

Longwood Gardens  
Meadow Garden  
Volunteer  
Manual

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Tom Brightman, Land Steward

Paula Butera-Kunkel, Guest Engagement Lead/Supervisor of Webb Farmhouse Volunteers

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Colin McCallum- Cook, Meadow Gardener

John Mercer – West Chester Bird Club

Bluebird Volunteer Team

Birding Volunteer team

Meadow Wildflower Bloom Log Team

This manual reviewed by the following:

Nancy Bowley, Docent Coordinator

Tom Brightman, Land Steward

Paula Butera- Kunkel, Guest Engagement Lead/Supervisor of Webb Farmhouse Volunteers

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## Sources:

Longwood's Landscape Evolution, Dec 2010

Interpretive Plan and Materials created for Meadow Garden Interpretation written by Gecko, Dottie Miles and consultants (Beverly Sheppard)

Notes from Moira Sheridan Interviews with Tom Brightman

Notes from Soil to Sky Documents – Horticulture team

Dragonflies and Damselflies in the Waterlily Display Document, Will Prost

*Bringing Nature Home: How You Can Sustain Wildlife with Native Plants.* Tallamy, Douglas W., Timber Press, 2009.

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<http://www.northcreeknurseries.com/index.cfm/fuseaction/home.home/index.htm>

# Meadow Garden Docent Team Policy and Procedures

Docents are knowledgeable, enthusiastic people who play an important role expanding our guests' experiences. As roving interpreters, docents informally engage small groups of guests to help them to better appreciate the Meadow Garden ecology, beauty, history and design. They promote Longwood Gardens and share behind the scenes facts, interpretive themes and stories, and helpful information with some of the nicest people – our guests.

Thank you for participating in this Volunteer Program and for representing Longwood Gardens to the thousands of guests with whom you will interact.

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## ***Longwood Gardens Mission Statement-***

*Longwood Gardens is the living legacy of Pierre S. du Pont, inspiring people through excellence in garden design, education, horticulture and the arts*

Longwood owes most of its creation to our founder, Pierre du Pont.

Pierre du Pont purchased the initial 202 acres in 1906 to save a significant collection of beautiful old trees and to be used as a country home to entertain his family and friends. Starting with a simple Flower Garden Path, he began the spectacular Longwood Gardens we know and enjoy today.

We continue Pierre S. du Pont's passion for excellence through innovation, creativity, experimentation and professional development. We strive to connect our guests with this living legacy. You, as docents, are an integral part of sharing his legacy and story with our guests.

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# Meadow Garden Docent Team Policy and Procedures

## **Guest Engagement Volunteer Coordinator**

Paula Butera-Kunkel

[pbuterakunkel@longwoodgardens.org](mailto:pbuterakunkel@longwoodgardens.org)

610-388-5354

## **Communication**

Nearly all docent communication, updates and important information will be communicated to you via email. Please be sure to check your email regularly so you don't miss anything important. There is also a section in the sign in book where updates will be placed.

Your feedback and suggestions are valuable to our team. Please communicate any questions, problems, comments or suggestions by contacting the staff coordinator by email, phone or stop in our office upstairs in the Peirce du Pont House.

## **Volunteer Shifts**

Shifts:            May – October:  
                      10– 1 Wednesday through Thursday  
                      10 – 1, 1 – 4 Friday through Sunday  
                      Additionally June – August evenings approximately 5:00 – 8:00 pm Friday and Saturday  
                      July – August evenings Wednesdays through Saturdays (evening hours are changeable due to sunset)

Weekend shifts are the most important and when we will have the majority of our guests  
Each docent is asked to take a minimum of two weekend shifts per season  
Two docents are needed per shift.  
It is best to fill all the shifts first and then additional docents may be added on any one shift.

## **Your Commitment**

Regular volunteering helps you to be a better, more knowledgeable docent. As a member of this docent team, you have committed to volunteer regularly in the docent role an average of twice per month throughout the season. Docents also commit to attending enrichment training sessions throughout the year.

## **Online Scheduling of Shifts**

Use the online calendar to schedule your volunteer shifts. You are encouraged to select a regularly scheduled time slot. Both staff and your fellow volunteers rely on you to arrive as scheduled.

If you must cancel:

# Meadow Garden Docent Team Policy and Procedures

Please take your name off the online calendar as soon as you know you need to cancel your shift. If you are unable to work your shift at the last minute due to an emergency, also please email Paula Kunkel at [pbuterakunkel@longwoodgardens.org](mailto:pbuterakunkel@longwoodgardens.org) or call 610-388-5354.

## To **view** the online calendar:

Option 1 Log on to our Website: [www.longwoodgardens.org](http://www.longwoodgardens.org).

Click on JOBS AND VOLUNTEERING on the bottom bar.

Click on CALENDAR in the left column.

In the center of the screen, you will find the list of all the volunteer calendars and you can select the "Meadow Garden Docent Team".

When the calendar opens you can select your date.

Option 2 Direct link to calendar - Bookmark or save the direct link

Meadow Garden Docents <http://our.calendars.net/lwg/mgdocents>

You can add this as a link under favorites on your homepage.

## To **add** your name to the online calendar schedule

Logon to the calendar using the instructions listed above.

Click on the date (the actual date #).

Click on CREATE and enter 3 pieces of information when adding your name to the calendar:

- Your first name and the initial of your last name should be entered into the field titled "Calendar Text". Always create a new entry and don't add your name to someone else's entry.
- Choose the start time of your shift and choose AM or PM.
- Choose the end time of your shift and choose PM.

Click on SUBMIT in the lower left corner of the box.

Click on VIEW CALENDAR to see your entry on the Calendar.

## To **Remove** yourself from the online calendar schedule

Logon to the calendar using the instructions listed above.

Click on the date (the actual date #).

Click on the EDIT button next to your name

Click on the DELETE button at the bottom of the box

This should remove your name

# Meadow Garden Docent Team Policy and Procedures

## **Volunteer Policies**

### Attire

We ask that you present a neat, professional appearance at all times while volunteering at Longwood. Docent attire is a green Longwood polo shirt (short or long sleeve) skirt, shorts or pants; and comfortable walking shoes, or sneakers. Light colored pants will help you to see any insects which may cling to your pants.

Remember to wear your Longwood nametag, on the right side lapel area. Longwood logo apparel items such as hats, sweatshirts, and jackets are available for purchase at our Uniform Shop.

### Cell Phone Use

We encourage you to carry your cell phone for emergency needs only with the volume turned off. Please refrain from using your cell phone to send or receive personal phone calls or texts during your shift as this is not a welcoming signal to guests. Please set your phone on vibrate if you bring it with you. If you do need to use your phone for an emergent situation, always step out of the public eye to take your call. Remember you are an ambassador of Longwood and are “on stage” while volunteering.

### Food or Meals

Volunteers should eat before or after their shifts. If for personal reasons you need to eat or have a snack during your shift you should bring a lunch and eat it out of public view. Anyone who wishes to take advantage of their volunteer benefit of a discounted meal at the Café should do so before or after their shift.

## **Your Volunteer Shift**

Be prepared - Review your notes and updates before coming in. Be sure to read email updates and also check for updates or any highlights posted in the volunteer room.

Try to arrive at fifteen minutes early for your shift to allow time to get to the Meadow Volunteer Room, get oriented and updated on daily events and highlights, and connect with your fellow docent. Stop by the Peirce-du Pont House desk to check on Shuttle status and other updates.

Discuss with your fellow docent where each of you will start your shift and when you would like to change locations. Docents will generally roam between the Hourglass Lake Pavilion and the Forest Edge Pavilion. If you arrive before a fellow docent and want to get started leave a note letting your partner know where you will be working so they can choose another location. Don't work next to each other but spread out so you can contact more guests.

# Meadow Garden Docent Team Policy and Procedures

## Sign In

The Meadow Docent Team Sign-in Book will be on the table in the Meadow Volunteer Room. PLEASE PRINT your name on the sign-in sheet legibly so your hours can be credited and turned into volunteer coordinator Sally Kutyla at the end of each month.

## Supplies

Supplies will be stored in the locked cabinet in the Meadow Volunteer Room. The key will be stored in a black magnetic key case attached to the back of the cabinet. Please lock the doors. Volunteers will need to check out certain items such as backpacks, binoculars and books using the supply log book.

- Backpacks will be available for you to use to carry interpretive props, maps, radios, etc. You may also use your own personal backpack.
- Supplies you carry include:
  - Garden Maps - Please remember to always carry a map.
  - Laminated meadow map
  - Radio & laminated radio directions
  - information request forms
  - Laminated image flipbooks, Binoculars, magnifying glasses, guidebooks and other interpretive props of your choice
  - Bee sting kits, Band-Aids
- Umbrellas will be available for inclement weather or very hot days.
- Backup supplies of sunscreen and bug spray will be available. We do encourage you to apply those products as needed at home before leaving for Longwood.

Before you leave, please put any props or supplies neatly away and lock the cabinet. Turn the radio off and place it in the charger base.

You may leave your coat stored in this room during your shift. This room is used by others and is not locked so do not leave any valuables there.

## **Staff Assistance and Support**

### Guest Service Associates (GSAs)

There will be one GSA stationed in the Meadow and East Gardens. By radio contact, a GSA can be reached on the Guest Services channel.

Guest Service Associate Staff:

- Enforce and encourage good garden etiquette
- Are your first contact for guest assistance
- Support the Gardens operationally including assisting with Shuttle service and placing of signs
- Keep you informed of daily updates and Gardens information
- Welcome and inform guests
- Assist with way finding – helping guests to find garden locations and highlights

# Meadow Garden Docent Team Policy and Procedures

## Security Staff

Security handles emergency and medical care situations, drives the Meadow Shuttle, and provides security throughout the Gardens. Security staff members are trained in basic first aid and have a portable First Aid kit with all the essentials. They may travel by bike, on foot or by vehicle depending on where the need is.

## Garden Etiquette

If you see guests damaging plants, exhibit items or doing things that might cause harm to themselves or others gently try to redirect their behavior. You are not responsible for discipline but sometimes a comment delivered positively can help turn a situation around. Redirect negative behavior in a polite, friendly, firm but non-aggressive manner – make your statements general, not personal, and avoid the use of negative words such as don't and "you". Use your engagement skills to talk about the value of an old tree or beautiful plant, or change behavior by talking to guests and directing their attention to an interesting aspect of the Meadow. Security on duty can be contacted when you feel you need staff assistance

## **Volunteer Radio Use**

You will carry a radio during your shift so that you can contact Guest Services or Security staff if necessary to help a guest, for Shuttle service or in an emergency situation. Security and staff will also use the radio to transmit any information about severe weather or missing persons. Keep the radio turned low and kept on the SECURITY channel. You can contact GSA staff on "GSERV" and security staff on "SECURITY"

Remember to keep your conversation calm, short and to the point. Do not use any guest names.

What you say is heard across the Gardens.

## Directions for using the radio:

1. Turn the radio on and adjust the volume by twisting the short knob on top of radio.
2. Twist the tall knob on top of radio to select your channel. The radio view window will show you what channel you are on. *Check to make sure there is no small circle icon in the view window which means you are on scan. If there is a circle icon, push the small "s" button so it disappears.*
3. Press and hold the large flat button on the left side of the radio to speak.
4. Identify yourself, your location and identify who you are calling. Example "I am a volunteer at the Lookout Loft (no names are needed) and explain briefly why you are calling. Example: "I have a guest who has fallen". "I have a child who has lost his mother. " Over"
7. Remember to release the button to hear a reply so you can provide more information.



# Meadow Garden Docent Team Policy and Procedures

## Calling for Meadow Shuttle service\*

\*On spring, summer, and fall moderate to busy attendance days, the Meadow Shuttle will run continuously from noon until 6pm / dusk (whichever occurs first). When the Meadow Shuttle is running continuously, simply direct the guest to the Meadow Shuttle boarding area.

1. Radio must be turned on and set on the "Security" channel. The word "Security" will appear on the radio display screen.
2. When there is a quiet break in communication, depress the send button and state the following:  
"This is a volunteer in the Meadow. A guest is requesting shuttle service. They will wait at the shuttle boarding area."
3. If the group has a non-motorized wheelchair, please also indicate this – "They will require wheelchair transport."
4. Release the button and wait for acknowledgment.
5. Once Security has acknowledged they are activating the shuttle, direct guests to wait at the Peirce-du Pont House Garage shuttle boarding area.
6. Inform guests that the wait may be up to 30 minutes and to not leave the boarding area as they may inadvertently forfeit their position in line to another guest.

## **SECURITY, FIRST AID AND EMERGENCY INFORMATION**

Phone: 610-388-5222

Radio: SECURITY channel

**No matter how minor or major a situation may appear, the first and only thing to do is to notify a staff person.**

GSA staff - Your first contact and they can call for additional staff help if needed

Security staff - the next level of emergency assistance for you. They are trained EMTs and can help in more serious situations. Security will respond as quickly as possible to the scene. Security staff is trained in basic first aid and will have a portable First Aid kit with all the essentials. If the injury requires more care, they will call an ambulance and have the guest taken to the nearest hospital or appropriate care facility. No matter what level of attention or care is provided, Security staff then complete a full report on the situation.

The volunteer role is to try to comfort or calm the guest(s) until appropriate staff arrives. Any information you can collect from the guest is helpful, but please don't discuss such things as why or how the incident occurred or the frequency of similar incidents.

# Meadow Garden Docent Team Policy and Procedures

## **First Aid**

Volunteers should not administer first aid. Our security team is well equipped and responsible for all first aid.

**If you witness a minor incident** (for example, a bumped head), politely offer to get assistance for the guest. If they refuse, discreetly contact security so we can document the incident and follow up as necessary.

## **Bee stings**

Volunteers in the Meadow can carry bee sting kits. If a guest is stung, the first thing to do is call security on the radio. You may then offer the guest a bee sting kit to administer themselves. Keep the guest with you until security arrives. Beestings are all documented. Even when a guest believes they are not allergic, they may still be at risk. Security is notified so they can come and document the incident.

**Band-Aids** You may give a guest a Band-Aid but do not apply the Band-Aid.

**If a guest is struggling to walk, or appears weak:** Help them to a seat if possible. If they are on the Meadow Boardwalk or other scooter/wheelchair accessible areas offer them the use of a wheelchair. Use the radio or phone to call the GSA team for assistance as needed. The GSA team or Security can bring you a wheelchair or (if available) a scooter for the individual. Note: there is a \$25 fee for using a scooter and wheelchairs are free out in the Gardens. Scooters, wheelchairs and strollers are free for members. Please ask the guest to return the wheelchair to Guest Services in the Visitor Center as they leave the Gardens.

**In a critical emergency** such as a suspected heart attack or other serious issue please call 911 and then Security by radio or phone at 610-388-5222. Security will direct the emergency care to the correct location.

## **Lost Guest /Missing Persons**

If you are told by Longwood staff (or hear over the radio) of a lost person your role is to be extra eyes and look for the lost person within your area. If you find the missing guest, contact the security staff on SECURITY on your radio or use your cell phone and notify them of the situation. Keep the guest with you so they can be reconnected with their party.

If you are approached by a guest with a missing / lost persons situation stay with the guest: Remain calm and reassure the guest that all will be resolved shortly. Contact the security staff on SECURITY on your radio or phone and notify them of the situation. Once staff arrives, introduce them to the missing guest and then step out of the situation, letting Longwood Staff take over.

# Meadow Garden Docent Team Policy and Procedures

## **Lost and Found Items**

Lost items are to be collected and left at the Peirce-du Pont House or Webb Farmhouse. The Guest Services Associates Team or Security Personnel will take the items to the Guest Services Desk in the Visitor Center. Guests may pick up their items there.

## **Severe Weather and Inclement Weather Policy**

This is a rain or shine position. Come prepared for the days' weather with sunscreen, a hat, raincoat or warm jacket. If it is lightly raining then you should do your best to remain on duty as some guests will be persistent. In the case of severe weather, very high temperatures, or heavy downpours you may get an email advising you to stay home. If the weather is spotty during your scheduled shift, with storms or rain passing through, take cover in the Peirce du Pont House, Webb Farmhouse or nearest shelter until the storm passes. Please note that the Meadow Garden Pavilions and nearby treehouse are not approved or safe shelter areas during an electrical storm.

## **Severe weather communication on site**

Keep your eyes to the sky and be aware of potential weather issues. Security and GSA staff will direct you during a Severe Weather situation. During a "Severe Weather Alert", staff will perform rounds of the garden and will evacuate guests to shelter. On a potentially stormy day keep your radio on and turned to the GSERV channel.

When a lightning storm enters a 20 mile radius to Longwood Gardens, the Meadow Garden will be cleared by GSA and Security staff. Guests will be directed to the closest designated shelter.

## **Shelter Areas for guests**

- Webb Farmhouse & Galleries
- Pierce-du Pont House
- Terrace Restaurant
- Restrooms near the Italian Water Gardens
- Conservatory
- Visitor Center

The four Meadow Garden Pavilions are not safe shelter areas and should not be used as such.

A public address system is located in the Main Fountain Garden Control Tower and portable megaphones are located in each mobile security unit. Using this equipment and radios, security staff will inform guests and other staff of the need to evacuate to a shelter area.

Your role in a weather emergency is to direct nearby guests to the Webb Farmhouse or Pierce-du Pont House, get to a safe location yourself and to listen and share updates on the weather as they become available. All greenhouse spaces, except the Rose House, have "safety glass"

# Meadow Garden Docent Team Policy and Procedures

and ALL are grounded against lightning strikes. Encourage guests to get comfortable inside while waiting for the situation to pass. Volunteers can shelter in the Volunteer Break Room.

Severe weather includes lightning / thunderstorms, tornados, high winds, hail, blizzards, or other conditions that require shelter or evacuation. Staff will inform guests of the chance of severe weather if there is a high risk forecasted for that day.

## **Guest Information**

### **Drinking Fountains**

There are drinking fountains in the Webb Farmhouse, near the front porch of the Peirce-du Pont House, and at the Italian Water Gardens.

### **Food and Drink**

Picnicking or bringing in any outside food or beverages (except water and light snacks), is discouraged. Guests may carry a drink or snacks for children or those with medical needs. Meals should be eaten in the Café.

### **Restrooms**

There is one restroom in the Webb Farmhouse. For guests near the Hourglass Lake the closest restrooms are near the Italian Water Garden. For guests in the east part of the Meadow both the Terrace Café and the Open Air Theatre area have restrooms.

### **Scooters and strollers**

Charging scooters

There are two scooter charger stations near the Meadow. One is located behind the Pierce-du Pont House garage and one is located behind the Hourglass Lake Pavilion.

Scooters and strollers of any kind are not allowed on the Shuttle, but must be parked. Guests are discouraged from taking Longwood Scooters and strollers out into the Meadow. These vehicles may break down in the Meadow garden and paths are very uneven. If a guest insists on going into the Meadow Garden discretely contact the GSA and security staff to make them aware of the situation. Guests are encouraged to use the Meadow Boardwalk and accessible path. Guests with personal scooters and strollers are encouraged to use the Meadow Boardwalk and accessible path. Some guests may choose to take their personal strollers onto the grass paths.

### **Webb Barn and Houses**

The Webb Barn and nearby houses are private Longwood property and not open to guests. If guests ask please encourage them to respect the privacy of those who live on the property.

# Meadow Garden Docent Team Policy and Procedures

## **Meadow Shuttle Information**

The Meadow Shuttle is available every day the Meadow Garden is open. The Meadow Shuttle operates from noon until 6pm / dusk (whichever occurs first), transporting guests between the Webb Farmhouse & Galleries and the Peirce-du Pont House Garage. Meadow Shuttle operation may occur during rain, but is weather dependent and will not operate during lightning, snow, ice, or similar weather situations. Daily announcements will be made by Security and GSA staff when the Meadow Shuttle is both operating and ceasing operation.

Guests who travel round-trip to the Webb Farmhouse & Galleries should plan on a minimum of 90 minutes to explore the space.

There are two Meadow Shuttles, and one is wheelchair accessible. (Please note: due to weight capacities, only non-motorized wheelchairs may be accommodated. Motorized mobility devices cannot be transported.) One Meadow Shuttle can seat up to 14 guests at one time. The other shuttle can accommodate a guest in a non-motorized wheelchair. This shuttle seats up to 11 guests and up to 7 guests when a wheelchair is being accommodated. Longwood scooters and Longwood strollers are not permitted on either shuttle. Personal baby strollers and motorized mobility devices are not permitted on either shuttle. A Longwood Scooter and stroller parking area are located at the Peirce-du Pont House Garage shuttle boarding location. A wheelchair is available for guest use at the Webb Farmhouse & Galleries.

## **Shuttle Operation**

The Meadow Shuttle will primarily operate continuously, providing transportation between the Peirce du Pont House Garage and Webb Farmhouse locations. When the Meadow Shuttle is operating continuously, guests should be directed to the boarding locations.

The Meadow Shuttle will depart the Peirce du Pont Garage approximately on the half hour and hour, and the Webb Farmhouse approximately on the quarter and three-quarter hour. There are no stops between the two departure points.

On slow days, Meadow Shuttle service may be on a “by request” basis. The Meadow Shuttle driver will make this decision and inform the GSA team members. The Meadow Gardens and Webb Farmhouse GSAs will inform the volunteers, docents and other staff that the shuttle is operating “by request.” To request a shuttle at that time, all volunteers and staff will contact Security using a Longwood radio, communicating over the “Security” radio channel. Direct the guests requesting shuttle service to wait at the Peirce-du Pont House Garage boarding area. The shuttle may take up to 30 minutes to become active and will provide shuttle service on a first-come, first-served basis.

# Meadow Garden Docent Team Policy and Procedures

A Guest Service Associate (GSA) will support the Meadow Shuttle operations when running. Volunteers will be notified by staff when the Shuttle is running continuously, and when the Shuttle is not running but available by request.

Round-trip shuttle travel takes 30 minutes and guests should be aware they may have to wait 15 to 30 minutes for a pick up since the Shuttle will often be in transit. They should also be aware that if there is a line they will have a longer wait. Guests can be encouraged to enjoy the accessible Meadow boardwalk or take their time walking to the Webb Farmhouse as an alternative to waiting.

## **When Shuttle Service Is Continuous**

If the Shuttle is already running continuously, guests can be directed to wait at the shuttle boarding area located on the Meadow Garden side of the Pierce-du Pont House Garage. Shuttle transport is first come, first served and guests may be required to wait in a line.

## **Shuttle Boarding Stops**

Location 1: The Meadow Garden side of the Pierce-du Pont House Garage. This boarding location has a scooter and stroller parking area, a charging unit for Longwood scooters, and Shuttle information signs.

Location 2: Outside the Webb Farmhouse & Galleries

Some guests may only hike or walk one way and like a ride back. If the Shuttle is operating on a continuous loop they can wait at the shuttle boarding stop located on the shuttle turn-around loop. If the Shuttle is not operating on a continuous loop then volunteers and staff in the Webb Farmhouse can request shuttle service by radioing Security. See instructions above.

Guests should be aware they may have to wait 30 minutes or more for a pick up since the Shuttle will often be in transit and it is dependent on the number of guests waiting. Guests should wait near the benches located at the Webb Farmhouse Shuttle boarding area.

# Meadow Garden Docent Team Policy and Procedures

## Your Resources and Guest Questions

Answer questions to the best of your knowledge and ability. If you do not know an answer to a question, it is OK to say so. “Hear-say” and “old stories” are not appropriate information to share with guests, since they cannot be substantiated and often times are not true! If guests have a question you cannot answer you can do one of several things:

- Guests can submit any question via our website: [questions@longwoodgardens.org](mailto:questions@longwoodgardens.org)
- Encourage them to take a photo of a particular plant they may have a question about so they can include it in their email or “Google” the answer themselves on the computer.
- Politely ask a nearby gardener who may know the answer.
- They can submit a Longwood Horticulture information form which will be available in the volunteer room. Please try to carry these forms with you in the apron. Leave completed forms in the Questions basket in the break room.

## Resources –

Docent documents– review at home

Garden Highlights – check our website under Gardens

Heritage Exhibit in the Peirce du Pont House – excellent source for history questions

Library – you may take books out of the Longwood library or browse there

Blog - <http://longwoodgardens.wordpress.com/> great source of interesting stories

Staff – staff are happy to help but be respectful of their time

Website – [www.longwoodgardens.org](http://www.longwoodgardens.org) lots of information is found here

# Tips for helping guests explore the Meadow Garden

The Meadow Garden offers an opportunity for every guest to enjoy the natural beauty of the Meadow. It is an ever-changing experience from season to season. We can encourage guests to stop for a quick look, take an easily accessible walk, or hike to a new spot in the Meadow each time they visit. Many guests will find their own path to enjoy, or we can assist guests by sharing the many ways they can enjoy the Meadow Garden. Guests can be directed according to the amount of time they have to spend, their physical capabilities and their interests. Our Meadow Garden is on view every day, weather permitting. Guests are invited to wander through the 86 acres of our Meadow during Gardens hours and on open evenings until dusk.

## Things to consider when helping a guest

- Do they want to explore on their own? The maps located along the trails and paths will help them easily find their way. You can simply direct them to the entrance of the Meadow Garden.
- Be aware we do not want to limit any guest's experience. They alone can decide what experience is perfect for them. We can only offer carefully thought out tips and suggestions.
- If they want a suggestion of what to see, first determine how much time the guest has. You will want to recommend an activity which fits their time frame. Let them know how much time the different walk and hike options listed on the following pages might take.
- Do they have strollers or wheelchairs in their party? You can let them know that most paths are grass paths, with uneven surfaces and changing terrain. The Meadow Boardwalk is a fully accessible option they might find easier to navigate.
- Do they like to hike? Or do they prefer an easy walk? There are many benches and shaded pavilions throughout the Meadow Garden. These help to make a walk or hike more enjoyable as guests can sit and rest along their journey.
- If they would like to take a hike you can help them by describing several options as well as what they might see along the way using the descriptions below.
- What would they like to see? Do they want to see a particular feature? Hawk Point is great for bird watching. Pollinator Overlook offers a large variety of pollinator attracting plants. Water views can be found along several paths. Birds and wildlife are most active in the early morning and evening hours.
- Are they prepared to hike? Observe what they are wearing. Due to varying terrain and pathway surfaces, many areas of our Meadow Garden are accessible by foot only. Someone in high heel shoes may not enjoy hiking along grass paths, but might enjoy the boardwalk.
- You can also recommend that before taking a long hike, guests fill their water bottle at a nearby water fountain. Fountains are located close to the Peirce-du Pont House porch and brick patio, at the Cafe or near the Italian Water Garden. They can also refill at the Webb House before they walk back.
- Make them aware of any imminent weather issues before they start out on a walk or hike.
- Guests should stay on pathways to protect fragile plants, soil and wildlife. This will also limit their exposure to ticks and poison ivy which may be in the plantings, woods edge and grassland areas. They should thoroughly check themselves and their clothing for ticks after leaving the Meadow. They should also not enter the stream or lakes.



# Tips for helping guests explore the Meadow Garden

## At the Pierce-du Pont House

Use the laminated Meadow Garden map with highlighted trails and the guest's own paper Longwood map to illustrate the options to our guests. You can circle or mark the various paths or pavilions they may enjoy.

### For guests who would like to visit the Webb Farmhouse & Galleries:

The Webb Farmhouse & Galleries offers panoramic views of the meadow valley from its patio and an immersive exploration of the Meadow Garden inside. Guests will also find water and restrooms there. It is about a 1.25 mile walk from the main Meadow Garden entrance to the Webb Farmhouse depending on the route they choose. Guests may choose to take the Meadow Shuttle (when it is operating) up to the Webb Farmhouse & Galleries and walk back as this walk is nearly all downhill.

Guests can access the Webb Farmhouse & Galleries via the Meadow Boardwalk. Once they reach the Hourglass Lake Pavilion there are paths which lead toward the Webb Farmhouse. Guests without restricted mobility are encouraged to explore by foot and stop to rest at one of our many benches or pavilions. From the Hourglass Lake Pavilion the East Meadow Hike is a great option to recommend. Most guests will find the walk to the Webb Farmhouse & Galleries to be an hour+ long hike from the main Meadow Garden entrance.

#### East Meadow Hike

Guests walk past Hourglass Lake, over the Earth Bridge and past a large specimen American Beech; *Fagus grandifolia*, while heading toward Hawk Point for a stop at this great bird viewing overlook. The Webb Farmhouse is just a 10 minute walk from Hawk Point. Guests can return along the northern path which meanders down to the beech forest and Beech Boardwalk. The path continues along an the old Route 52 roadbed and shallow creek surrounded by wetlands on their way back to the Hourglass Lake Pavilion.

- This path is highlighted on the Meadow Garden map in orange.
- Distance: roundtrip approximately 1 mile (about 50 minutes) from the Hourglass Lake Pavilion
- Terrain: varied terrain, grass trails slope upwards with a moderate incline to the Webb Farmhouse and back down toward the creek and roadbed.
- Habitat: dry and wet meadow, wetlands, forest and large specimen white oaks

### For those who are physically unable to walk to the Webb Farmhouse & Galleries

Upon guest request, a shuttle will be available every day the Meadow Garden is open, operating from noon until dusk and shuttling guests between the Webb Farmhouse & Galleries and the Peirce-du Pont House Garage. The shuttles can accommodate a maximum of 7 - 10 people at one time and priority will be given to visitors with restricted mobility. One shuttle is wheel chair accessible.

Volunteers and staff will be notified by radio if the shuttle cannot run due to weather or other unforeseen circumstances.

# Tips for helping guests explore the Meadow Garden

Guests should wait behind the Pierce-du Pont House Garage. Please let the guests know that the shuttle may take up to 15 minutes to arrive. Guests who travel round trip out to the Webb Farmhouse & Galleries should plan on a minimum of 90 minutes to explore the Galleries and travel back and forth.

## Other Walks and Hikes to recommend

**For guests with limited time you can suggest the following two options:**

1. Meadow Garden entrance path behind the Peirce-du Pont House

A short two minute walk takes guests to the Meadow Garden entrance with picturesque views toward the Webb Farmhouse & Galleries. Guests can take the ramp or stairs down to an open area with benches for seating. From here they can also access the Lookout Loft Treehouse and some of the varied trails of the West Meadow. Surrounding plants and trees in the woodland edge habitat create a cool oasis and feature ferns, native early blooming wildflowers, rhododendrons, and oak leaf hydrangeas as well as beech, dogwood, red maple, tulip and redbud trees for spring and fall color.

— Terrain: boardwalk and walking path is suitable for all guests. The gentle grade is wheelchair and stroller accessible, partially shaded

2. The Meadow Boardwalk

Guests can enjoy our fully accessible Meadow boardwalk. This path allows guests to view a wide variety of meadow landscapes from the comfort of an elevated boardwalk and crushed granite path. This path provides expansive views of the woodland edge, the nearby Meadow grasses and plantings, the Meadow and Hourglass Lake Bridges, and crosses Hourglass Lake to the Hourglass Lake Pavilion. Guests can learn more about the plants and wildlife around them from the interpretive signs along the way.

— This walk is highlighted in yellow on the Meadow map

— Distance: 1/3 mile one way (about 10 -15 minutes)

— Terrain: boardwalk and walking path is suitable for all guests. The gentle grade is wheelchair and stroller accessible, partially shaded

— Habitat: Woodland edge, Meadow edge, Wetland and Ponds

**For guests who would like a short level hike you can recommend the following:**

Meadow Valley Walk

This easy walk starts near the Hourglass Lake Pavilion. Guests walk along the edge of the Hourglass Lake and take the second left to walk along the original Route 52 roadbed which has been transformed into a grassy walking path. After crossing the picturesque shallow creek via Beech Forest Boardwalk guests return along a slight incline, passing the site of an old quarry, wetlands and spring house before returning to the Hourglass Lake Pavilion via the beautiful Avondale fieldstone Earth Bridge. Along the way guests will see native wetland plants, American holly, and stands of mature beech and oak trees. These plants and features were hidden by the old road and are now accessible for all to enjoy in this expanded native wetland

# Tips for helping guests explore the Meadow Garden

habitat.

- This path is highlighted on the Meadow Garden map in green( TBD)
- Distance: 3/4 mile round trip (about 40 minutes)
- Terrain: nearly flat, grass paths and boardwalk
- Habitat: creek and wetland, and large specimen white oaks

## **For those who like a longer hike you can recommend the following:**

### The Outer Meadow Garden Hike

This all-encompassing hike winds along the outer edges of the Meadow offering panoramic overviews of the meadow plantings, quiet corners for contemplation and a unique opportunity to enjoy the Brandywine Valley landscape. With stops at all the Pavilions, the Webb Farmhouse, Beech Boardwalk, and Meadow and Earth Bridges, guests can explore the complete Meadow. Each location has features which highlight different elements within the Meadow. Throughout the varied terrain guests can experience many varied habitats including the transitional woodland edges, meadow grasslands, wetlands and lake.

- This path is highlighted on the Meadow Garden map in blue
- Distance: 1.8 miles roundtrip
- Terrain: primarily grass trails with short boardwalk sections-- with varied terrain, bridge crossings, rolling hills and some steep areas.

# Meadow Garden Overview

## Topics

- Introduction
- Meadow Garden design
- Meadow Garden features
- History
- What is a meadow ecosystem?
- Sustainability
- Plantings
- Meadow wildlife and insects
- Definitions

## Introduction

The Meadow Garden blends colorful native plantings and inspiring vistas with the best practices in land stewardship. It was designed by Jonathan Alderson Landscape Architects, Inc. to highlight the unique topography and to showcase this crucial part of the region's ecology and history. The Meadow Garden expansion from 40 to 86 acres offers an engaging ecological and cultural experience for all who visit. The interpretive design of the Meadow Garden, which includes a series of architectural bridges and pavilions, a path system and interpretive signage and maps along the way, offers every guest an opportunity to experience and understand the beauty of a Meadow.

The Meadow Garden is a crucial part of the region's ecology and history. Humans have shaped this land over time from eastern deciduous woodland to the Meadow of today. The land which was previously divided by Route 52 is now one continuous habitat. The new ecological design highlights this layered ecosystem and showcases the important relationship between plants, people, wildlife, and landscape.

## Why did we create the Meadow Garden?

- To offer guests an unparalleled opportunity to experience an American meadow landscape and revel in the beauty of the Brandywine Valley.
- Environmental stewardship is core to Longwood's mission. The management of the Meadow Garden is guided by our Soil to Sky Land Management Plan and is a part of our institution-wide sustainability efforts.
- Ecological impact. The expanded size of the Meadow Garden plays a critical role in the region's ecology--large fields and meadows are disappearing due to development, making this a rare and invaluable habitat. By doubling the size of the Meadow, we have increased the potential of creating habitats and migratory stops for a variety of species.
- To showcase and interpret the beauty of native plants and plant communities. By raising the awareness of the beauty and variety of native and naturally reproducing plants we can help guests understand how they can become better stewards of their own land.
- To provide inspiration to those looking for best practices in stewardship for their own land or community.

# Meadow Garden Overview

## Meadow Garden Design

The Meadow Garden was designed by Jonathan Alderson Landscape Architects, Inc. with input from the Longwood Meadow Garden Design committee and other design professionals. It highlights the unique topography by creating defined spaces throughout the Meadow Garden where guests can journey through multiple experiences within the evolving meadow.

The design highlights the **successional edge** between forest and meadow (*see Forest Edge Pavilion on page 4*). This is a unique stage in the constantly evolving meadow landscape. Sweeps of colorful native plug plantings highlight the landscape (*see Planting facts on page 7*), including a wet meadow, upland ridge, and successional edge. These plantings will increase plant diversity in the larger meadow, which is significant for a healthy ecosystem and for increasing pollinator species.

The design of the architectural bridges and pavilions located throughout the Meadow Garden was inspired by the Brandywine Valley vernacular, (local traditions in architecture and use of local structural materials such as Avondale stone). A path system provides a variety of unique vantage points across the varied topography and habitats.

### Local Artisans

Environmentally friendly and locally sourced materials are used throughout the meadow. The benches are constructed from fallen trees from Longwood property, much of the hardscape features locally sourced Avondale stone, and the plant material was grown in nearby native plant nurseries (North Creek and New Moon Nurseries). Local masons, carpenters, blacksmiths, and other contractors worked to handcraft the pavilions, stone work, bridges and decorative gates throughout the landscape.

## Features of the Meadow Garden

### New or Reconstructed Bridges and Boardwalks

- Meadow boardwalk - this introductory walkway of mostly elevated boardwalk is also wheelchair and stroller accessible. It runs along the southern edge of the Meadow Garden from the main entrance to Hourglass Lake and offers beautiful viewpoints overlooking the Meadow as well as interpretive signage along the walk to enhance the guest experience.
- Meadow Bridge – an interpretive bridge in the center of the East Meadow highlights the composition of the Meadow Garden as a full sensory experience. The seating design facilitates educational activities for groups such as scouts or schools.
- Earth Bridge – native plants and turf carry the Meadow across this bridge from Hourglass Lake to the newest parts of the Meadow Garden. This bridge crosses a tributary of the Pocopson Creek and leads to the East Meadow and the Webb Farmhouse.
- Beech Forest Boardwalk – this boardwalk crosses the area of the original roadbed for Route 52 and the tributary of Pocopson Creek, and takes guests along a beautiful beech forest, shallow creek and varied wetland habitat
- Hourglass Lake Bridge – this bridge reflects our covered bridge heritage, interprets the

# Meadow Garden Overview

wetland habitat surrounding the bridge and provides great views of the Hourglass Lake.

## 3 Miles of Walking Trails

- Many handcrafted benches are located along all the paths for rest and contemplation.
- Trails run through changing Meadow terrain of rolling hills, wetlands and woodland edge which all slope downward toward the small creek in the center of the meadow valley; a part of the Brandywine watershed. This unnamed tributary runs from the Hourglass Lake to the Pocopson Creek.
- The Hourglass Lake is now accessible from many vantage points via the new trails. Green herons, wood ducks, painted turtles, many species of frogs, sunfish and largemouth bass can be found here. This man-made lake is not currently stocked.
- The old roadbed of Route 52 has been transformed to paths running along native and reconstructed wetland in the area where Route 52 used to bisect the Meadow. The nearby area is now a sunny wet meadow habitat which suits non-woody plants which thrive in sun and wet soil. Spring peepers can be heard here.

*Note:* All lakes or ponds in southeastern Pennsylvania are man-made. There was no glacial action in this part of the country to create lakes. This lake collects rainwater via the land contours and has a small spring which also feeds it.

## Four Learning Pavilions

(Hawk Point, Pollination Overlook, Hourglass Lake, and Forest Edge) tell the story of the meadow ecosystem; each from a different viewpoint or focus.

- Hourglass Lake Pavilion – This is the closest of the pavilions and accessible by all guests including those in wheelchairs, strollers and scooters. This picturesque spot offers outstanding views of the Meadow Garden and Webb Farmhouse and serves as the launching point to further exploration. Longwood's Soil to Sky land stewardship story is described and an accessible spotting scope nearby offers an invitation to explore. It's surrounded by a wide variety of meadow and woodland edge plantings.
- Forest Edge – This pavilion which is close to the main Meadow entrance and Lookout Loft Treehouse explores the "successional edge" habitat between forest and meadow and the relationship amongst its inhabitants. It focuses on the trees, plants and wildlife that reside along the boundary between the two habitats. The neighboring forest to the west, the Forest Walk, is 150 years old and grew up from abandoned pasture. The woodland directly north of the Forest Edge was planted as seedlings in the early 1980's (see History, p.9).
- Pollinator Overlook – interpretation here is focused on the relationship between native plants and pollinators highlighting the host plants that attract each pollinator and the importance of having these plants available for our pollinators. The story of the native mason bee is highlighted with an active mason bee lodge. Pollinator host plants and nectar plants surround this overlook which is backed by 150 year old majestic beech trees.
- Hawk Point – located at one of the highest elevations in the Meadow Garden, this location is perfect for bird watching, and learning about and identifying the birds of the Meadow Garden. A bird scope and bird silhouettes are among the tools guests can use to look for turkey vultures, swallows, blue birds and red tail hawks among others.

# Meadow Garden Overview

## Webb Farmhouse & Galleries

- The selectively restored Webb Farmhouse is an excellent example of 1700s Chester County farmhouse architecture and design.
  - William Webb is the probable builder of this house.
  - The overall proportions of the house and its architectural details are characteristic of 18<sup>th</sup>-century farmhouses in the region. The house was built in two stages - the eastern part was constructed in the early eighteenth century and an extension was added to the west more than five decades later.
    - John Milner Architects, a local firm, led the selective restoration of the farmhouse. The exterior of the house was restored to reflect its appearance at the end of the eighteenth century after the western addition.
    - The first floor of the interior of the house was adapted to serve as gallery space for interpreting the Meadow.
    - Two unique exhibitions have been created:
      - The West Gallery depicts the Meadow Garden through the seasons. Imagery, illustration, sculpture, and herbarium specimens capture the complexity and nuance of seasonal life in the Meadow and the constant element of change.
      - The East Gallery, which is the oldest section of the House, has been selectively restored to feature the original, large cooking fireplace that was “the heart of the house”. The story is interpretive with a salon-style timeline of maps, historic imagery, and illustration to highlight the evolution of land over time, including those who lived on this land.
- A gallery guide helps to self-direct guests, an exhibit library offers further exploration on a number of these themes, and a herbarium welcomes guests to look closely at Meadow plants.

*Note:* The Webb Barn, buildings and surrounding land south of the Webb Farmhouse are owned by Longwood and are not currently open to the public. After Pierre du Pont bought this land he demolished the original barn and built this barn on the Webb farm in 1919. He moved his dairy operations here in 1928. This was the site for Longwood Farms until the 1950s. The buildings now serve various purposes in Longwood operations.

## **History**

This land has changed dramatically over time, responding to the forces of nature and to the needs of society. The Meadow Garden was once heavily wooded, with only small clearings where Native Americans planted their crops – it was a different landscape than we manage today.

In the 1600’s woodland covered much of this area, and 97% of Pennsylvania (translated as Penn’s Woods) was forested.

# Meadow Garden Overview

In the 1700's early settlers cleared the land for farming. The Webb family purchased this land in the early part of the 18<sup>th</sup> century. Early settlers, like Webb, used the land to grow crops and raise livestock.

In the first part of the 20<sup>th</sup> century agricultural practices increased under the leadership of our founder, Pierre S. du Pont, who purchased the land. He maintained orchards, expanded the dairy and raised prize winning cattle and livestock. Pierre du Pont officially discontinued Longwood Farms in 1951. As farming ended in the 1950's, the land was transformed again into a simple grass meadow.

In the 1970's the original western grass meadow was developed into a meadow of diverse native species which supported a thriving and varied ecosystem.

In the 1980's the forest at the north side of the meadow was planted as young seedlings, to serve as a visual and noise buffer, and to frame the meadow landscape.

## What is a meadow ecosystem?

A **meadow** is a field **habitat** vegetated primarily by grasses and **non-woody** herbaceous plants. Meadows have ecological importance because their open, sunny areas attract and support a flora and fauna which couldn't thrive otherwise. They often host a multitude of wildlife and a wide array of wildflowers that makes them of utmost importance to insects and bees, plant pollination and the entire ecosystem. Our Meadow Garden is comprised of open field, wetlands, and forest edge habitats.

This Meadow represents the first stage in a natural succession process: the gradual replacement of one **plant community** in the transformation from field to forest. This Meadow will be maintained as Meadow; the natural succession will not occur as we actively manage this space to preserve the meadow **ecosystem**.

## Ecology and Stewardship

The Meadow Garden is an example of ecological design. Ecological design is rooted in working with the natural environment to enhance it rather than destroy parts of it. Land stewardship techniques strengthen the existing native plant communities and habitats as a whole so they are more resilient and adaptable to environmental change.

Longwood's land stewards support the meadow ecosystems by enhancing native plantings, managing invasive species, and supporting air, water, and soil quality. By more than doubling the size of the Meadow to 86 acres, we increase the potential to attract animal species such as the Eastern Meadowlark, which require a sizable meadow habitat to complete their life cycle and/or complete their migratory journeys.

The plant and soil communities of the Meadow Garden function as a living water filter for the ponds(Hourglass Lake), headwater streams and wetlands throughout the space. The



# Meadow Garden Overview

stewardship of the Meadow Garden contributes to the water quality and quantity of the Pocopson Creek and larger Brandywine River **watershed**; and provides habitat for a variety of terrestrial and aquatic organisms. Precipitation falls onto the Meadow and runs downhill along the land contours or seeps through the ground to the creek and groundwater which feed the Brandywine River watershed. Some watersheds are large; others are quite small. Watersheds are nearly always part of a larger watershed and water is connected all around the world.

## Planting Facts

- More than 110 species of new and existing plants were added to create “sweeps” of native wildflower plantings meant to introduce variety and color to the landscape each season. Plants were also selected for the support they lend to the ecosystem as food sources for meadow creatures as well as nesting habitat.
- Plant selection and location were based on enhancing the various **plant communities** throughout the meadow where specific plant species thrive.
- Nearly 100,000 wildflower and grass plant landscape plugs™ and larger specimens were all planted by hand in the spring. Plugs are small plants with deep root systems which reach mature size more quickly, have a high transplant success rate and contribute more quickly to erosion control due to healthy root development.
- 1,100 native trees and shrubs were added mostly around the perimeter edges to augment the successional edge, add spring color and frame the Meadow.
- 10 acres of meadow were seeded over several years to transition into a new Meadow area from a former cool season hay field near the Webb Farmhouse.
- Seasonal highlights
  - In spring, **woody plants** such as Carolina silverbell, Eastern redbud, flowering dogwood and sweet azalea will be flowering highlights along with many perennials including wild cranesbill, Indian-physic, and Virginia bluebells which grace the woodland and meadow edge.
  - In the summer, meadow species such as common and swamp milkweed and butterfly weed (host plants for the monarch butterfly); black-eyed Susan, hollow Joe-Pye-weed and various sunflowers and ironweeds are highlights that provide visual show and habitat for insects and birds.
  - The fall palette includes numerous native asters, goldenrods and warm-season meadow grasses, along with the foliage of woodland edge species such as red and sugar maple, and red, white and mossy-cup oaks.
  - In the winter, the dried seed pods of the flowering plants and the various grasses provide more subdued beauty and textural effect, while providing important winter habitat for a variety of native insects and animals.

## Creatures of the Meadow

Life is found in every niche of the Meadow from soil to sky. Birds and insects fill the open air, while caterpillars and other insects feed on leaves, stems, and decaying plant material. Life continues beneath the soil in the form of fungi, bacteria, nematodes, and worms. This complex ecosystem requires the delicate hand of **stewardship** to maintain balance among its living

# Meadow Garden Overview

things.

Native flowers and grasses attract a variety of pollinators that, in turn, maintain many kinds of life. Wetlands support amphibians, and insects, while the young trees and shrubs of the forest's edge provide cover and food for many birds and small animals.

## Birds and Mammals

A healthy and varied habitat, like our meadow, provides food for numerous bird species from darting hummingbirds to the hawks that seek living prey like mice and voles. By managing the Meadow for a larger diversity of plant and insect species, we ensure a thriving bird population.

Longwood has collected over 30 years of bird inventories and nest box fledging results. This research is valuable to Longwood and shared online in eBird; a citizen science program.

<http://ebird.org/content/ebird/about/>

Our year-round monitoring and stewardship of bluebirds helps to increase the population of this species. We have been designing, building, placing, and caring for bluebird boxes around the property for over 30 years. Our team of bluebird volunteers monitors our approximately 200 boxes around the property and more than 30 in the meadow throughout the nesting season. We usually fledge an average of 200 young bluebirds every year along with numerous tree swallows, chickadees, and wrens.

Rabbits, deer, red fox, mice and voles are mammals which each play an important role in the food chain of the Meadow.

## Insects and Pollinators

Our meadow plant community supports large numbers of insect species. The varied landscape is filled with pockets of native plant species spread throughout the many plant communities found there. These smaller patches of different plants within any one area support a higher diversity of organisms including insects. Many pollinators co-evolved with specific plants, so that characteristics such as color, shape, and odor make the pollinators and plants natural partners.

Our management of this Meadow is tailored to support populations of native pollinators. Bees, butterflies, flies, wasps and beetles pollinate Meadow plants. Ants, caterpillars, beetles and other insects play a critical role in the ecosystem and food chain to keep it balanced and healthy. We hope to conduct research in the future to discover how many different species of insects this meadow actually supports.

More than 4,000 species of native bees pollinate millions of crops and flowers in North America. Research is increasingly emphasizing the importance of native bees and other insects to pollination. Native Mason Bees are featured at the Pollinator Overlook. They are very effective pollinators but do not produce honey. These solitary insects are docile and rarely sting.

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The Meadow Garden invites guests to discover and be inspired by the beauty of a multifaceted and harmonized ecosystem expressive of nature's variety and maintained by careful

# Meadow Garden Overview

stewardship over time.

We hope that a deeper understanding of the Meadow Garden will inspire our guests to take home the message that each and every one of us is stewards in our world.

## Definitions

Ecosystem - a balanced community of interacting living organisms (plants, animals and microbes) and the nonliving components of their environment (air, water and mineral soil)

Habitat - natural environment in which an organism lives (i.e., the physical structure)

Habitat Matrix - many habitats linked together by geographical proximity - each interrelates with another. Change in one habitat may affect some of the others. The sum is stronger than each individual part. Each habitat is made up of multiple plant communities.

Meadow - a field habitat vegetated by primarily grass and other non-woody herbaceous plants.

Non-woody - soft tissue plants

Plant community - a group of plants which all favor similar growing conditions, and structurally relate to each other (short, tall, spreading, etc.).

Watershed - the area of land that catches rain and snow and drains or seeps into a marsh, stream, river, lake or groundwater. Some are millions of square miles; others are just a few acres. Just as creeks and streams drain into rivers, watersheds are nearly always part of a larger watershed.

Woody - perennial plants with woody stems