collection site?

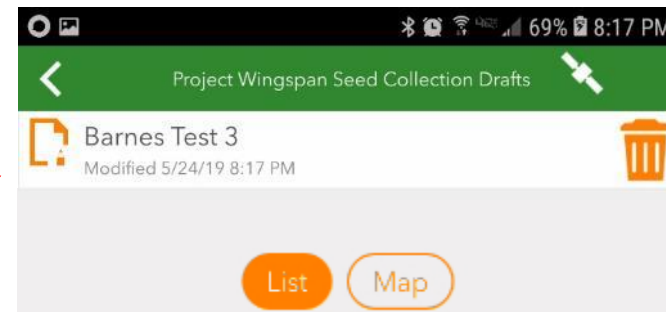
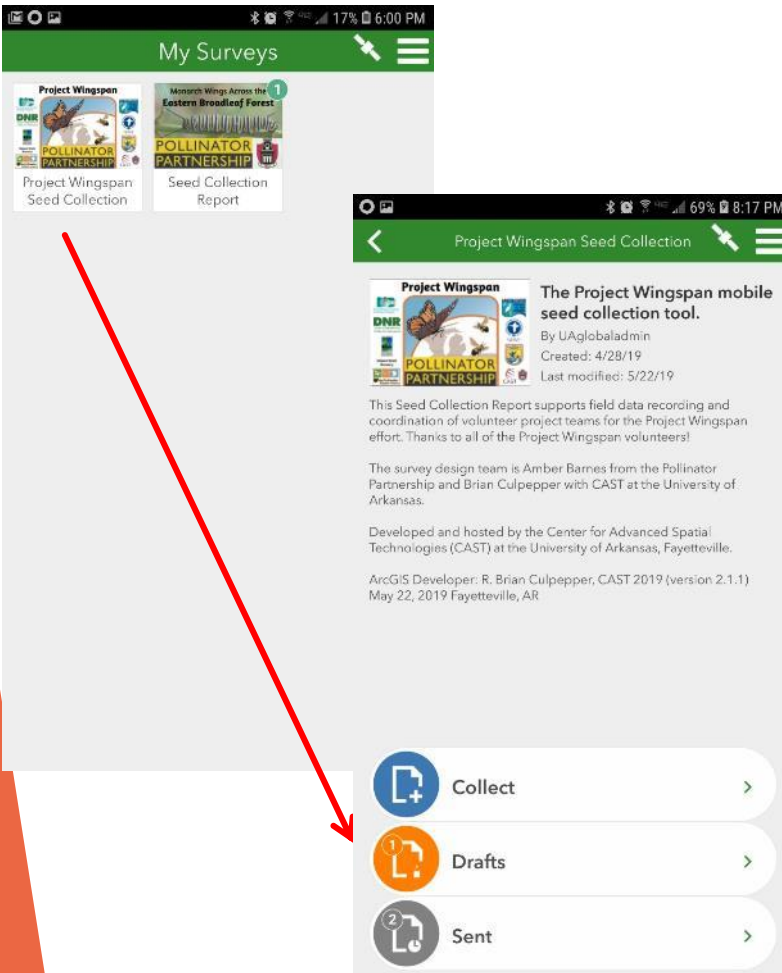
Summary of Survey Workflow:

- ▶ Start collecting
- ▶ Fill out the form
- ▶ Set location
- ▶ Take photos
- ▶ Double check that all data is correct
- ▶ Two Choices: Either **Save in Drafts** or hit the checkmark to **Submit this Report**

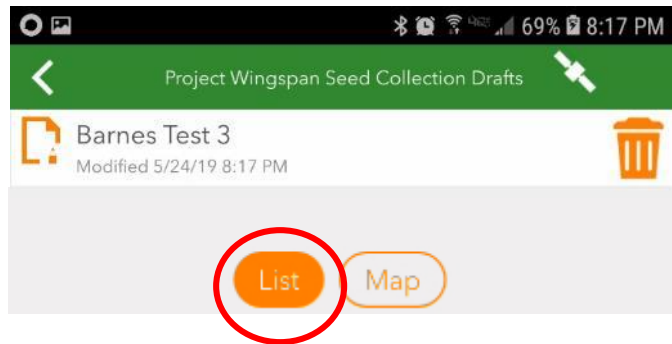


Accessing and completing drafts:

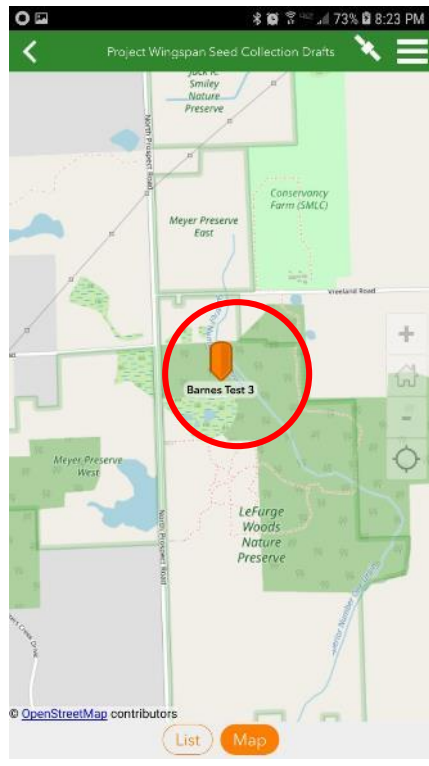
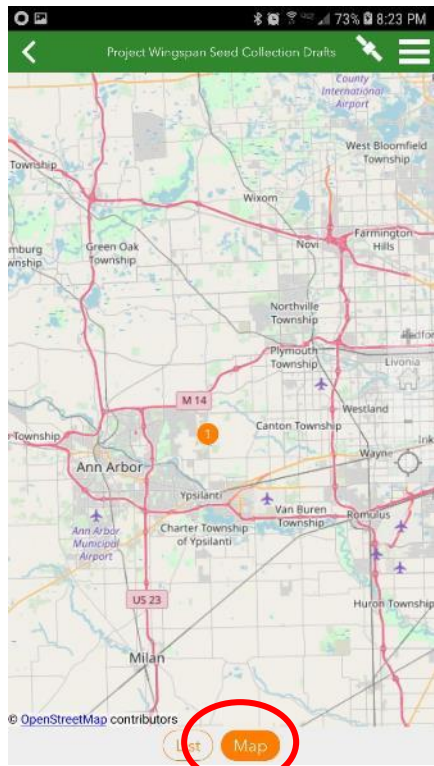
- ▶ You can see active drafts when you open up the survey
- ▶ If you select drafts, it will bring you to a list of drafts that need to be completed
- ▶ Select the draft to open and complete the survey



Accessing and completing drafts:



- ▶ Draft Surveys can be viewed in **map** or **list** format
- ▶ If you select drafts, it will bring you to a list of drafts that need to be completed
- ▶ Select the draft to open and complete the survey



PW Seed Collector v2.1

Seed Collection Details

Data Recorder Name: *
Last name only.
Barnes

Collection Team and Project Site ID: *
e.g. OH.CT1.A. Please follow the Naming conventions dictated within the P2 training guide.
Test

Collection Number: *
Please enter this Seed Collection Number following the training material guidelines.
3

Seed Collection Date: *
When did the Seed Collection occur?
Friday, May 24, 2019

State Name: *
Which State is this seed collection located?
Michigan

County Name: *
Please select a county or begin typing to shorten the pick list.
Grand Traverse



Survey Completed

Your device is **offline**

The survey has been saved in the outbox.

Ok

The survey design team is Amber Barnes from the Pollinator Partnership and Brian Culpepper with CAST at the University of Arkansas.

Developed and hosted by the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas, Fayetteville.

ArcGIS Developer: R. Brian Culpepper, CAST 2019 (version 2.1.1)
May 22, 2019 Fayetteville, AR



Collect



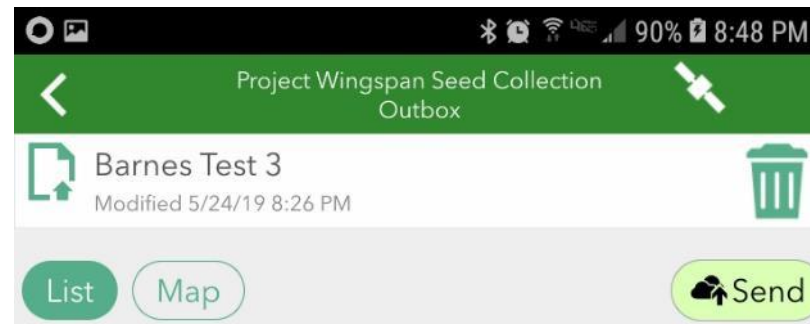
Outbox

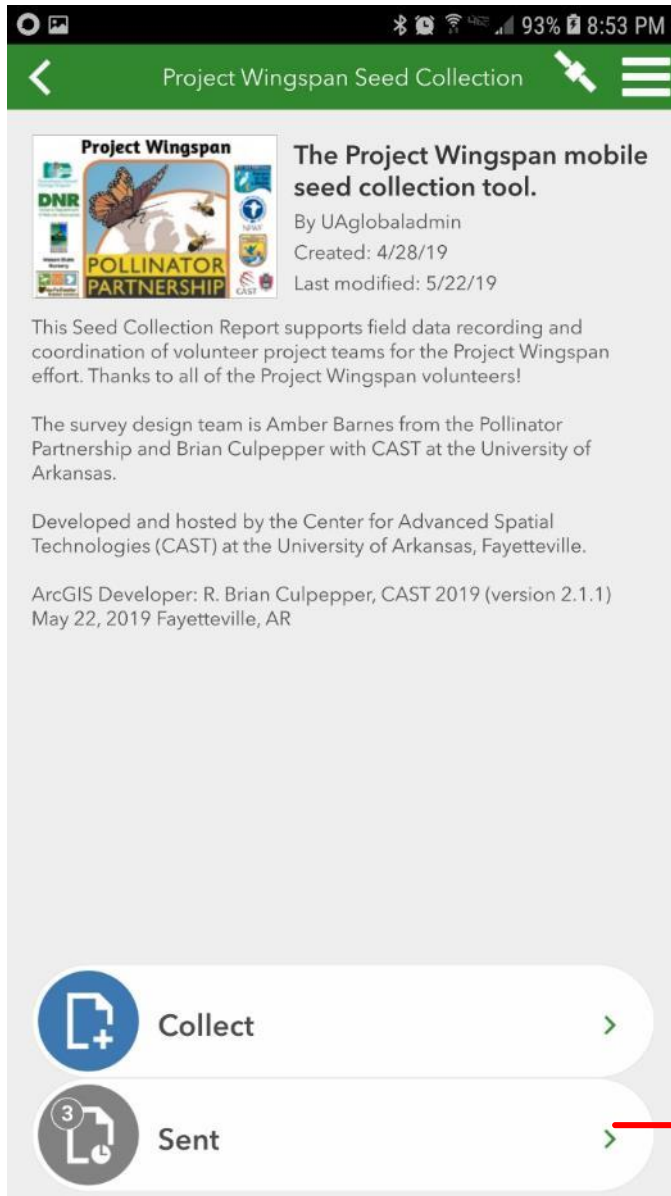


Sent

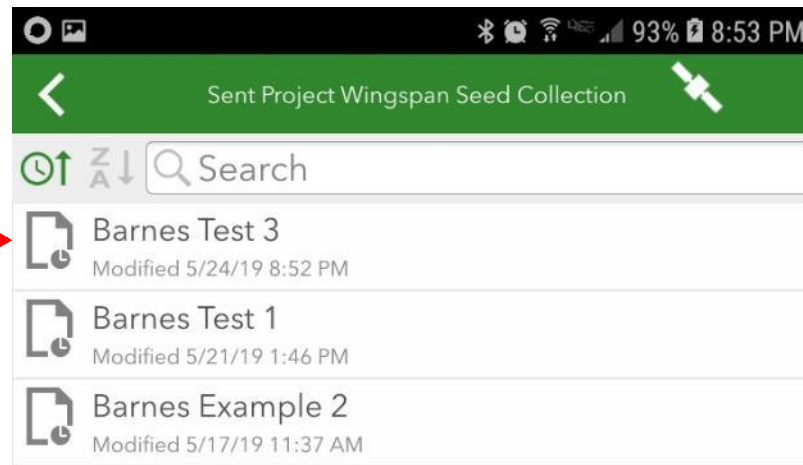


- ▶ **Completed unsent surveys:**
 - Outbox folder
 - Number of surveys in circle
 - Retry until survey is successfully submitted
- ▶ **What causes this?**
 - Loss of cell signal or wifi interruptions





- ▶ **Successfully sent surveys:**
 - **Sent Folder**
 - Logo and number are **grey**
- ▶ If you select the sent box, it will take you to your completed surveys
- ▶ **Records are locally stored on your device, under your username. These will only show up on the mobile device & username used to create/send the survey**





Brian Culpepper

to brian, curlpepper, me, isaac ▾

Recorder Name: p2MOuser Training

Recorder Email: brian@cast.uark.edu

Project Wingspan Seed Collection

Lastname: Culpepper

Collection Team - SiteID: Ok.TEST.34

Collection Number: 3

Seed Collection Date: 05/22/2019

County: Green Lake_WI

Collection Zone Type: blue

Seed Type: common_boneset

Target Species Blooming: New_England_aster,black_eyed_Susan

Volunteers: 4

Site Notes: Android tab A samsung test

Latitude:37.33573690316514

Longitude: -95.02244880877092

p2mouser

brian@cast.uark.edu

Thank you for Volunteering for the Project Wingspan project!

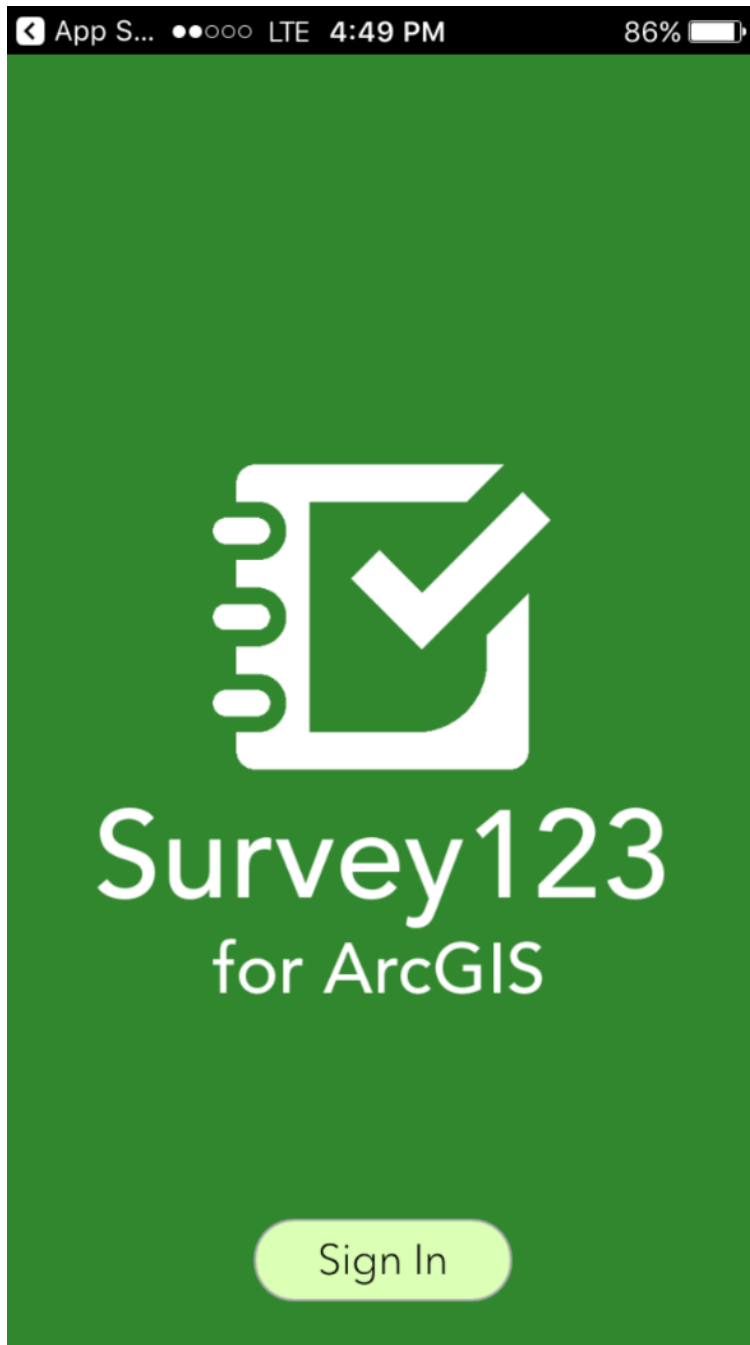
Here are some PW Site Visit Planning Resources

[Driving Directions to this Seed Collection Site](#)

[Weather at the Seed Collection Site](#)

Email receipt

- ▶ Once your survey is successfully sent, it will automatically generate a summary receipt that will be sent to the email attached to your account



You are now ready to collect data!

If you have any troubles with the App, please contact the Pollinator Partnership (info@pollinator.org) or Brian Culpepper (brian@cast.uark.edu) at the University of Arkansas, Fayetteville for assistance.

Use the **“Contact Tech Support”** button within the Seed Collection Report too.

Any questions?



Project Wingspan

Target Plant Species for Seed Collection

POLLINATOR
PARTNERSHIP

Elizabeth Kaufman, Plant Ecologist ~ Pollinator Partnership

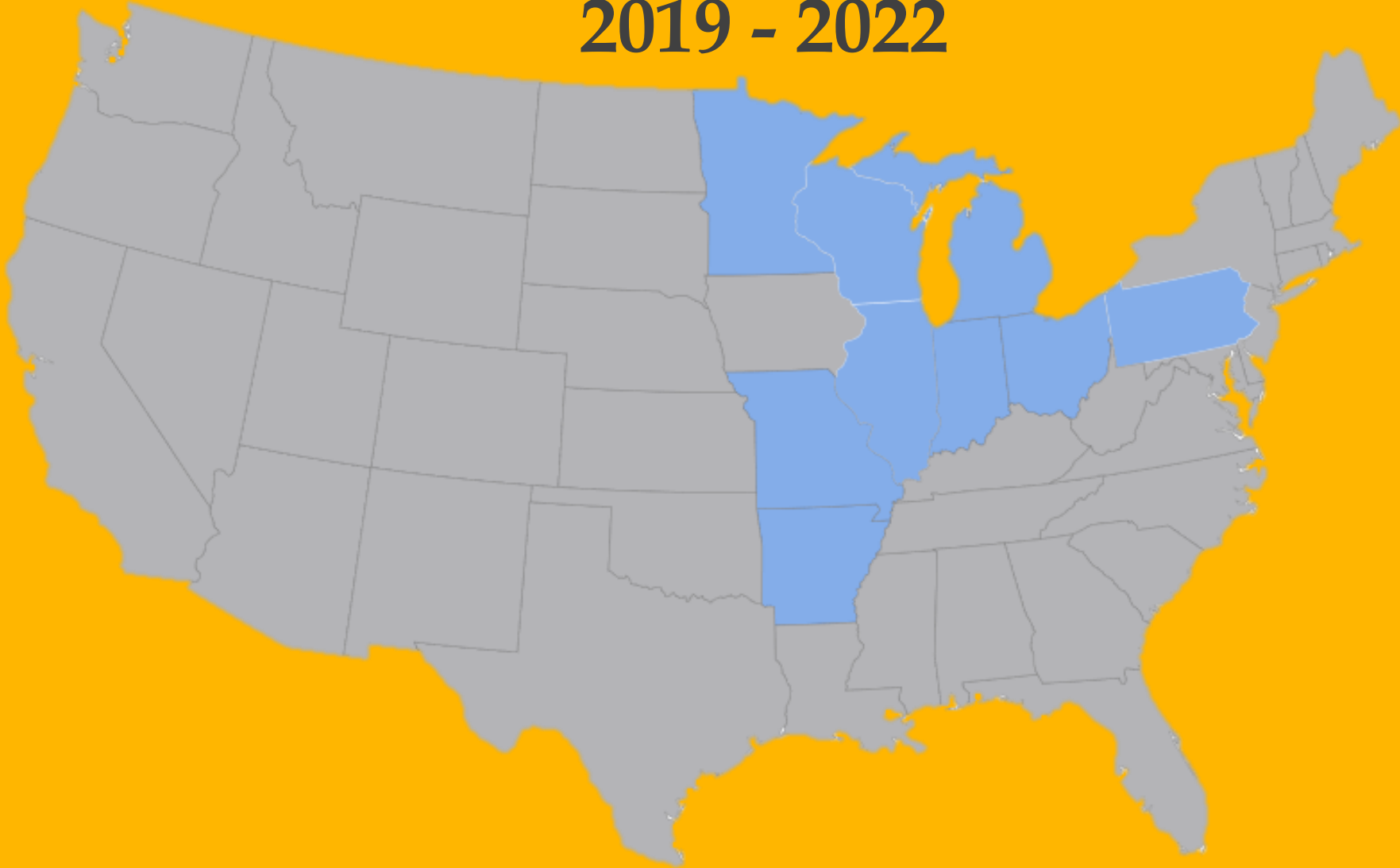
www.pollinator.org



Increasing the quality,
quantity,
and connectivity of
imperiled pollinator
habitat areas across
the Midwestern and
Great Lakes landscape



Project Wingspan: Active States 2019 - 2022



Target Species List:

- 34 Native Species
- 5 Milkweed Species
- Bloom periods across all growing seasons
- Diverse flower morphology to meet the diverse needs of multiple pollinating species

Project Wingspan Target Plants for Seed Collection		Average Bloom Time Across Project States								
Latin (Botanical) Name	Common Name	March	A	M	J	J	A	S	O	Nov
Zizia aurea	golden Alexanders		X	X	X					
Tradescantia ohiensis	Ohio spiderwort		X	X	X	X				
Geranium maculatum	wild geranium		X	X	X	X				
Lupinus perennis	wild lupine			X	X					
Penstemon digitalis	foxglove beardtongue			X	X	X				
Cephalanthus occidentalis	buttonbush				X	X	X			
Asclepias syriaca	common milkweed				X	X	X			
Asclepias exaltata	poke milkweed				X	X	X			
Asclepias incarnata	swamp milkweed				X	X	X	X		
Asclepias tuberosa	butterfly weed				X	X	X	X		
Asclepias verticillata	whorled milkweed				X	X	X	X		
Chamaecrista fasciculata	partridge pea				X	X	X	X		
Oenothera biennis	common evening primrose				X	X	X	X		
Pycnanthemum tenuifolium	narrowleaf mountainmint				X	X	X	X		
Pycnanthemum virginianum	Virginia mountain mint				X	X	X	X		
Heliopsis helianthoides	oxeye sunflower				X	X	X	X		
Ratibida pinnata	yellow coneflower				X	X	X	X		
Impatiens capensis	jewelweed				X	X	X	X		
Rudbeckia hirta	black eyed Susan				X	X	X	X	X	
Echinacea purpurea	eastern purple coneflower				X	X	X	X		
Monarda fistulosa	wild bergamot				X	X	X	X		
Veronicastrum virginicum	Culver's root					X	X			
Liatris spicata	dense blazing star					X	X	X		
Liatris aspera	tall blazing star					X	X	X	X	
Eupatorium perfoliatum	common boneset					X	X	X		
Eutrochium purpureum	sweet joe pye weed					X	X	X		
Coreopsis tripteris	tall coreopsis					X	X	X		
Vernonia fasciculata	prairie ironweed					X	X	X		
Vernonia gigantea	giant ironweed					X	X	X		
Euthamia graminifolia	grass-leaved goldenrod					X	X	X		
Cirsium discolor	field thistle					X	X	X	X	
Oligoneuron rigidum	stiff goldenrod						X	X	X	
Symphyotrichum laeve	smooth blue aster						X	X	X	
Symphyotrichum novae-angliae	New England aster						X	X	X	

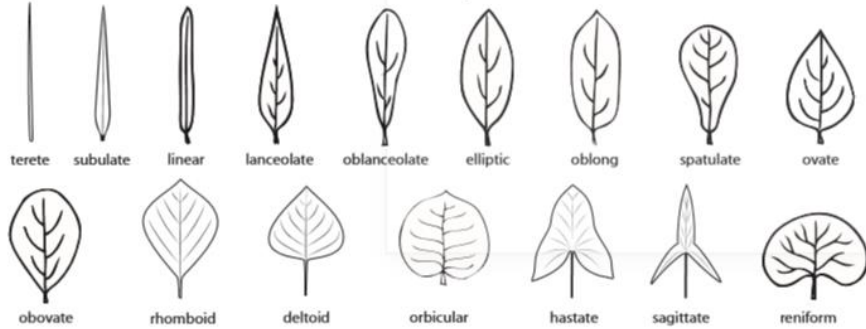


Getting familiar with botanical terminology

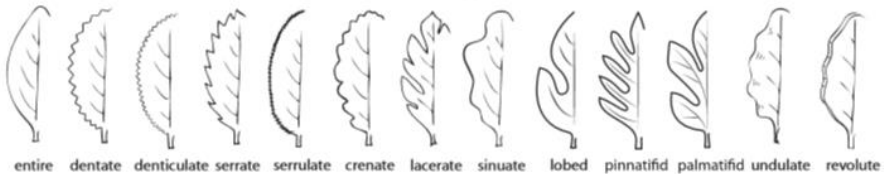


Illustrated Plant Structures

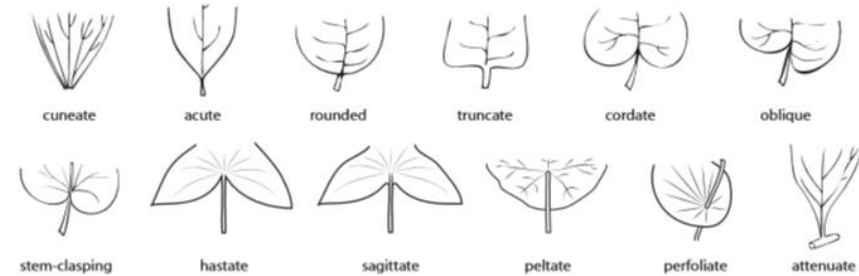
Leaf Shapes



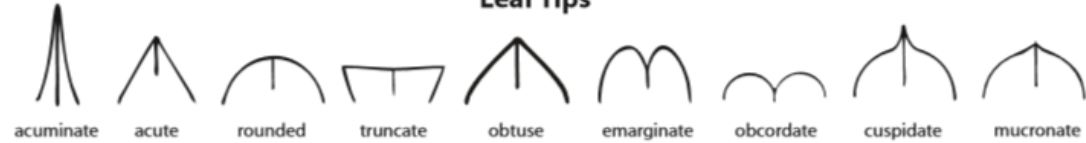
Leaf Margins



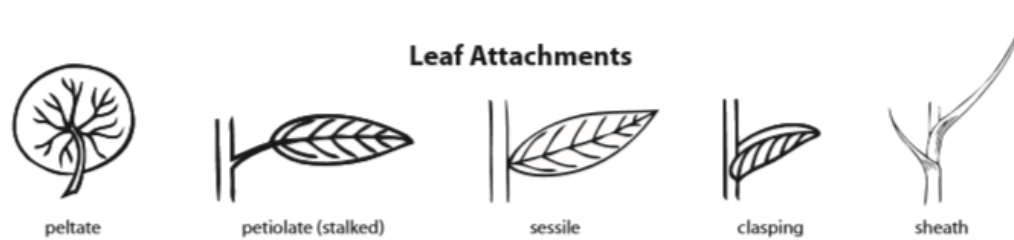
Leaf Bases



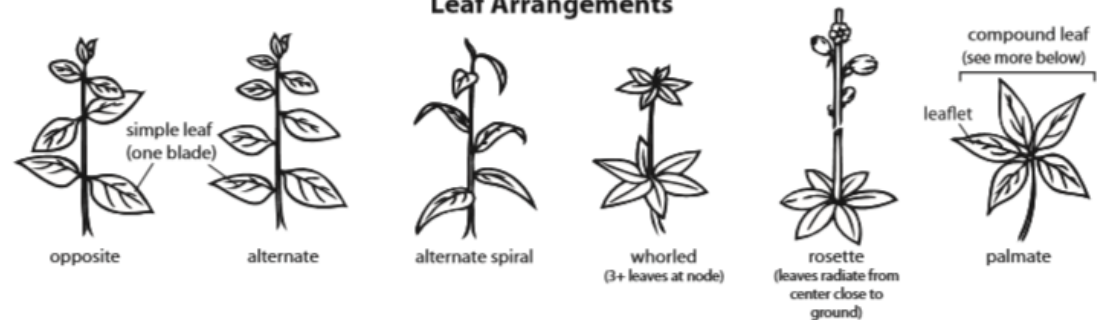
Leaf Tips



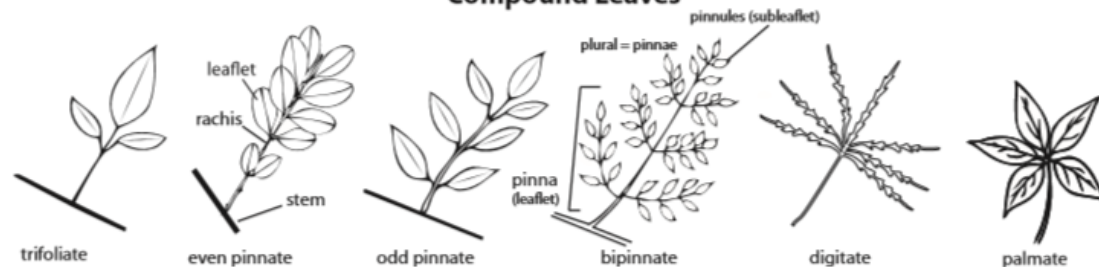
Leaf Attachments



Leaf Arrangements



Compound Leaves



Getting familiar with botanical terminology



Flower Parts

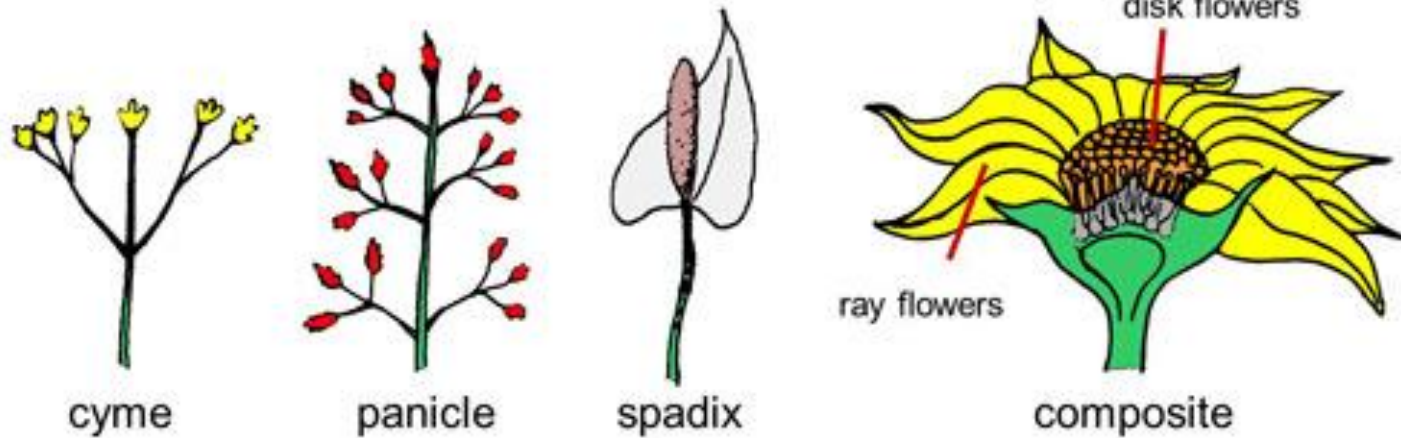
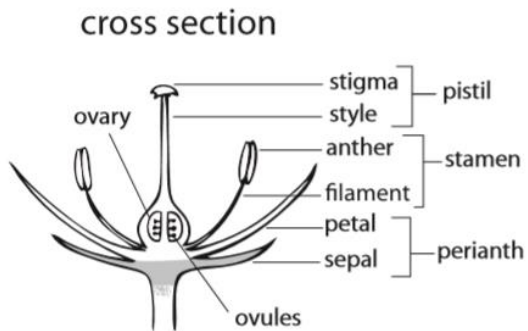
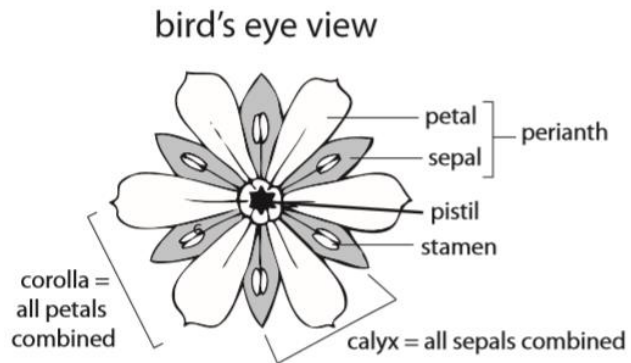


Image credit: worldoffloweringplants.com

Plant ID and Seed Collection Resources



Project Wingspan: Landscape Enhancement for Imperiled Pollinators of the Midwest



Seed Co



Special Thanks to:
Additional Core Partners: Michigan State University, Department of Transportation, and Arkansas National Guard
As well as: Satellite partners, Seed Collection Volunteers to Pollinator Partnership, and all of the people that continue to contribute toward the success of Project Wingspan.
ComEd: Support for Project Wingspan and their commitment to environmental stewardship.

12. Recommendations for Collection and Cleaning for Specific Target Plants

Estimated monthly collection periods for each species are detailed in the Plant Profiles (Appendix A). This will vary based on the region, weather, and growing conditions that year, but those months can serve as a ballpark. Preliminary site visits will provide a more accurate picture of when seeds will ripen and collection should occur.

Asclepias spp., milkweed
Collection Time: Late summer
Collect seed pods as they turn yellow or greyish brown and begin to split. White fluff will likely be visible. Seed should be brown and plump when harvested. Do not collect pods with holes as these seeds are likely nonviable due to insect damage. Put the entire pod in the collection bag. Split open pod to remove seed and fluff. If you clean the seeds inside, you will likely have the downy fluff floating around the room as it is quite buoyant.
Note: *Asclepias verticillata* should not be collected in Pennsylvania and *Asclepias exaltata* should not be collected in Arkansas

Cephalanthus occidentalis, buttonbush
Collection time: Late summer to early fall
Collect before the 'nutlets' start to fall apart. Seeds are ready for collection when they turn brown. Cut the 'nutlet' off the stem and put it into your collection bag.

Chamaecrista fasciculata, partridge pea
Collection Time: Fall
Seeds ripen in pods. Pods turn from green to brown when they are ready for harvest. Split open some of the pods in the field to see if the seeds are brown and plump. If the seeds are still green they are not ready. It's easiest to collect several pods and put them in your collection bag. When indoors, peel the pods to release the seeds. Tip: The seeds start to pop out of the pod as they dry.

Cirsium discolor, field thistle
Collection time: Late summer to early fall
Seeds should be collected when the white fluff begins to dry and expand and the calyx and stem begin to brown. It is easiest to cut off the entire flower head and remove the chaff and fluff from the seed in an area where you are sheltered from the wind. The white fluff acts as a parachute and the seeds will fly away. Seeds should be dark in color and plump, as flat seeds indicate the embryo has not developed and the seeds are not ripe.

Coreopsis tripteris, tall coreopsis
Collection Time: Late summer to fall
Seed is ready for harvest when the heads turn yellow to brown. Ripe seed is grayish black in color and resembles a sunflower seed. Seeds are inside the calyx tubes that make up the flower head. Place entire dried flower head into the collection bag.
Note: *Coreopsis tripteris* should not be collected in Arkansas or Minnesota.

Appendix A: Target Plant Species Plant Profiles

PROJECT WINGSPAN - PLANT PROFILE

Zizia aurea

golden Alexander

Other common names include: golden zizia



Bloom Period:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
				X	X	X					

Plant Characteristics:

Duration: Perennial

Type: Herb

Size: 2 1/2' tall

Leaf: Alternate, compound leaves with 3 or 5 leaflets; hairless, shiny, and medium green; 3" long and 2" wide; toothed margins. Lower leaves with long petioles (leaf stem); larger leaflets with 1-2 cleft lobes.

Stem: Forming occasional, lateral stems; light green, hairless, and shiny.

Flower: Upper stems terminate in compound umbels of yellow flowers, measuring 2-3" across and consisting of 12 umbels of 21 flowers each. Each flower is about 1/8" wide, consisting of 5 curved yellow petals, 5 stamens, and a pistil. No floral scent.

Seed collection: Early August - Mid September [2]

What it can be confused with:

Golden Alexander is sometimes confused with wild parsnip (*Pastinaca sativa*) and yellow meadow parsnip (*Thapsium trifolium aureum*). Wild parsnip blooms later, is taller, and has more leaflets in each leaf than golden Alexander. It can be distinguished from yellow meadow parsnip due to the parsnip's short petiole on the central flowers of each umbel, the winged seeds, and simple rather than trifoliate basal leaves. [2]

Known Pollinators:

Native bees, wasps, bumblebees, butterflies, and true bugs. [2]

Larval Host: Black swallowtail butterfly, Oak silk/leopard butterfly, and rigid sunflower borer moth. [2]

** Seed collection dates will vary due to location and weather conditions during the growing season. This is a general time seed may be ready. Locations will need to be investigated for a more accurate timeline for each location.

[1] USDA NRCS Plant Hardiness Zones, 1990, and A. S. Davis, 1990. An Illustrated Flora of the Northern United States, Canada and the British Possessions. 2 vols. Charles Scribner's Sons, New York, Vol. 3, 641.

[2] <http://www.invasive.org/speciesprofiles/profile.php?species=222>

© Pollinator Partnership 2019

Zizia aurea

Golden Alexander



© Pollinator Partnership 2019

Zizia aurea golden Alexander

DO NOT CONFUSE WITH

Thapsium trifolium aureum - yellow meadow parsnip



parsnip



snip from golden Alexander:

* Plant is larger at 3-5' tall vs. about 2.5'.
* More leaflets: 8+ vs. 3-5.
* Larger flower head 3-6" across vs. 2-3".



Special thanks to: Project Wingspan's additional core partners - Michigan State University, Michigan DNR, and Pennsylvania DOT and our sponsor - Commonwealth Edison

© Pollinator Partnership 2019

POLLINATOR
PARTNERSHIP



Meet The Species!



**Target Species
2019 to 2021
2020 to 2022**

Zizia aurea golden Alexanders

Collect in all project states



**POLLINATOR
PARTNERSHIP**

Tradescantia ohiensis

Ohio spiderwort

Collect in all project states



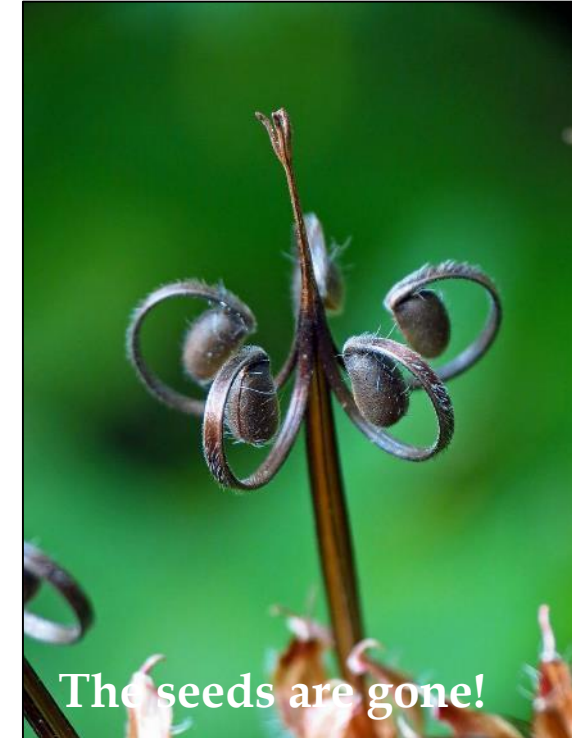
**POLLINATOR
PARTNERSHIP**

Geranium maculatum wild geranium

Collect in all project states



Collect before seed is
naturally distributed!



POLLINATOR
PARTNERSHIP

Lupinus perennis wild lupine

Collect in IL (N.E), MI, MN, WI
(Not to be collected in AR, IN, OH, PA)



John Hilty IL Wildflowers



USFWS_L.Hupp



John Hilty IL Wildflowers



K. Chayka
© 2007 K. Chayka

Can be confused with large-leaved lupine

Introduced



2004 © Peter M. Dziuk

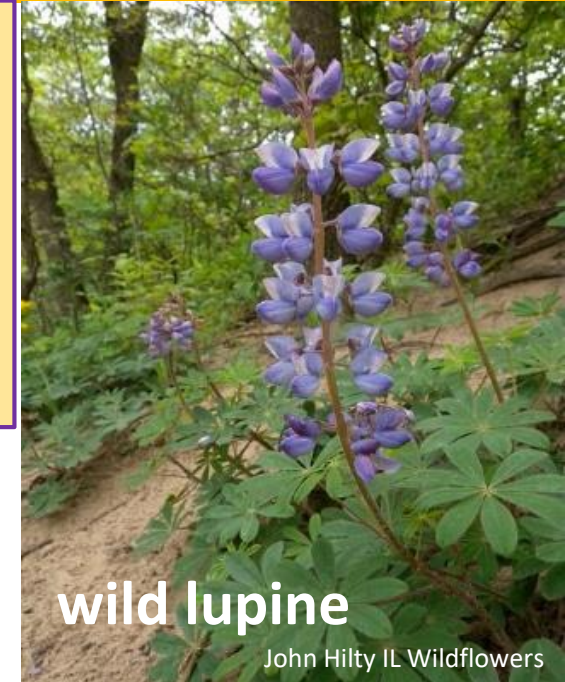
large-leaved lupine



2004 © Peter M. Dziuk

Flower
stalk

8" - 24"
vs.
4" - 8"



wild lupine

John Hilty IL Wildflowers



2004 © Peter M. Dziuk



Leaves
with
11 to 17
leaflets
vs.
7 to 11
leaflets



John Hilty IL Wildflowers

POLLINATOR
PARTNERSHIP

Penstemon digitalis foxglove beardtongue

Collect in AR, IL, IN, MI, OH, PA, WI
(Not to be collected in MN)



Cephalanthus occidentalis buttonbush

Collect in all project states



**POLLINATOR
PARTNERSHIP**

Asclepias species

Milkweeds



Asclepias syriaca common milkweed

Collect in all project states



**POLLINATOR
PARTNERSHIP**

Asclepias incarnata swamp milkweed

Collect in all project states



**POLLINATOR
PARTNERSHIP**

Asclepias tuberosa butterfly milkweed

Collect in all project states



Amber Barnes



Amber Barnes



Amber Barnes



Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Asclepias verticillata whorled milkweed

Collect in AR, IL, IN, MI, MN, OH, WI
(Not to be collected in PA)



**POLLINATOR
PARTNERSHIP**

Asclepias exaltata

poke milkweed

Collect in IL, IN, MI, MN, OH, PA, WI
(Not to be collected in AR)



2004 © Peter M. Dziuk



© 2007 k. chayka



© 2008 k. chayka

© 2008 Katy Chayka



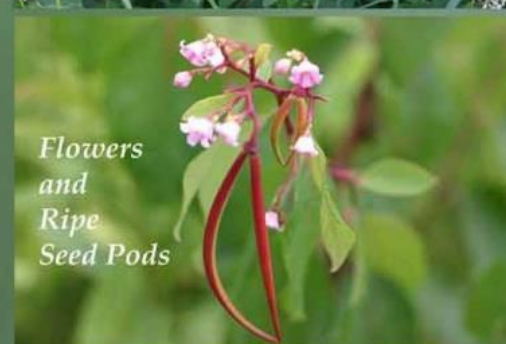
Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Don't be fooled by other milky sap producing plants...



Spreading Dogbane (Apocynum androsaemifolium)



Collecting Milkweed Seeds



Not ready for harvest

- Pods are soft and green
- Seeds are premature



Seed has matured and ready for harvest,
But timing is everything and you want to collect
before all seed has naturally dispersed



**Please ~ avoid collecting pods that have
milkweed beetles or other insects**



Chamaecrista fasciculata partridge pea

Collect in all project states



Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Oenothera biennis

common evening primrose

Collect in AR, IL, MI, MN, WI
(Not to be collected in IN, OH, PA)



J. Hilty IL Wildflowers



Homer House



USFWS B. Billings



Enrico Blasutto



J. Hilty IL Wildflowers



© 2010 Katy Chayka

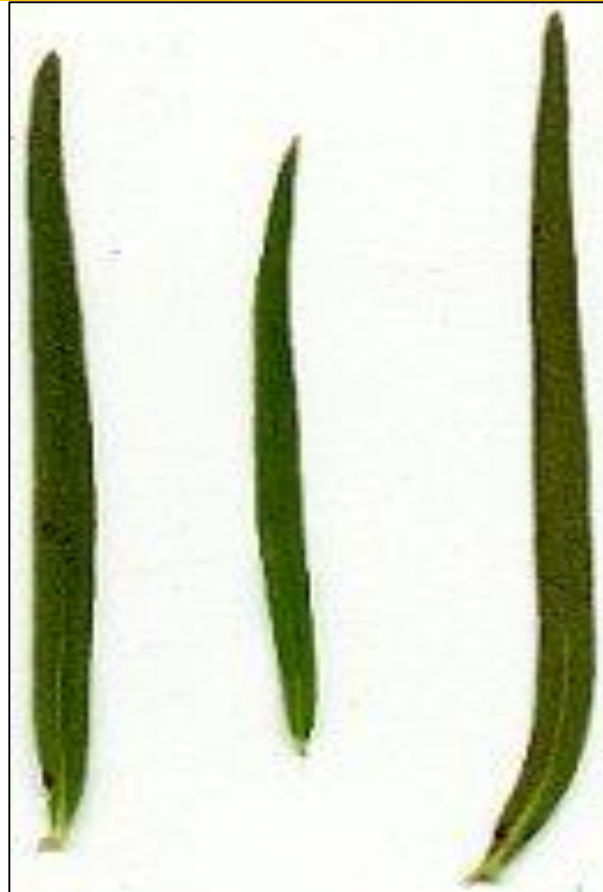
**POLLINATOR
PARTNERSHIP**

Pycnanthemum tenuifolium narrowleaf mountain mint

Collect in AR, IL, IN, MI, OH, PA
(Not to be collected in MN, WI)



© 2003 Eleanor Saulys



Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Pycnanthemum virginianum

Virginia mountain mint

Collect in IL, IN, MI, MN, OH, PA, WI
(Not to be collected in AR)



Heliopsis helianthoides ox-eye sunflower

Collect in all project states



**POLLINATOR
PARTNERSHIP**

Ratibida pinnata yellow coneflower

Collect in AR, IL, IN, MI, MN, OH, WI
(Not to be collected in PA)



© Keir Morse



Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Impatiens capensis jewelweed

Collect in AR, IL, MI, MN, WI
(Not to be collected in IN, OH, PA)



**POLLINATOR
PARTNERSHIP**

Rudbeckia hirta black-eyed Susan

Collect in all project states



007 Katy Chayka



Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Echinacea purpurea purple coneflower

Collect in IL, IN, MI, OH, WI
(Not to be collected in AR, MN, PA)



Amber Barnes



**POLLINATOR
PARTNERSHIP**

Monarda fistulosa wild bergamot

Collect in all project states



C A Campbell, LBJWC



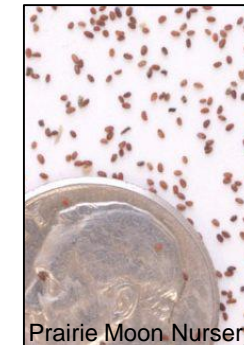
Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Veronicastrum virginicum

Culver's root

Collect in all project states



**POLLINATOR
PARTNERSHIP**

Liatris spicata marsh blazing star

Collect in IL, IN, MI, OH, PA
(Not to be collected in AR, MN)



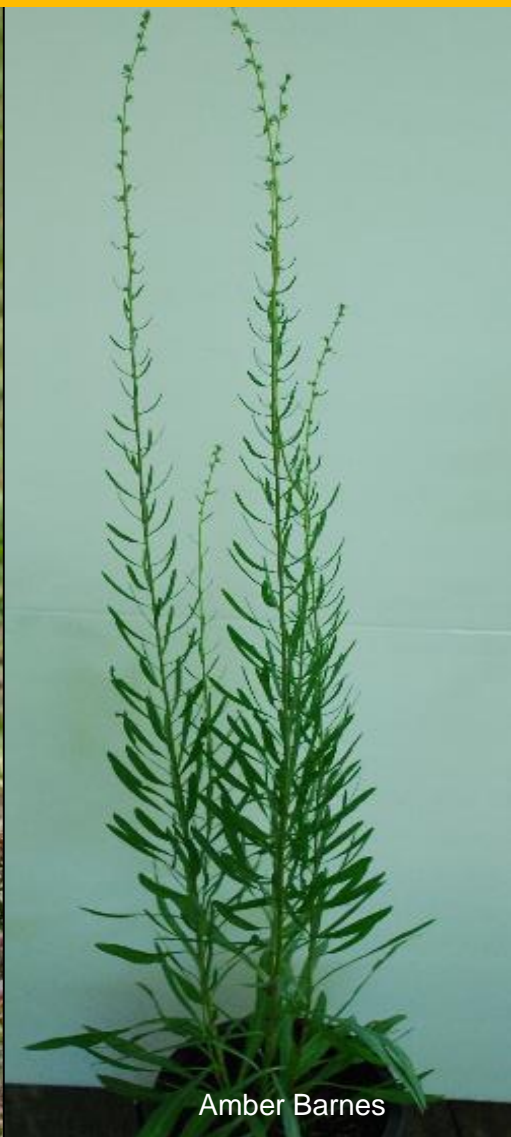
**POLLINATOR
PARTNERSHIP**

Liatris aspera button blazing star

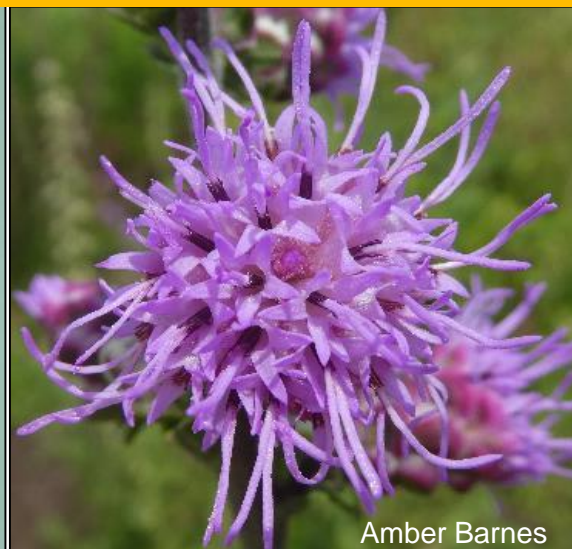
Collect in AR, IL, IN, MI, MN, WI
(Not to be collected in PA)



Amber Barnes



Amber Barnes



Amber Barnes



Amber Barnes



Amber Barnes



Prairie Moon Nursery



Amber Barnes

**POLLINATOR
PARTNERSHIP**

Other *Liatris* species



Liatris cylindracea - cylindric blazing star



Key features that distinguish *Liatris cylindracea*:

- Larger flower heads, 1/2 to 3/4" wide with 10-35 flowers per head.
- Bracts are scale-like and pressed flat, with an abrupt point at the tip and often brown to purplish.
- Stems are hairless and leaves are thin at 1/8 to 1/2" wide.

Liatris pycnostachya - prairie blazing star

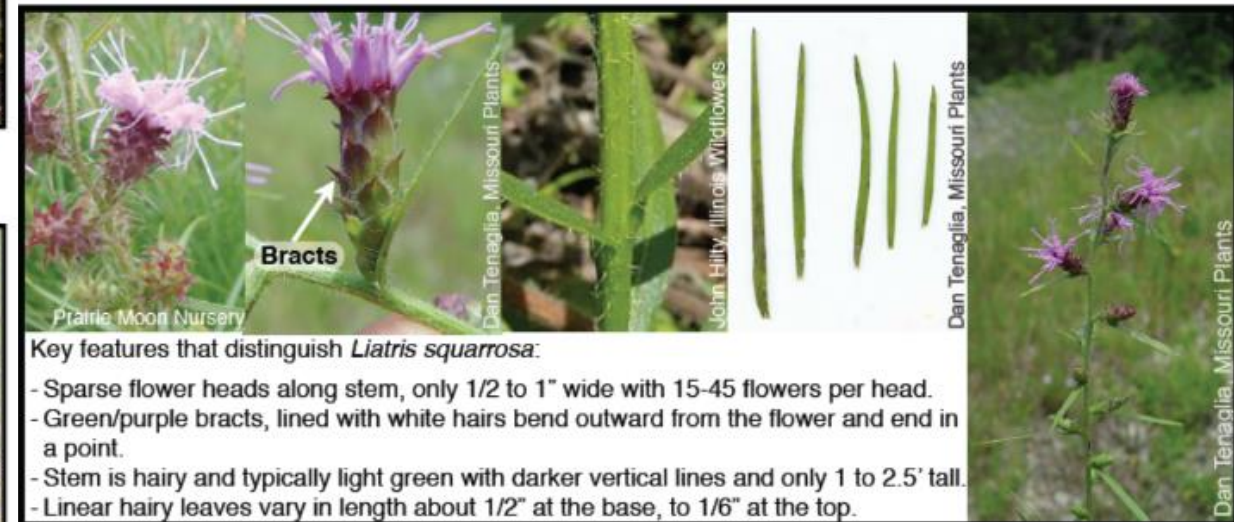


Key features that distinguish *Liatris pycnostachya*:

- Bracts are pinkish red and have narrow tips that curl back away from the flowers.
- Leaves vary in size along the stem 1/2" at the base to 1/8" at the top, usually hairy.



Liatris squarrosa - scaly blazing star



Key features that distinguish *Liatris squarrosa*:

- Sparse flower heads along stem, only 1/2 to 1" wide with 15-45 flowers per head.
- Green/purple bracts, lined with white hairs bend outward from the flower and end in a point.
- Stem is hairy and typically light green with darker vertical lines and only 1 to 2.5' tall.
- Linear hairy leaves vary in length about 1/2" at the base, to 1/6" at the top.

Eupatorium perfoliatum common boneset

Collect in all project states

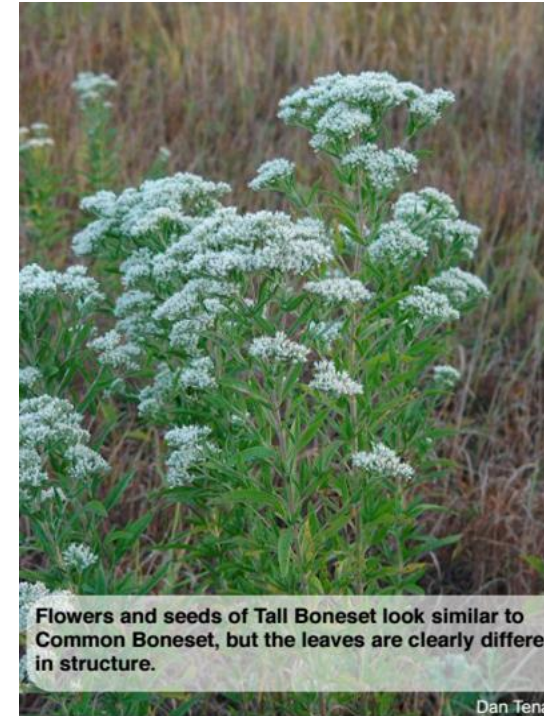


**POLLINATOR
PARTNERSHIP**

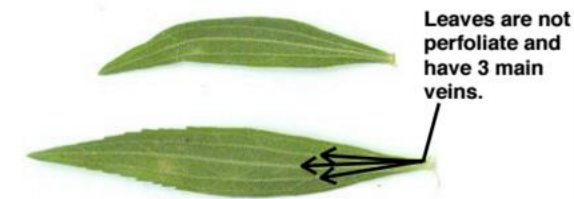
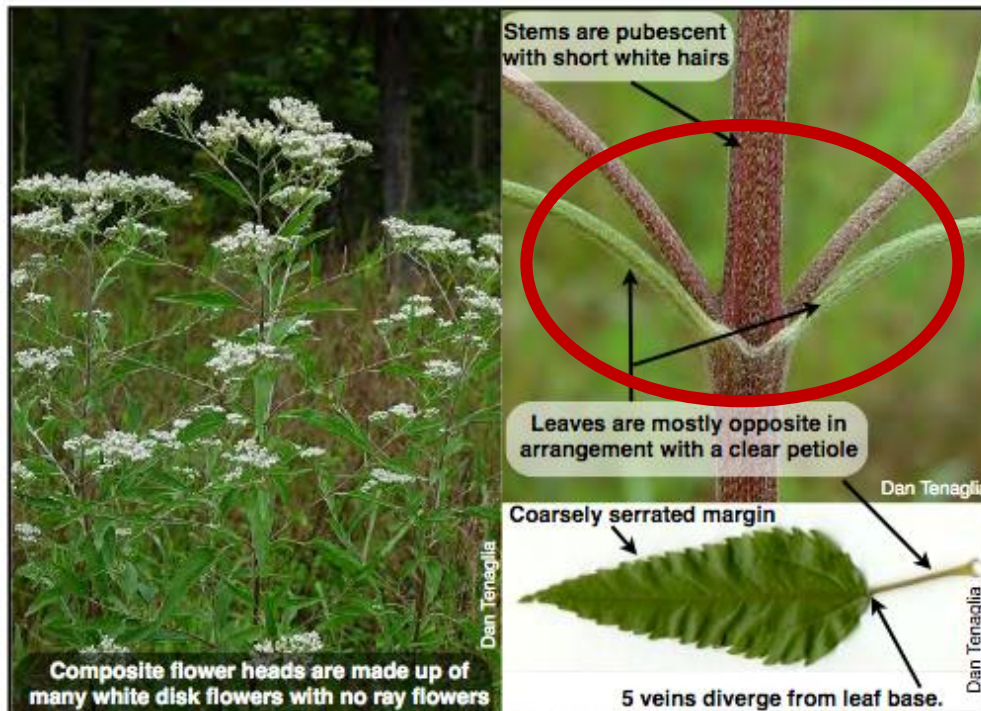
Bonesets can be distinguished by:



tall boneset
Eupatorium altissimum



late boneset
Eupatorium serotinum



Eutrochium purpureum sweet joe-pye weed

Collect in all project states



Prairie Moon Nursery



D. Tenaglia/ S. R. Turner, Missouri Plants



D. Tenaglia/ S. R. Turner, Missouri Plants



Tenaglia/S. R. Turner, Missouri Plants

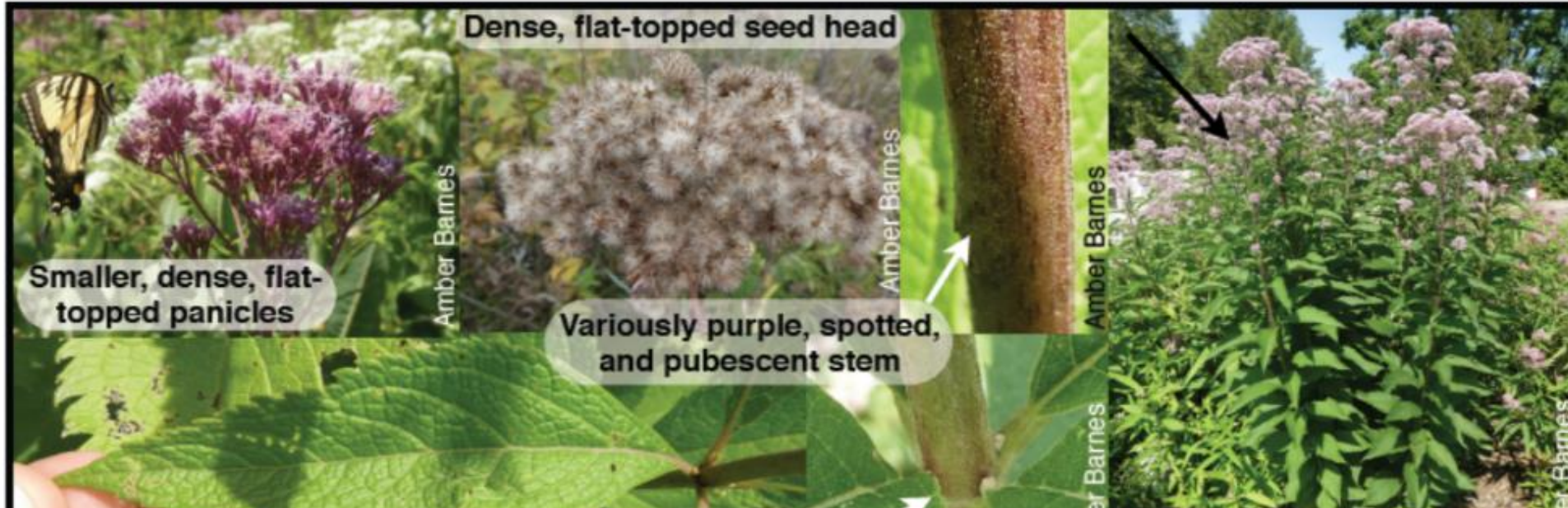


**POLLINATOR
PARTNERSHIP**

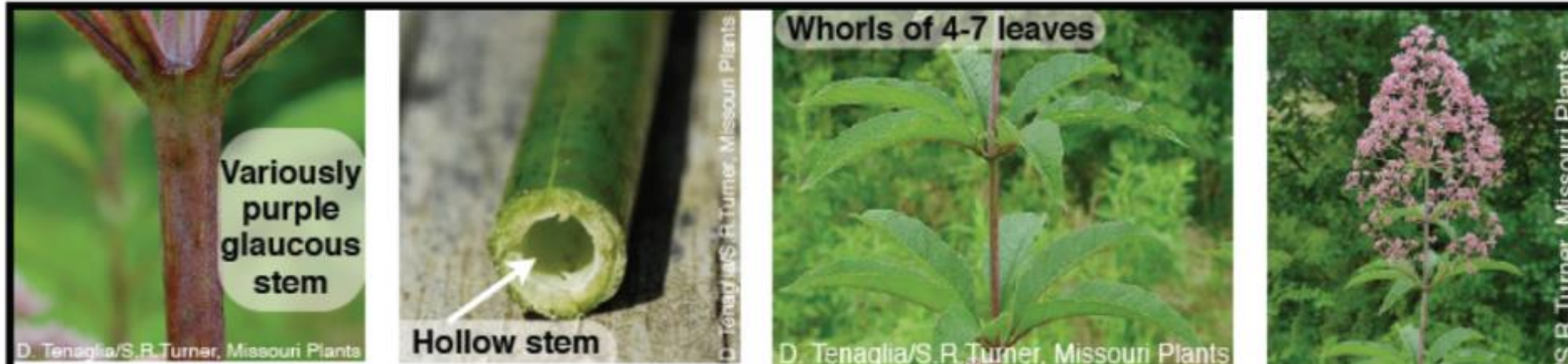
Eutrochium species can be distinguished by:



Eutrochium maculatum - spotted joe pye weed



Eutrochium fistulosa - hollow-stemmed joe pye weed



Coreopsis tripteris

tall coreopsis

Collect in IL, IN, MI, OH, PA, WI
(Not to be collected in AR, MN)



**POLLINATOR
PARTNERSHIP**

Can be confused with other *Coreopsis* species



tall coreopsis

vs.



large coreopsis

John Hilty, Illinois Wildflowers



sand coreopsis



lanceleaf coreopsis

S. Brundage, LBJWC



prairie coreopsis

John Hilty, Illinois Wildflowers



May be confused with *Helianthus* spp.



Helianthus spp.



Coreopsis tripteris



Vernonia fasciculata

smooth ironweed

Collect in IL, MN, WI

(Not to be collected in AR, IN, MI, OH, PA)



POLLINATOR
PARTNERSHIP

Vernonia gigantea giant ironweed

Collect in AR, IL, IN, MI, OH, PA
(Not to be collected in MN, WI)



**POLLINATOR
PARTNERSHIP**

Euthamia graminifolia grass-leaved goldenrod

Collect in IL, IN, MI, OH, PA, WI
(Not to be collected in AR, MN)



© 2008 k. chayka



2003 © Peter M. Dziuk



2003 © Peter M. Dziuk



© 2008 k. Chayka



© 2008 k. Chayka



Prairie Moon Nursery

**POLLINATOR
PARTNERSHIP**

Cirsium discolor field thistle

Collect in all project states



POLLINATOR
PARTNERSHIP

Don't be fooled!



Cirsium altissimum - tall thistle



S.R. Turner, Missouri Plants



S.R. Turner, Missouri Plants

Most leaves
are toothed
and do not
have lobes



© 2011 Peter M. Dziuk

Key features that distinguish *Cirsium altissimum*:

- Flowers are very similar and leaf bottoms are covered in dense white hairs like field thistle. Use characteristics below to differentiate *C. altissimum* from *C. discolor*.
- Upper leaves (and some lower) are not lobed and have more of a serrated leaf margin.
- Tend to grow taller than field thistle (up to 10' tall).

Don't be fooled!



Cirsium vulgare - bull thistle



Key features that distinguish *Cirsium vulgare*:

- Floral bracts curl outward and narrow into sharp points.
- Stems and leaves are covered in hairs and thick spines.
- Underside of the leaf is green and some leaf bases extend down the stem to produce spiny wings.

Oligoneuron rigidum stiff goldenrod

Collect in AR, IL, MI, MN, WI
(Not to be collected in IN, OH, PA)



Symphiotrichum laeve smooth blue aster

Collect in all project states



**POLLINATOR
PARTNERSHIP**

Symphiotrichum novae-angliae Collect in all project states

New England aster



James Reveal



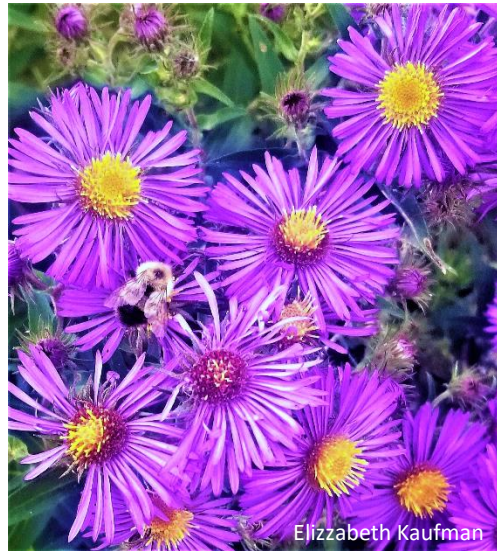
Amber Barnes



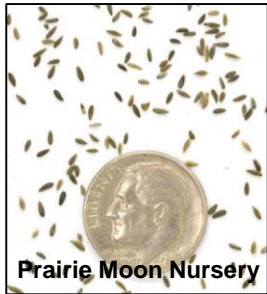
Amber Barnes



Amber Barnes



Elizabeth Kaufman

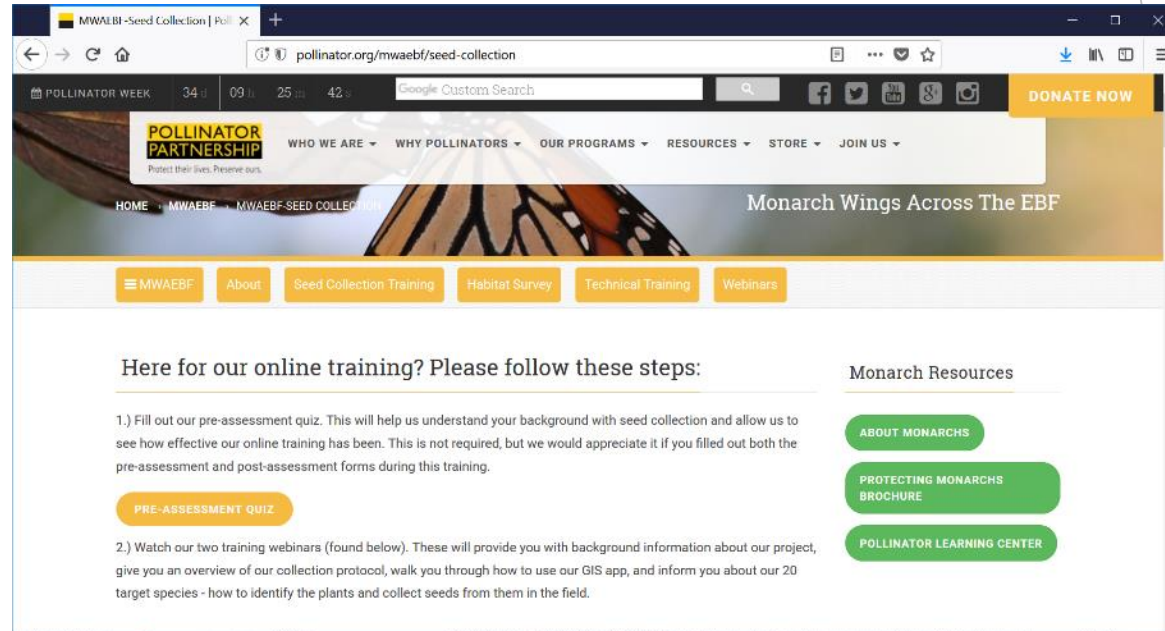


Prairie Moon Nursery



Online Training:

- ▶ Increase reach
- ▶ Simple 6-step Process
- ▶ Training is housed online at www.pollinator.org/wingspan/seed-collection



All these resources and more can be found on our online training page...

Download Center

Whether you have already attended our in-person training or are looking into our online training option, this is the place to download the resources you'll need, to learn about collecting seed for monarchs.

MONARCH WINGS ACROSS THE EASTERN BROADLEAF FOREST SEED COLLECTION MANUAL

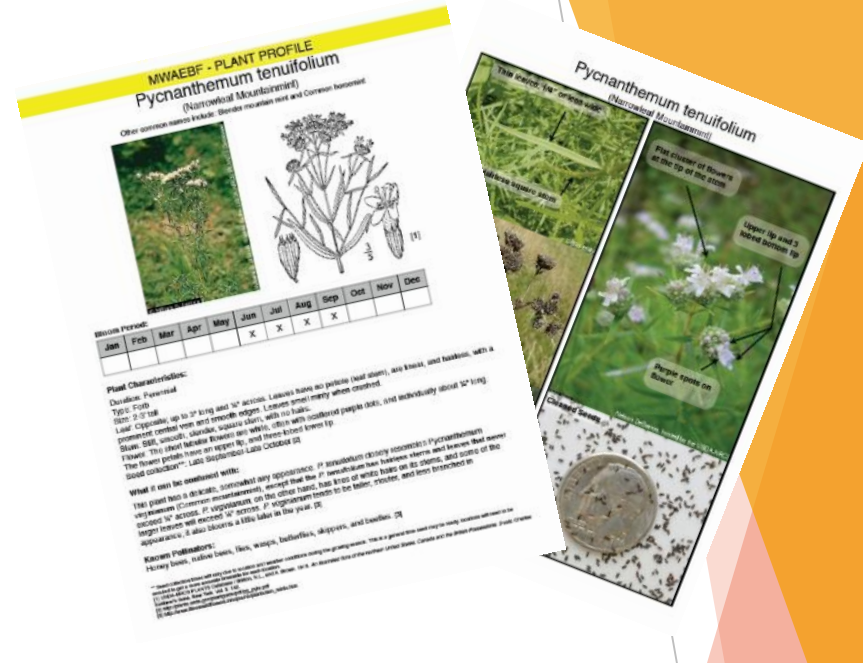
PLANT PROFILES FOR THE 20 TARGET SPECIES

OUR IN-PERSON TRAINING POWER POINT SLIDES

20 TARGET SPECIES WITH BLOOM CHART

POLLINATOR
PARTNERSHIP

Project Wingspan 29 Target Plants for Seed Collection		Bloom Period											
Latin (Botanical) Name	Common Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Zizia aurea</i>	golden Alexanders				X	X	X						
<i>Tradescantia ohnensis</i>	Ohio spiderwort				X	X	X	X					
<i>Geranium maculatum</i>	wild geranium				X	X	X	X					
<i>Penstemon digitalis</i>	foxglove beardtongue				X	X	X						
<i>Asclepias syriaca</i>	common milkweed					X	X	X					
<i>Asclepias exaltata</i>	poke milkweed					X	X	X					
<i>Cephalanthus occidentalis</i>	buttonbush					X	X	X					
<i>Asclepias incarnata</i>	swamp milkweed					X	X	X	X				
<i>Asclepias tuberosa</i>	butterfly weed					X	X	X	X				
<i>Rudbeckia hirta</i>	black eyed Susan					X	X	X	X				
<i>Pycnanthemum virginianum</i>	Virginia mountain mint					X	X	X	X				
<i>Pycnanthemum tenuifolium</i>	narrowleaf mountainmint					X	X	X	X				
<i>Chamaecrista fasciculata</i>	partridge pea					X	X	X	X				
<i>Ratibida pinnata</i>	yellow coneflower					X	X	X	X				
<i>Helopsis helianthoides</i>	oxeye sunflower					X	X	X	X				
<i>Asclepias verticillata</i>	whorled milkweed					X	X	X	X				
<i>Veronicastrum virginicum</i>	Culver's root					X	X	X	X				
<i>Echinacea purpurea</i>	eastern purple coneflower						X	X	X				
<i>Monarda fistulosa</i>	wild bergamot						X	X	X				
<i>Eutrochium purpureum</i>	sweet joe pye weed						X	X	X				
<i>Eupatorium perfoliatum</i>	common boneset						X	X	X				
<i>Liatris spicata</i>	dense blazing star						X	X	X				
<i>Euthamia graminifolia</i>	grass-leaved goldenrod						X	X	X				
<i>Cirsium discolor</i>	field thistle						X	X	X	X			
<i>Liatris aspera</i>	tall blazing star						X	X	X	X			
<i>Vernonia gigantea</i>	giant ironweed						X	X	X	X			
<i>Coreopsis tripteris</i>	tall coreopsis						X	X	X	X			
<i>Symphyotrichum laeve</i>	smooth blue aster							X	X	X			
<i>Symphyotrichum novae-angliae</i>	New England aster							X	X	X			



<https://www.pollinator.org/wingspan/seed-collection>

Next steps...

- ▶ If you're interested in becoming a Team Lead, Co-Lead, or Data Collector, please let us know!
- ▶ Your State Coordinator will be organizing the Collection Teams and will be in touch soon to assign each of you to the nearest team
- ▶ Team Leads will then introduce themselves to their team and contact them when seed collection events are in the works.
- ▶ We will continue training new collection team volunteers with our online training module soon and will send out an email when that resource is up and running!



Sara Wittenberg
Arkansas State
Coordinator
sw@pollinator.org



Kyla Tripp
Minnesota State
Coordinator
kt@pollinator.org

The Project Wingspan Team:



Joe Hovis
Pennsylvania
State Coordinator
jh@pollinator.org



Amber Barnes
Native Plant Materials
Coordinator
ab@pollinator.org



Emily Yates
Indiana State
Coordinator
ey@pollinator.org



Thelma Heidel-Baker
Wisconsin State
Coordinator
thb@pollinator.org



Connie Crancer
Michigan State
Coordinator
cc@pollinator.org



Lara Raketenez
Ohio State
Coordinator
lara@pollinator.org



Holly Frainer
Illinois State
Coordinator
hf@pollinator.org



Elizabeth Kaufman
Pollinator Habitat
Coordinator
ek@pollinator.org



Plant information for this presentation obtained from:
<http://www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx>
<http://www.illinoiswildflowers.info/>