

Longwood Gardens

Conservatory Garden Ambassador Manual

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Welcome to the Garden Ambassador Team!

Your Role: Garden Ambassadors help ensure that our guests have an extraordinary experience every time they come to Longwood Gardens. Garden Ambassadors are knowledgeable, enthusiastic people who welcome and help guests to fully enjoy their time at Longwood Gardens. Garden Ambassadors actively engage guests to share knowledge of the Gardens' daily events and other activities, and Longwood's history, heritage, and excellence. The Conservatory Welcome Desk is the informational hub for the Conservatory and West Gardens. Garden Ambassadors serve an important role connecting guests to the many features of Longwood Gardens.

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 Pierre du Pont. Pierre du Pont purchased the initial 202 acres in 1906 to save a significant collection of beautiful old trees and to create 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 Garden Ambassadors, are an integral part of sharing his legacy and story with our guests.

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STAFF CONTACT INFORMATION

Your Staff Contact

Paula Kunkel

pbuterakunkel@longwoodgardens.org

610-388-5354

Paula's office is located on the second floor in the Peirce-du Pont House.

Guest Service Associates (GSAs)

There will always be GSA employees on duty. There is always at least one GSA stationed in the Conservatory. By calling Guest Services at ext. 5206, a GSA can be reached and can be at your location within minutes.

Guest Service Associate Staff:

- Enforces and encourages good garden etiquette
- Is your first contact for guest assistance and has basic first aid supplies
- Staffs the Welcome Desks at times when volunteers are unavailable
- Supports the Garden Ambassadors and keeps them informed of daily updates and Garden information
- Welcomes and informs guests
- Assists with way finding – helping guests to find garden locations and highlights

COMMUNICATION

Nearly all volunteer communication, updates, and important information will occur via email. Please be sure to check your email regularly, so you don't miss anything important. Your staff contact will send you regular emails regarding updates for this team and email you with additional important information or notices about Longwood.

Paula Kunkel

pbuterakunkel@longwoodgardens.org

You may also receive emails from Sally Kutyla, Volunteer Services Manager

skutyla@longwoodgardens.org, and

Nancy Bowley, Docent Coordinator nbowley@longwoodgardens.org.

COMMUNICATION FROM YOU

You may email your staff contact, or call or stop in our office on the second floor in the Peirce-du Pont House. For calendar inquiries, you may email giv@longwoodgardens.org. There is also a section in the Sign-In book which can be used to communicate any questions, concerns, comments, or suggestions to your staff contact. This section will be checked every two weeks, and responses to the questions will be written and included in this same section for your review the next time you volunteer. Your feedback and suggestions are valuable to our team and Longwood.

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TIME COMMITMENT

As a Garden Ambassador, you are encouraged to volunteer regularly twice per month. You are required to volunteer annually a minimum of 15 shifts per year and to attend training sessions.

SCHEDULING

Volunteer Shift Schedule

The Welcome Desk is staffed by volunteers from 10 -1:30 and 1:30- 5, seven days a week.

During the summer months and the Christmas season, the Gardens are open in the evenings, so evening shifts are added to the schedule.

Please use the online calendar to schedule your volunteer shifts.

The new online calendar links for all volunteer calendars are posted on Longwood's website here: <http://longwoodgardens.org/volunteering/volunteer-calendar> . Be sure to select the correct calendar for your volunteer team.

Note: you may also bookmark or save the direct link to your computer as a link under favorites on your homepage. The direct link to the Garden Ambassador—Conservatory Calendar is here:

http://www.brownbearsw.com/mc/lwg?Op=ShowIt;CalendarName=ga_conservatory

Please do not worry about a login or the buttons on the bottom of the page. If you have additional questions, contact your supervisor.

To view the calendar:

Logon to www.longwoodgardens.org (or you may also bookmark as noted above)

Scroll to the bottom of the Homepage, and click on VOLUNTEERING

Note: On your cellphone or smart device you need to click the down arrow next to Volunteering to access the calendars link.

Click on Calendar (for registered volunteers) in the left column.

Click on Garden Ambassador - Conservatory Calendar

To add your name to the calendar:

Select the date you want to volunteer by clicking on the day #.

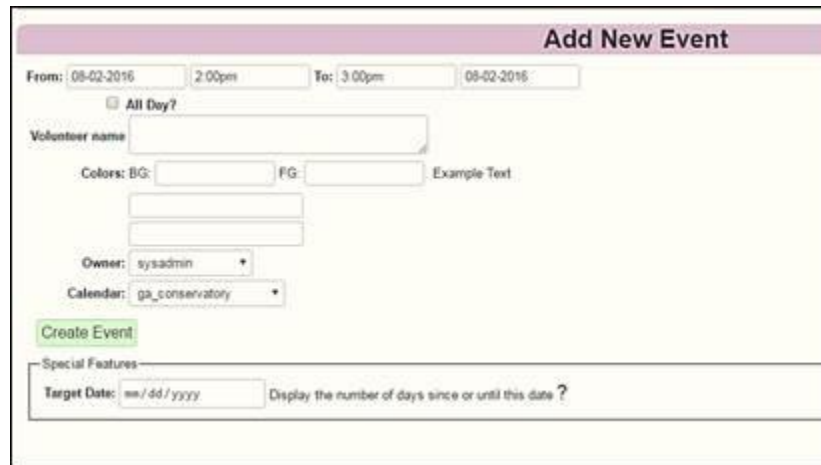
In the screen that appears (See image below) look for “**Add New Event**” in the middle of the page.

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Always create a new individual entry. Never edit someone else's entry.

1. Select your times: the first box is the date you have selected. Add the start and end times of your shift by clicking the next two boxes which open a pulldown menu of times.
2. **Volunteer Name:** add just your first name and the initial of your last name
3. Click on **Create Event**
4. Click on **View Calendar** in the upper left corner to see your entry on the Calendar.



If you are unable to make your shift

We depend on you, our Garden Ambassadors, to responsibly fulfill your commitment.

If you are unable to make your shift due to an emergency and it is the day of or day prior to your shift please call Visitor Center Guest Services at (610) 388-5206.

They will notify the GSA team who provide coverage for your shift if possible.

For all other calendar changes and cancellations, please email:

giv@longwoodgardens.org , and the Calendar Manager will record your changes to the electronic calendar.

WORKING YOUR VOLUNTEER SHIFT

The desk is normally staffed by two volunteers, although at times it may be staffed by one volunteer.

When necessary, you may take a short 15 minute break during your shift. Please alternate with your partner, so someone is always on duty during the shift. If only one volunteer is on duty and you need to step away, please connect with the roaming Guest Services Associate (GSA) so he/she knows you will return in 15 minutes.

Starting Your Shift

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Be prepared and review your notes and updates before coming in for your shift. Check the website for the *Garden Highlights* and for any special events occurring on the day of your shift. See the Resource section of your manual

Remember to always wear your nametag. Please arrive early enough so that you have time to orient yourself to what may be new or changed since your last shift. Also, take this time to review the Daily Line-Up sheet found in the Sign-In book at the Welcome Desk and connect with a Guest Services Associate (GSA) for the most current information.

Sign In

The Garden Ambassador *Sign-In* book is located at the Garden Ambassador desk. Please remember to sign in and PRINT your name clearly, so that your volunteer hours are recorded, credited, and turned into Volunteer Services Manager, Sally Kutyla, at the end of the month. This monthly total is added to your annual total.

During Your Shift

The Welcome Desks in the Conservatory and Peirce-du Pont House are in highly visible locations. Please keep the top of the desks clear and neat. Store Lost and Found items and personal items below the desk.

Be ready to welcome every guest who passes by the Information Desk as though you were greeting guests in your own home.

Roaming

We encourage all Garden Ambassadors working in pairs to take turns and roam away from the desk to engage guests in the Orangery, Exhibition Hall, and the Patio of Oranges. When there are two Garden Ambassadors volunteering together, one volunteer can stay at the desk to provide information. The other volunteer can roam, walking in areas within eye-sight of the Information Desk, to engage guests and enhance the guest experience.

When there is just one volunteer on duty, please stay close to the desk so guests can easily see you are on duty.

During Quiet Times

Garden Ambassadors should always be ready for guests, even on the slowest days. Between guest visits you may have free time.

We ask that you refrain from personal activities such as using your cell phone or personal computer, knitting, or other activities during your shift. Instead, please use this

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time to peruse materials relevant to Longwood and your volunteer position, or to walk through the nearby garden spaces to see what is newly in bloom.

You will find a wealth of material at the desk to increase your knowledge of Longwood Gardens' history, plants, and current events. There are also several books that provide valuable information on Longwood Gardens, such as *The Heritage of Longwood Gardens*, *Pierre S. du Pont and His Legacy*. Other materials will be added regularly for you to learn from and use as a guest reference. **Please** leave the books at the desk.

The iPad is another tool that will provide valuable information for you and guests. Take advantage of quiet times to familiarize yourself with all the great resources available on the iPad. At the end of the shift, please clear the area, putting away all books and binders. Close out of all open windows on the iPad and place the iPad in the top drawer. Note if the charge on the iPad is low, please connect it to the iPad charger that is located in the drawer.

VOLUNTEER RULES AND POLICIES

Attire

You represent Longwood Gardens. We ask that you present a neat, professional appearance at all times while volunteering at Longwood. Attire includes shirt (with sleeves for men); skirt, shorts or slacks; and shoes, sneakers or sandals. Please avoid clothing with obvious logos.

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

Please refrain from using your cell phone to send or receive 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, please step out of the public eye to take your call. Remember you are an ambassador of Longwood and are "on stage" while volunteering.

Inclement Weather

If you are unable to work your shift due to weather conditions, please be sure to call the Visitor Center Guest Services at: 610-388-5206, so they can notify the GSA team.

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Food or Meals

Volunteers should eat before or after their shifts. If for personal reasons you need a snack during your shift, take it to the Horticulture break room. Please do not eat out in the public view. Guest Services Associates (GSA's) are not able to provide coverage for breaks during your shift, but if you are volunteering alone, contact the GSA, so they are aware there is temporarily no coverage at the Desk.

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.

CONSERVATORY LOGISTICS AND INFORMATION

Restrooms with large changing areas are located at the Green Wall near the East Entry Plaza. Restrooms are also located downstairs in the lower level of the Conservatory and near the Music Room. Generally, the restrooms located near the Music Room are opened for public use, but please be sure to check if they are open at the beginning of your shift.

Smoking is not allowed in the Conservatory or the Peirce-du Pont House. Per Longwood policy, smoking is permitted by guests in any outdoor area.

Emergency AA and AAA batteries and band aids for guests are available at the Information Desks in the Peirce du Pont House and the Conservatory.

Scooters, Strollers and Wheelchairs

- a. Scooters rented from Longwood Gardens – Guests with Longwood scooters are welcome in all parts of the Conservatory except the Children's Garden and the Ballroom. At certain times, the Music Room will not be accessible.
- b. Scooters owned by the guest - Guests using their own personal scooters, are welcome in all parts of the Conservatory, including the Music Room and Ballroom. Due to narrow spaces, not all personal scooters can access all parts of the Children's Garden.
- c. Strollers – Guests with strollers are welcomed everywhere with the exception of the Ballroom and Children's Garden (due to narrow walkways). Guests are asked to leave strollers just outside the Children's Garden entrances. At certain times, the Music Room will not be accessible to strollers.
- d. Guests using wheelchairs are welcome in all parts of the Gardens, Conservatory, and the Peirce-du Pont House.

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Note: Some guests are weary by the time they arrive at the Conservatory. There are wheelchairs for guests' use in the Conservatory, located beside the elevator in the Orangery and across from the Green Wall. Please ask guests to return the wheelchair to the Guest Information Desk in the Visitor Center as they leave the Gardens. You do not need to take the guest's contact information. Please let the GSA know if a guest has borrowed a wheelchair, so they can replace it. *There is a \$25.00 fee for scooter rentals, and wheelchairs are free (out in the gardens), \$4.00 in the Visitor Center.

Monopod/tripod/easel use by amateur photographers and artists is permitted in the Conservatory and the Peirce-du Pont House from 9:00am- 12:00pm daily.

Food and Drink

Picnicking or bringing in 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.

Drinking Fountains

The drinking fountains are located under the flags in the Exhibition Hall, by the Children's Garden, near the restrooms in the lower level of the Conservatory, and the Green Wall in the East Conservatory. Bottled water is available in a vending machine just outside the men's rest room in the lower level of the Conservatory. Please do not offer the drinking fountains near the Information Desk.

GARDEN ETIQUETTE

If you see guests running, damaging plants, 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 Gardens. The Guest Services Associate (GSA) on duty can be contacted when you feel you need staff assistance.

Lost and Found

Lost items can be left at the Information Desk. Please place them in the basket under the desk. 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. If an especially valuable item is turned in, please do not leave it on the desk. Contact the GSA team immediately by calling guest services at ext. 5206, so they can pick it up.

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Fire Alarm

If the Fire Alarm sounds in the Conservatory, and you feel safe enough to alert Security at ext. 5222 or the Information Desk in the Visitors Center "0" to advise staff of the situation, please do so and then leave the building. Stay calm and walk with the guests to the closest exit.

Guests may ask you, "What is going on?", and, "When can we go back in?" It is best to say that you are not sure. Once the Security Team or GSA Team gives the **all-clear** signal, everyone can then return to the Conservatory.

SECURITY AND EMERGENCY INFORMATION

Security phone contact from the desk phone call x5222

No matter how minor or major a situation may appear, the first and only thing to do is to notify a staff person. Staff will then take over. Do not administer first aid. When you call Security, calmly tell them your name, your location, and what the problem is.

GSA staff is your first contact, and they have basic first aid supplies. They enforce and encourage good garden etiquette.

Security staff is the next level of emergency assistance for you. They are trained EMTs and can help in more serious situations.

The Garden Ambassador's 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.

In a critical emergency such as a suspected heart attack or other serious health issue, please **first call 911** and then Security at 610-388-5222. Security will direct the emergency care to the correct location. Please save Security's number to your cell phone.

If a guest is struggling to walk or appears weak, help them to a seat if possible and offer the use of a wheelchair. Find the GSA or call Guest Services (5206), to locate the Conservatory GSA on duty for assistance as needed. They can bring you a wheelchair or (if available) a scooter for the individual.

If you witness a minor incident (for example, a bumped head or fall), 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. GSA staff can offer a bandage or

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icepack in a minor injury. Anything beyond that , Security must handle. *No volunteers should provide first aid services to a guest.*

Security will respond immediately 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 will then complete a full report on the situation.

Missing Persons

If you are told by Longwood staff that a “Code Adam”(which is a process to follow for lost child or disabled adult) is implemented, your role is to be the eyes of Longwood staff and look for the lost person within your area. If you find the missing guest, call security to notify them.

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 GSA staff by phone to 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.

Your role as a Garden Ambassador is vitally important.

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

Interpretation and Guest Engagement

What is Interpretation?

Simply defined - Interpretation connects minds and hearts to a place.

A more in-depth explanation is that interpretation helps guests make emotional and intellectual (hearts and minds) connections to a resource – or in our case, Longwood Gardens. Interpretation is more than talking, answering questions, or exchanging facts. It is an interactive sharing of experience and knowledge between the interpreter and the audience.

The goal of interpretation is to create an environment that changes or enhances a visitor's knowledge, attitude, and perception. This is accomplished by blending a strong, accurate understanding of the topics, a love for Longwood Gardens, and a concern for your audience.

The three main elements of interpretation can be summarized as **ART**:

1. Knowledge of your **Audience**
2. Knowledge of the **Resource**
3. Interpretive **Techniques**

Each of these elements is discussed in the sections that follow.

1. Knowledge of your Audience

One of the key elements of successful engagement is assessing and adapting to your audience. Guests vary greatly in age, geographic origin, knowledge level, perceptions, and expectations. They also vary in their desire for interactions with staff or volunteers. Some guests want to be left alone to experience the Gardens. Others may have just a few questions while others may have numerous questions and enjoy the interaction.

You will want to tailor your information to your audience. Let guests dictate the degree to which you interact with them. Make them feel welcome, but do not overwhelm them. If guests seem to welcome interactions, you can try to assess their interest, capabilities, and knowledge level by asking a few questions about themselves and their interests. Do not overestimate the guests' knowledge nor underestimate their intelligence.

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Who are our guests? Why do they visit us?

Your audience can be classified in several different ways. One way to look at the guests who come in our doors is to determine why they visit us.

Every guest enters with a set of expectations that can be categorized as falling within one or some combination of five major identity-based categories: Experience Seeker, Professional/ Hobbyist, Spiritual Pilgrim, Facilitator, or Explorer. Research shows that individuals not only choose to visit or not visit based upon these identity-based motivations, but it also shows that these motivations largely determine how guests conduct their visit and strongly influences long-term learning and sense of satisfaction with a visit. © 2007 Association of Zoos and Aquarium

These are the **five distinct categories of guests** and their primary motivation for choosing to visit:

Experience Seekers primarily derive satisfaction from the fact of visiting this important site. They may have the least advance knowledge and the lowest expectations for their visit. They may want a picture memory and may not spend a lot of time visiting but head on to the next experience.

Example: A tourist who wants to briefly see, set foot in, and have a photo memory that they were at Longwood Gardens so they can share their travel experiences. They are looking for the simplest of experiences and will excitedly share their discovery of “treasures” at Longwood with others. You should offer to take their photo!

“Explorers” are curiosity-driven and seek to learn more about whatever they might encounter at the Gardens. They are looking for a deeper connection and come with a good base of knowledge.

Example: These are guests who want to understand how Longwood works, its history, and the “hidden” or behind-the-scenes side of the operation. They will readily attend a talk or tour and will want to actively ask you questions.

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“Facilitators” are focused primarily on enabling the experience and learning of others in their accompanying social group.

Example: Grandparents with grandchildren or parents with children are a fine example. The Grandparents or parents will most likely have a wonderful past experience or memory of Longwood Gardens and want to facilitate a similar experience in the children. You should talk with the adults, ask those questions and provide helpful suggestions on where or how they might forge these emotional connections.

“Professional/Hobbyists” seek a close tie between the Gardens and their professional or hobbyist passions.

Example: The guest who grows an orchid at home, is a historian, or craftsman. They want to understand how Longwood cares for a particular resource and compare this to their own care at home, in the hopes of becoming more proficient with the resource. These guests can be directed to talk with a docent, take an Insider tour or a continuing education class.

“Solitude Seekers” are primarily seeking a contemplative and/or restorative experience. They may wish to be left alone to experience Longwood in their own way.

Example: This is the guest who may sit on a bench and be transfixed by the beauty around them, or very slowly stroll through the Conservatory gently brushing plants and deeply inhaling the wonderful scents. Eye contact and a smile is all you need to provide, letting this guest know you are available for conversation if they so wish.

What type of guest are you? _____

Special Groups of Guests - families, tour groups and foreign language speakers

Some special groups of guests are families, teenagers, tour groups and foreign speaking adults. Families can be broken down into two groups: families with children under five, and families with school-age children. Here are some tips for interacting with these types of guests.

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- **Families with children under five** – in general, they spend less time in any one place due to the short attention spans of their young children. Keep this in mind when engaging with them. Offer them a Seek and Find card. Point out interesting features attractive to children. Young children will also welcome an opportunity to touch and examine objects.
- **Families with school-age children** – should be encouraged to work together and discuss possible answers amongst themselves. Also, try to find ways for the family to work together and share their awe and discoveries. Remember that children often like to be challenged, to brainstorm ideas, and make discoveries. They rarely like to be quizzed!
- **Teenagers** – in general, like to travel in peer groups. If you are not used to being around or working with teenagers, you may feel a bit uncomfortable interacting with them. The only way to get to know this group better is to just start talking to them. They like to be treated as adults, not kids, so ask higher-level questions that will force them to think. This age group is fascinated with bizarre and unusual facts. Though certainly an interpretive challenge, working with teenagers can be a very rewarding experience.
- **Groups** –Visits by school groups are frequent on weekdays during the school year. These and other groups vary widely in age, purpose, and expectations. Be sensitive to the group dynamic and aware that group members may often be pre-occupied interacting with one another as well as with you. Use the teacher, or chaperone as your aide if the group is largely composed of children. Adults can encourage proper group behavior and can repeat and emphasize important information to younger children.
- **Foreign language speakers** – don't assume that everyone who looks foreign only speaks a foreign language. Take cues from the language they are speaking and how they interact with your first greeting. Often if they truly don't speak much English they will tell you or nod their head no. See if there is a leader of the group who is acting as translator. Slow your conversation and simplify it to fit their comprehension. Even those who speak no English may appreciate an offer to take their picture. Just mime clicking a camera and ask photo? And they may say yes.

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2. Knowledge of Resources

Garden Ambassadors are expected to develop and share their knowledge about the history of Longwood and the unique elements of their various volunteer locations. Knowledge comes from your experience, personal background, and education as well as training and refresher classes. Garden Ambassador trainings are a great place to extend your Knowledge of the Resource, receive updates about Longwood Gardens, and get to know your fellow volunteers and staff.

You should develop a professional attitude about your volunteer work and have a respect for accuracy. Learn the information and facts and don't be afraid to say, "I don't know," to a question beyond your knowledge. Guests will appreciate an honest, "I don't know," over a guess. Make sure to try to find out the answer that will allow you to provide the information the next time you are asked.

Choose your sources of information with care. Books in Longwood's library are accurate and up-to-date, but some sources on the internet may not be correct. Staff members are an excellent source of information. However, remember the expertise of individual staff members does not extend to all topics.

See the Resource section of your manual for a list of useful resources.

3. Interpretive Techniques

Conversation is the primary interpretive technique used by Garden Ambassadors and allows personalized interaction with guests. It is a give and take flow of communication which is a positive learning experience for both guests and Garden Ambassador. When done well, this personal interaction leads to deeper connections between the guests and Longwood.

Interpretation and Guest Engagement

How We Communicate

Great personal communication is made up of three important elements: **words, voice, and body signals.**

- **Words** - Effective communication involves choosing appropriate words. Words can make a person feel great or terrible, and can make a huge difference in shaping the attitudes of your audience. Choose words carefully. Consider the difference between telling someone they are “wrong” versus saying “Actually, a lot of people think that but ...,” or the difference between describing a gardening task like weeding as, “grunt work,” versus, “An effort that results in a beautiful display...”
- **Voice** - this is a vital tool in spoken personal communication. The volume of your voice should be loud enough for guests to hear you clearly. Speak with enthusiasm and vary the tone of your voice. Avoid speaking too slowly or too quickly. Speak clearly without slurring or mumbling.
- **Body signals** - these are important nonverbal cues that are part of the communication repertoire.

Greeting guests eye to eye

Garden Ambassadors should be sure to stand and greet guests as they come through the door. Eye contact is thought by some to be the **most important body signal**. Eye contact shows your audiences that you are interested in them and helps you gauge their interest level. Maintain eye contact throughout the group without focusing on just one person.

Facial expressions - for example, lowered eyebrows convey anger whereas a smile and raised eyebrows express enthusiasm

Gestures - too many can be distracting but a few for emphasis are effective

Posture - reveals what you think of yourself and of your listener

For example, slouching conveys indifference to the world, crossed arms places a barrier between you and the guests. Try for the happy medium of poised and comfortably relaxed.

Interesting note: Research indicates that only seven percent of our verbal message is communicated through words; 23 percent of our message is communicated through voice; and amazingly, body signals account for 70 percent of our message!

Interpretation and Guest Engagement

Parts of the Conversation

The Introduction/Conversation starters

It is often up to the interpreter to initiate the conversation:

- Simply greet the guests. A warm, "Hi! Welcome to Longwood Gardens!" may open the way to conversations and interactions. Once guests realize they can talk with you, they usually will.
- Open with a question. This is perhaps the best conversation starter of all. Questions are excellent tools for initiating conversations because they ask the other person to respond. There are several levels of questions; from simple yes or no questions to open-ended questions. Questions help you "read" your audience to determine at which level to aim your conversations and what their interests are. Asking someone what they know about Longwood Gardens will help you determine what interests them and what to talk about.
- Try a self-disclosing statement such as, "I love the Italian Water Garden. It's so serene and beautiful." This is a way to equal out roles. Someone who is viewed as an "expert" may intimidate guests.
- Try a positive, personal statement like, "Great T-shirt!" This type of compliment makes the visitor feel special and recognized. It can often lead into a conversation because, like the greeting, an opportunity has been created.
- Listen for a visitor's comment that might provide you an entry into a conversation. If you approach them in an unassuming, unobtrusive manner, most guests will welcome an answer to the questions asked amongst them. "Excuse me, but I overheard you wondering how old the fountains are ..."
Guests who are having difficulty with a display, appear confused, or perhaps are just having trouble locating something on the map, will definitely welcome your input!

Interpretation and Guest Engagement

The Body of the Conversation

This is your time to share information. Try to keep the information exciting for yourself and your audience. **Don't reveal all the answers right away.** Get your audience to examine objects, make observations, and ask you questions. Having guests discover information for themselves will greatly enhance the impact of your interactions.

The middle of a conversation involves two activities, **talking AND listening.** You and the guests should share these activities equally or the conversation may end quickly. For example, if one person does all the talking, the other person may feel he/she is being lectured to; or if one person only listens and doesn't join in, the other participant may believe there is a lack of interest. **Try not to do all the talking, and ask questions to keep your audience involved.**

Remember to use the all-important **pause** in your conversation. It can signal the end of a thought, give an idea time to sink in, and also provide impact to a statement.

Tap their emotions. Explore the emotions and opinions of the audience. "What do you think about our beautiful House? Isn't that a wonderful old tree?" Emotions and attitudes shape our perceptions. By helping guests understand this we can positively influence them.

Share an anecdote or story. Kept short, a personal, positive, and relevant story can be an entertaining and effective way to convey information. As you volunteer, you will have many unique experiences that can be used as interpretive anecdotes.

Share a sense of wonder

Wow your guests with

- A good story
- Neat facts about amazing, unusual, surprising, wondrous or shocking things
- Cool technical information shared in an easy to understand manner using simple language and easy to understand metaphors

What they could care less about

- Lots of numbers and lists of facts
- Did you know that quoting numbers turns on the analytical part of the brain and turn off the creative side of your brain?
- Longwinded stories

Interpretation and Guest Engagement

Remember we don't have to share all our great stories at once. Let the visitor lead the way; ask them questions and let them answer, and give them the opportunity to ask for more! Inspire wonder and curiosity and hopefully they will be back again!

Remember to also be aware of other guests around you. They may be following your conversation and want to join in. Do you remember the old idiom 'Eyes In the back of your head'? It usually applied to your mother, a teacher or someone else who always knew what was going on behind them. That's a good skill for a Garden Ambassador to develop!

The conclusion/ Ending the engagement

The best endings encourage guests to see another display, like the Italian Water Gardens, or areas that build on the topic or interest of the visitor. Another simple method to ending a conversation might be, "I, hope you enjoy the rest of your day at the Longwood Gardens" or "Please come back again for a future display". Let people know that you enjoyed conversing with them.

Be mindful that many guests have limited time to spend in any one space. Most of the time your connection will be short, engaging and over! Some guests will really engage with you and you will have a longer interaction with them. Just take your cue from the guests. Wish them a wonderful visit or help them find another highlight of Longwood before thanking them for visiting.

Roving away from the Desk

As members of the Garden Ambassador team your opportunities for interaction with guests can occur at or near the Garden Ambassador desk or in nearby spaces. We encourage team members to take turns stepping away from the desk and engaging guests at various locations. Greeting guests in front of the desk, helping them find a certain room or garden highlight all enhances their visit. It is also wonderful to greet guests on their way out of the Conservatory and help them find their way to their next destination.

Interpretation and Guest Engagement

Interpretive and Engagement Tips

Tips for assisting guests exploring the Conservatory – based on guest interest you can suggest the following:

- On arrival welcome guests to the Conservatory, and ask guests if this is their first visit to Longwood Gardens and the Conservatory. Offer to orient them to the Conservatory.
- Guests sometimes arrive at the Conservatory without a map. You also have non-English speaking guests who may need a map in their language of choice. Take the time to make sure they know where they are and orient them to the map and their current location. Use the highlighters to map out a specific area a guest is interested in discovering.
- The Conservatory has many nice spots for a photo opportunity, especially in the Orangery, Exhibition Hall and the Patio of Oranges. Ask guests if they would like you to take a photo.
- Suggest to guests to check out the website where they can explore the many facets of Longwood including the history, horticulture, performing arts and continuing education, as well as current exhibits and events. For guests interested finding out more about Longwood Gardens offer one of the books at the desk for them to browse while relaxing in a nearby chair.
- For families, suggest they visit the Indoor Children's Garden. Help escort them toward that garden area.
- If there is a music enthusiast, talk about Mr. du Pont's reason for constructing the Ballroom and Music Room and encourage them to visit the Organ and Pipes Gallery exhibit behind the Ballroom. Know when there are organ and piano concerts, and know what time the daily demonstrations occur so you can share this with guests.
- If there is a special type of plant or group of plants a guest is interested in viewing, escort them to the specific House or Room. If you are unsure of a plant's location, ask one of the gardeners.

Tips for assisting Guests as they depart the Conservatory

- Help guests to understand the many ways to explore Longwood at different times of the year. Determine their interests and time limitations so you can best direct them to explore the Gardens further. Encourage guests to visit the East Gardens, the Open Air Theatre and the Peirce du Pont House as well as the Meadow Garden, and the Idea Garden. Direct them to an area that suits their interests and is seasonally interesting.

Interpretation and Guest Engagement

- For guests who yearn to learn more about Longwood's History and Pierre du Pont, encourage them to visit the Heritage Exhibit in the Peirce du Pont House. They can watch a 12 minute video on Pierre du Pont and then take a self-guided tour through the Heritage Exhibit.
- Fountains in the Open Air Theatre go off at 10:00, 11:00, noon, 1:00, 2:00, 3:00, 4:00, 5:00 and 5:55pm for five minutes, and accompanied with music. Encourage guests to watch the fountain show. (Schedules change seasonally and fountains may not run at times due to special events or weather.)
- Guests seeking new and unusual plants for their home gardens can stroll through the Flower Garden Walk and the Idea Garden for inspiration.
- For the fountain and engineer fanatic, suggest touring the Italian Water Garden and the Open Air Theatre. Talk about the exciting revitalization project of the Main Fountain Gardens and share the flipbook of images of the Main Fountain Gardens.
- For the native plant collector, a walk through Pierce's Woods in early spring when the early blooming spring wildflowers bloom cannot be missed. The drama of fiery autumn foliage is a spectacular effect in Peirce's Woods, as well the Meadow Garden.
- Encourage guests who seek peacefulness and serenity in nature to take to hike through the Meadow Garden. If a hike is too strenuous, guests can hop the shuttle and visit the Webb Farmhouse. They will be able to experience beautiful vistas of the Meadow Garden and learn about the history and the environmental impact of the Meadow Garden.
- The Terrace Café and the 1906 Restaurant is a certified green restaurant. Remind guests that they will need reservations for 1906, which can be made from the telephone at the desk. The extension is: x1000
- For kids young and old, suggest visiting the treehouses. The Birdhouse Treehouse and the Lookout Loft are both located behind the Peirce-du Pont House, and the Canopy Cathedral overlooks the Large Lake at the end of Flower Garden Drive.
- Guests are always intrigued with Longwood's Performing Arts program. Share with guests Mr. du Pont's passion for the performing arts and how the program has been a vital element at Longwood since the early 1900's.
- Be sure to tell them to check the website for upcoming concerts and performances. Talk about the different performance venues - the Open Air Theatre, Ballroom.

Interpretation and Guest Engagement

- Let interested guests know that we offer Insider Tours Thursdays through Sundays which can take them behind the scenes to the Production Greenhouses, Open Air Theatre, Italian Water Garden and Boiler Room among other locations.
- Continuing Education – For guests interested in furthering their knowledge of horticulture and other related fields, share the current course catalog, located in the desk and found on our website. The diversity of programs offers something for all ages and interests.
- For the tree lovers, a walk around the Peirce-du Pont House and through Peirce's Park should satisfy their interests. Many of the trees are Pennsylvania Champions and the Cucumber magnolia, *Magnolia acuminata* on the front lawn is the National champion tree

How to be a Great Garden Ambassador

1. Be enthusiastic- your passion for Longwood can inspire your guests
2. “Leave your problems at home” – Many of you have expressed the idea that volunteering is a get away from our daily stress. Carry that thought a little further and remember that this is a getaway for our guests too. Make sure that your interaction with guests is always a positive one whether talking about Longwood Gardens, staff or what a guest shares with you helps you and them get away from it all and have a really positive experience.
3. The guest **always** comes first. Never carry on a personal conversation when a guest is nearby. The guest should be your guest and your first focus.
4. Know your information. The more you know about the topic, the more your confidence will grow.
5. Know when to say I don't know. Do your best to find an answer but remember unanswered questions can be a positive way to lead guests toward further inquiry and research.
6. Know your audience – tailor your comments to the guest's interest and background
7. Know the art of asking good questions.....and waiting for an answer!

Interpretation and Guest Engagement

8. Be a good listener
9. Be confident– smile and make eye contact
10. Take pride in what you do and the important role you play.
11. So many times the person taking photos doesn't get in the photos. Always ask, "Would you like me to take your picture?"
12. Send guests on their way with smiles – on your face and theirs and encourage guests to enjoy other parts of Longwood.

PIERRE DU PONT'S STEWARDSHIP – LONGWOOD GARDENS

1870 – Pierre du Pont born in Wilmington, DE at family home, Nemours, on January 15th.

1890 – He graduates from MIT with a degree in chemistry

1902 – He becomes treasurer of the DuPont Company, incorporates the company with two cousins, Thomas Coleman (TC) and Alfred I.

1906 – Pierre du Pont purchases Peirce's Park in Kennett Square, PA to save the century old Peirce arboretum.

1907 – He plans and plants first garden at his PA property, which he names Longwood

1909 – Pierre du Pont appointed acting president of Du Pont Company during TC's illness.

First modernization to house at Longwood adds heat, electricity, and plumbing. First Garden Party held at Longwood.

1913 – He adds a large addition and glass house to existing house at Longwood.

1913 – He builds Open Air Theatre at Longwood.

1914 – Longwood is incorporated.

1915 – Pierre marries first cousin Alice Belin.
He becomes president of DuPont Company.

1917 – Pierre du Pont begins building Kennett Pike (Rt. 52) between Wilmington and Hamorton, PA.

1919 – Construction starts on the main conservatory complex at Longwood.

1921 – Conservatories open in November.

1924 – He adds the Music Room onto the Conservatory.

1925 – Pierre du Pont builds the Water Garden, now called the Italian Water Garden.

1927 – Pierre reconstructs the Open Air Theatre.

1928 – Azalea House (now known as the East Conservatory) is constructed.

1929 – Work begins on the Ballroom and the Main Fountain Garden
(Pierre Du Pont's term was the Electric Fountains).
Firmen Swinnen supervised the building of the Aeolian Organ.

LONGWOOD GARDENS AS A PUBLIC GARDEN

1937 – The Longwood Foundation is incorporated.

1950 – Pierre hosts the 150th family reunion at Longwood.

1954 - Pierre du Pont dies in a Wilmington hospital at the age of 84 on April 5th.

1956 – Longwood's first Visitor Center and picnic area open.

1957 – Desert House and first Waterlily Display are constructed.

1958 – Cascade Garden and Tropical Terrace House are constructed for better Guest traffic flow.

1960 – Rock Garden (now Hillside Garden) is constructed.

1962 – New Visitor Center opens.

The first Christmas Tree Lane lighting display occurs.

1966 – Palm House opens on Palm Sunday.

1967 – Horticulture Building is constructed.

The Longwood Graduate Program hosts its first graduate student class.

1968 – Eye of Water is constructed.

1970 – Longwood Gardens, Inc. is created as a separate foundation with tax-exempt status.

The Professional Gardener Training Program hosts its first class.

1973 – Azalea House reopens after undergoing renovations.

1976 – Peirce-du Pont House Heritage Exhibit opens.

1981 – First Chrysanthemum Festival is held in November.

1982 – Internship Program begins.

1983 – Terrace Restaurant opens.

1987 – First Children's Garden is constructed.

1989 – Silver Garden is designed and installed

1993 –Mediterranean House is redesigned and reopens. Cascade Garden replaces Desert House

LONGWOOD GARDENS AS A PUBLIC GARDEN

1995 – Orangery and Exhibition Hall undergo renovations.

2001 – Chimes Tower, Music Room and Ballroom undergo renovations.

2005 – East Conservatory reopens after undergoing renovations and redesign.

2006 – Longwood celebrates its Centennial.

2007 – Indoor Children’s Garden is constructed.

2010 – East Conservatory Plaza and Green Wall design is completed.

2011 – Organ plays once again. Formal rededication occurs after undergoing restorations.

2014 – Meadow Garden is expanded from 40 acres to 86 acres and reopened.
The selectively restored Webb Farmhouse opens in the Meadow Garden as an Interpretive Center.

2017 – Revitalization of the Main Fountain Garden will be completed.

A Short History of Longwood Gardens

General Longwood Garden Facts

Longwood Gardens is one of the great gardens of the world. We strive for innovation in horticulture and display. We present the arts in an unparalleled setting to bring pleasure and inspire the imagination of our guests. We contribute to society through excellent and diverse education programs, horticulture research, environmental stewardship, and cultural and community engagement.

Longwood Gardens encompasses 1077 acres; over 300 acres are open to the public. Pierre du Pont's original purchase from the Peirce family in 1906 included 202 acres. Other properties were added later.

Early History

Many generations helped create Longwood Gardens, but one individual, Pierre S. du Pont (1870-1954), industrialist, conservationist, farmer, designer, impresario, and philanthropist, made the most enduring contribution.

Pierre du Pont was the great-grandson of Eleuthère Irénée du Pont (1771-1834), who arrived from France in 1800 and founded the E. I. du Pont de Nemours and Company gunpowder works. Pierre turned the family business into a corporate empire in the early 20th century and used his fortune to develop the Longwood property.

More than 200 years earlier, the land had been inhabited by the native Lenni-Lenape tribe who hunted, fished, and farmed the productive wilderness. In 1700, a Quaker family named Peirce purchased the property from William Penn and soon established a working farm. In 1798, Joshua and Samuel Peirce began planting an arboretum on the farm. By 1850, the arboretum was well known as Peirce's Park and contained one of the finest collections of trees in the nation. For the following decades, Peirce's Park thrived as a pleasure ground for the community. However, eventually it fell into disrepair and was sold.

In 1906, at the age of 36, Pierre du Pont purchased the farm in order to save the trees. Pierre inherited a strong sense of entrepreneurship, love of horticulture, and the drive to leave a personal legacy; traits that reflected his family's philosophies. Soon, Pierre was dedicating great amounts of his personal fortune to transform his property and took great pride in delighting guests with its growing beauty.

He followed no grand plan; instead he built the gardens piecemeal, beginning with the 600-foot-long Flower Garden Walk in 1907. Although his later gardens would draw heavily on Italian and French persuasion, this early effort reflected what he termed an "old-fashioned" influence, with nostalgic cottage-garden flowers, exuberant shrubs, rose-laden trellises, and even a shiny gazing ball. The scale was grand, the accessories quaint.

Five years later was the debut of the new Open Air Theatre. His inspiration was an outdoor theatre at the Villa Gori, near Siena, Italy, although his version was much larger.

A Short History of Longwood Gardens

Within a year, he equipped it with secret fountains that shot out of the stage floor to drench visiting nieces and nephews.

Pierre enhanced the domestic comforts of Longwood by enlarging the original Peirce farm house, notably in 1914 when he doubled its size. The attached conservatory was Longwood's first "winter garden" and Pierre's first experience with the aesthetics of greenhouse gardening.

The massive Conservatory opened in 1921. It would be hard to imagine a more theatrical setting for the indoor display of plants.

With the Conservatory a reality, Pierre turned his attention to another great love—fountains. He based his Italian Water Garden on the Villa Gamberaia near Florence, but he added 600 jets of recirculating water. At the Open Air Theatre, he replaced the old waterworks with 750 illuminated jets. His hydraulic masterpiece was the Main Fountain Garden in front of the Conservatory where 10,000 gallons a minute shot as high as 130 feet and were illuminated in every imaginable color.

As early as 1914 with the formation of Longwood, Inc., Pierre was thinking about the eventual fate of the property after his death. In 1937 the Longwood Foundation was created to handle his charitable giving. When Pierre died in 1954 at the age of 84, he left Longwood with a well-established horticultural tradition, experienced businessmen (his nephews) as trustees, and a sizeable endowment.

After his death in 1954, Longwood's first director was hired. Since that time Longwood Gardens has matured into a magnificent horticultural showplace filled with countless opportunities for enjoyment and learning.

A Short History of Longwood Gardens

The Longwood Foundation

In 1937 Pierre du Pont created the Longwood Foundation to manage his charitable giving.

The foundation was split in two in 1970 becoming two foundations – Longwood Gardens, Inc. and the Longwood Foundation. Longwood Gardens, Inc. is the foundation which operates Longwood Gardens. About half of the money required to run Longwood Gardens comes from onsite revenue - ticket sales, special events, the restaurant, Gardens Shop, classes, and members. The other half comes from the Longwood Gardens, Inc. endowment.

The Longwood Foundation has made grants to non-profits of over 2 billion dollars since 1937. Historically, investments and grants have been made primarily in education, health care, environmental, housing, arts, social services, and civic sectors. Funds are also provided to Longwood Gardens, Inc. for some large capital projects.

Longwood Staff (as of February 10, 2016)

Please know these numbers change frequently.

190 Full-time employees (including 47 gardeners and 5 arborists)

300 Part-time and Seasonal employees (including 42 part-time gardeners)

800 Volunteers

50 Students

Conservatory Quick Facts

This document is a basic introduction to Longwood, the Conservatory, and many of the topics in this manual.

BRIEF HISTORY

Just before 1800, Joshua and Samuel Pierce began planting an arboretum on the grounds of their family's working farm, which had been purchased from William Penn. By 1850, the site was known as one of the finest collections of trees in the nation and one of the first public parks. Eventually the farm fell into disrepair.

In 1906, Pierre S. du Pont purchased the farm in order to save the trees. Pierre, the great-grandson of E. I. du Pont, inherited the strong sense of entrepreneurship, love of horticulture, and the value of leaving a personal legacy that ran strongly through his famous family's personal philosophies. Soon, Pierre was dedicating great amounts of his personal fortune to transform his property into "an Eden here on earth" and took great pride in delighting guests with the growing beauty of his personal home and sanctuary.

Longwood's Conservatory is one of the world's great greenhouse structures. It shelters 20 indoor gardens and 5,500 types of plants. The Conservatory was built from 1919 to 1921 and has been periodically expanded and renovated. At present, there are 195,668 square feet—or 4.5 acres—of covered display, production, and research greenhouses in the complex.

Pierre du Pont had the Conservatory built from 1919-1921. He added the Music Room in 1923, and the East Conservatory (Azalea House) and Ballroom in 1928-30. Other additions and renovations came after his death in 1954, including the Palm House, Waterlily Pools, Cascade Garden, and Tropical Terrace.

The Longwood Gardens of today bears little resemblance to the farm that Pierre du Pont purchased in 1906. With a yearly budget of nearly \$50 million and a staff of 1,300 employees, students and volunteers, Longwood is continuously evolving to meet the demands and tastes of the next century.

PLANT PRODUCTION

About 65% of the Conservatory seasonal plants are grown on site, in the production greenhouses and the growing fields. The rest are purchased from a variety of growers. All plant material is composted and all soil is recycled. The restaurant also contributes to the "green" effort by composting food waste and decomposable dishes, cups and flatware.

CONSERVATORY

Acacia Passage - original Conservatory construction – 1919-1921

Conservatory Quick Facts

The scent in the Acacia passage comes from the foliage of the *Acacia*. Mr. du Pont planted the original *Acacia*.

The hanging baskets are formed from many plants planted together to create one huge basket.

Banana House - original Conservatory construction in 1919 to 1921, made smaller in 1983

It takes about one year for a plant to grow from a young banana plant shoot to a flowering plant. It is another six months until the fruit is ready to eat.

The bananas are allowed to ripen and then harvested, unlike commercially grown bananas which are picked when green so they can be transported.

Bananas are herbaceous, not woody, so they are not true trees but are closely related to grasses.

Ballroom - constructed between 1929 and 1930 to highlight the organ and for entertaining, renovated 2005

Look above to the original etched pink glass ceiling. Now a second roof is over it. The black walnut floor was originally made from surplus World War I gunstock and was replaced in 2005.

The organ sound comes through the pink acoustic fabric on back wall of ballroom. The console controls the pipes and sound.

The Pipes Gallery behind the Ballroom showcases the Aeolian organ with 10,010 pipes viewable through large glass windows. The Organ completed a total renovation in 2011.

Bonsai Display - located in the North Passage

Bonsai is a style of growing plants. While the plants of Bonsai are minimized the flowers and fruit remain full sized. Bonsai artists choose plants with smaller flowers that look good on a Bonsai.

Bonsai (Tree in a Container) are full sized plants, not dwarfs. They are minimized by the grower using branch and root pruning techniques and by the size of the container. Root pruning is usually done in the spring.

If you hide the pot and any other size reference, a well styled Bonsai should look like a regular, full sized tree. A tapered trunk, exposed root system, drooping lower branches, and full branching structure help to create this illusion.

Cascade Garden - added in 1958 as a cactus house, redesigned in 1993

Conservatory Quick Facts

Features 16 waterfalls and 4 pools

The exotic stonework in the Cascade Garden was carved out of Pennsylvania mica.

Camellia House - original construction – 1919-1921, redesigned 2007

Camellias bloom from November through April with peak flowering in January and February. We conduct *Camellia* research in our Research Department.

East Conservatory Plaza Entrance - new construction – 2010

This innovative land sculpture with formal turf terraces and design connects one of the world's greatest Conservatories to the ancient trees which are the backbone of Longwood Gardens.

Just inside the largest green wall in North America (49,000 plants) creates jungle effect outside of state of the art restroom facilities.

East Conservatory- original construction –1928 Azalea House, redesigned several times

This state of the art redesign in 2005 was created on the footprint of the original 1928 space.

It was designed to have the feel of an outdoor garden with hidden spaces.

Plant highlights - Bamboo, camellias, potted hybrid grapefruit, and wood's cycad

Encephalartos woodii

Wood's Cycad

A featured plant in the old East Conservatory, this plant is extinct in nature, and there is no known female specimen on Earth.

Estate Fruit House - original construction 1919 to 1921, redesigned in 2002

The Estate Fruit House is an example of fruit growing as it was grown in the conservatories during Pierre du Pont's lifetime. Gardeners raise Mr. du Pont's favorite and most successful types of fruit to demonstrate this history.

The Estate Fruit House is composed of three separate spaces - the Nectarine

Conservatory Quick Facts

House, the Grapery, and the Melon House

Espalier is a French word that is pronounced “es-pal-yeah,” or “es-pal-yer” in English. It is defined today as any flattened tree, shrub, or vine trained in any pattern.

Exhibition Hall - original construction – 1919-1921, renovated 1995

The sunken marble floor is drained once weekly for cleaning and for special events.

Plant highlights – tropical tree ferns (their stems are watered!) and *Bougainvillea* vines above. The *Bougainvillea* are original to the space. Mr. du Pont first ordered tree ferns for the Exhibition Hall in 1921.

The small fountain in the north end was originally an orchestra pit.

Fern Passage - original construction project 1919 to 1921, adapted later

Venus Fly Traps and pitcher plants are a big attention grabber here in the two alcoves. Insect-eating plants attract insects with sweet secretions and brightly colored foliage. Insects are trapped by sticky hairs, waxy plates, or hair triggered leaves.

Ferns grow all over the Earth. They reproduce by spores rather than seeds.

Look for and point out the different patterns of sori (spore filled cases) on each fern.

Garden Path - original construction – 1919-1921, redesigned 2005

Original hanging lights from 1920 hang over path which highlights a large millstone.

Its cottage garden design mixes permanent and temporary plantings.

Indoor Children’s Garden - original construction – 1919-1921, redesigned 2007

This garden is designed to create a magical and stimulating experience to spark children’s imaginations and encourage exploration. It is a child-sized garden with adult areas on the periphery.

All the water is potable – treated and inspected daily.

The Children’s garden volunteer team is based here.

Orangery - original construction – 1919-1921, renovated 1995

Why is it called the Orangery? Citrus trees originally grew on the lawns but didn’t grow well and were replaced with lawns and beds.

Conservatory Quick Facts

Most of the seasonal plantings are rotated out every two weeks.

Plant highlights - *Bougainvillea* (Brazil), bird-of-paradise (South Africa), Cherokee roses and creeping fig climbing up the columns. The creeping fig and *Bougainvilleas* were installed in 1921.

Point out the mirrored backing to the beds which reflect the plants' beauty and the original columns which were reconstructed in 1995 during renovation of the Main Conservatory.

Show guests the metal plates in the floor which hide the hose connections. Pierre du Pont wanted all the mechanics to be hidden.

Orchid House - original construction – 1919-1921 made larger 1983

This is a display room housing the best 200-300 of our 6200 plant orchid collection.

Phalaenopsis orchids are the easiest to grow at home.

The “worms” crawling out of the pots are roots!

Epiphytic orchids (meaning they grow *on* trees) like their roots to have air! When you repot your Orchid, the roots will often climb right out again.

Mediterranean Garden - original construction – 1919-1921, redesigned 1993

Mediterranean is a climate, not a geographic area.

The pepper tree, *Schinus molle*, native to the Andes Mountains of Peru, has foliage and fruit that smells like pepper.

Longwood Gardens has the one of the largest collections of South African bulbs in the United States and many are displayed here.

Music Room – original construction in 1923, renovated 2005

The Music Room was designed as a space for the du Pont's private entertaining. Present day use is for special exhibitions and events

The Longwood Piano is a custom Steinway and plays daily.

Conservatory Quick Facts

North Passage and Growing House - original construction 1919 to 1921

Currently this space holds informal displays of crops used in the current Orangery and Exhibition Hall displays.

The Growing House at the end of the North Passage, also called the Carnation House, is traditionally used to grow cut flower specimens.

Palm House - built in 1966

Cycads and palms are both grown in this house. They look similar, but are not. Cycads are gymnosperms, (cone bearing plants) and are either male or female. Palms are angiosperms, (flowering plants) and have fronds that wrap around the trunk.

Common names can be fun to point out – foxtail, lipstick, old man, triangle palm. Common names can be misleading – The Sago Palm is a Cycad!

Cycads grew when the dinosaurs lived. Cycads peaked during the Jurassic Era.

Rose House - original construction 1919 to 1921

To ensure bloom out of season, Longwood's gardeners subject the roses in the Rose House to a period of summer dormancy in July, induced by withholding water and by severe pruning.

When guests sniff the roses and note the lack of aroma, point out that hybrid roses have mostly been bred for appearance rather than fragrance

Silver Garden - original construction in 1919 to 1921 for fruit production, redesigned 1987

The Silver Garden Path was designed to mimic a river bed. The plants surrounding it create the scenery around a flowing river – boulders and trees.

The olive tree rarely has fruit although at one time gardeners hung wooden fruit on it to weigh and shape the branches.

The designer allows just one spot of color in this serene silver and blue Garden. Point it out to guests.

Tropical Terrace - constructed in 1958 to connect the Rose House and Banana House

The Tropical Terrace houses plants of tropical origin. It represents not a single geographic area but rather encompasses examples of multiple forms of ornamental tropical plants, including herbaceous groundcovers, woody shrubs, small trees, and vines.

Conservatory Quick Facts

The Rabbit's Foot Fern basket was constructed in 1952. It is reinforced with stainless steel wire and has been enlarged several times.

Epiphytic plants hang down just as they do in their native habitat. Epiphytes do not cause any harm to the trees.

Tunnel System

Under the Conservatory are approximately 4000 feet of tunnels. They were designed to minimize the greenhouse look by putting all the mechanics as much as possible in the tunnels. (Fertilizer tanks, hose lines, electric, and heating systems, etc.).

Point out the hose openings in the floor to guests.

The main tunnels are quite high and easily walked. Some older tunnels are crawl spaces; staff almost has to slide through them.

Tunnels run from Children's Garden all the way to the Potting Shed

Waterlily Pools - originally constructed in 1957 with 13 curving pools. It was redesigned and reopened in 1989.

The pools are filled with 160,000 gallons of water and are 30 inches deep.

The pools are open May through October

Gardeners raise the enormous hybrid waterplatter *Victoria* x Longwood Hybrid and other waterplatters from seeds started in late January each year.

The water is mixed with a black dye. The black dye, available in the Gardens Shop, is used to keep the water free of algae, but it also hides the mechanics of the pools.

POTTING SHED, TUNNELS, HEATING, WATER, AND ELECTRICAL SYSTEMS

INTRODUCTION

The operations system put in place when the Conservatory was built included many innovative elements. A complex of tunnel systems below the Conservatory enables heating, plumbing, and electrical systems to be easily accessed yet stay hidden from view.

The Potting Shed was part of the original Conservatory Complex built in 1919-1921. It is still used today as it was then, as a work area to support the display conservatories. This is a wonderful place to let guests have a brief five minute peek behind the scenes.

HIGHLIGHTS

- The gardeners in the conservatories have their benches here which serve as desks and support for their conservatory displays. (The main greenhouse production area is in the larger greenhouse complex to the north of the Main Conservatory complex.)
- Bonsai plants are often pruned and re-potted in the potting shed.
- Many hanging baskets and plant standards are created and groomed here as well.
- There are approximately 4000 feet of tunnels under the Conservatory complex.

INTERPRETIVE TIPS

Invite interested guests to step inside the potting room for a quick look. *Walk guests only to the first support pole in the Potting Shed and remain on the main floor.* Try not to involve our busy gardeners.

On the right, point out the refrigeration system for holding seeds and tubers from the waterlily pools.

Point out the orchid bench on the left with the special potting soil and supplies and the proximity of the orchid growing houses. The first one is seen through the far glass window door.

Notice the bonsai bench on the right with reels of wire for bonsai training and the table used for other special projects.

POTTING SHED, TUNNELS, HEATING, WATER, AND ELECTRICAL SYSTEMS

Point out that the original staff was all men who wore white shirts and ties to work! Now, three fourths of our gardeners are women.

Ask guests if they can imagine wearing a tie to work in the garden.

Point out the original tracks from the initial metal cart system in the floor. Share this great story about Pierre's nephews and nieces:

The new conservatories were heaven to play in...the most fun was the rail system and the dollies for it. The center of this system was the potting shed which served as a round-house for the fleet. Nothing was more fun than to load several Casey Joneses on a car, push it as fast as it would go down the straightaway to see if it would jump off at the first corner. (If it didn't, the kids instead might fly off on a tangent.)

There were switches to set and a route to be planned by the drivers of 'Old 97' ... Uncle Pierre rode the push-car at least once to the delight of the railroad crew. The car did not fly off at the first corner, nor did Uncle Pierre. Apparently he learned how much fun it was because he never put an end to pushing the dollies. –

from 'Uncle Pierre and the Kids', New Year's Day book by Chick Laird

Use the collection of different compost, trash, and recycle containers as a kick off to talking about our composting system. (See operation information below)

Tunnels – ask guests if they know what is under their feet. Engage them in conversation about our warm heating grates and discuss the tunnels and systems below.

Point out a round hose opening in the floor (there is one just outside the potting shed near the Fruit House door). Lift out some hose for guests to see.

HISTORY

Built in 1921 with the original Conservatory, the potting shed has been used continuously for its original purpose. Benches and the layout have changed throughout the years.

The first indoor staff consisted of eight male gardeners who dressed in shirt and tie to work.

The original rail system in the floor is no longer used. The tracks did not get the heavy plants close enough to the growing benches and beds, so the tracks were filled in and rubber-wheeled carts were used then and now.

Tunnels were built under the entire Conservatory to minimize the greenhouse look by putting as much infrastructure as possible in the tunnels. Fertilizer tanks, hose lines, electricity, fire alarms, IT wiring, fiber optics, and plumbing are all found in the tunnels.

POTTING SHED,TUNNELS,HEATING,WATER,AND ELECTRICAL SYSTEMS

Over 300 men laid the forms for the tunnels when they were originally built. A 180' tall tower was built and used to direct the structural concrete up a long conveyer belt and then down again to where it was needed.

Today the tunnels run from the East and Children's Garden all the way to the Cascade Garden and connect to the potting shed and horticulture building. They also extend from the boiler room to under our main production facility behind the Conservatory.

OPERATION

Potting Shed

The **benches** are dedicated for use by those gardeners tending specific areas and can be moved if necessary to provide a larger or more convenient working area.

Hanging baskets can be hung from the racks near the ceiling, under the sky light in the center, or they are suspended from specially designed racks on wheels and transported directly to another location when they are completed. In addition, special displays are often constructed here before being moved to one of the conservatories.

A **freight elevator** provides access between the different levels. The floor below the potting shed is a **pot room** where clay pots are cleaned and stored. The **basement level** is also where the boiler room is located. The three boilers , small, medium, and large, supply steam heat to the Conservatory complex. The heating plant is run from a central control room which monitors heat production, water use, and other parameters which are all visible on a computer display.

At the far end of the North Passage is the **soil shed** and Conservatory composting bins.

Longwood strives to be as environmentally conscientious as possible. Everything is sorted for composting, from fiber pots to spent blooms and soil. Plastic pots are also sorted for recycling. Plant tops are separated from their roots so that we have separate brown and green composting materials. All plant material is transported to the Abbondi facility to the west of the public area of the garden. Here, composted material is allowed to decompose for a year and then reused as soil additives after being steamed to remove any possible soil contaminants. Other soil amendments are stored here for use in the potting shed and elsewhere in the conservatories. Grey water is recycled after being treated in the treatment facility and used in our outdoor beds.

POTTING SHED,TUNNELS,HEATING,WATER,AND ELECTRICAL SYSTEMS

Tunnels

There are approximately 4000 feet of tunnels. The main tunnels are large, spacious, and easily walked. Other tunnels are crawl spaces . Gardeners almost have to slide through them.

Square radiators are located under the metal grates of the Conservatory walkways. These radiators are the original steam radiators!

The floor below the potting shed is a pot room where clay pots are cleaned and stored. The basement level is where the boiler room is located.

Electricity

Longwood has over six miles of electrical cable on our property carrying 2400 volts of electricity. The ECR or Electrical Control Room under the Conservatory takes the 2400 volts of electricity and transforms it into 208 volts for everyday use. Programmable logical controls (PLCs) in the ECR control all the vents, heating, and snowmelt high up in the Conservatory.

Water Supply

Throughout the Conservatory hoses are attached to waterlines in the tunnels below. When not in use in public areas the hoses can be lowered through brass plates in the concrete floors and stored in the tunnels below. A separate set of waterlines parallels the first, but it contains a fertilizer injection system.

There are three storage tanks outside the Palm House which hold 30,000 gallons of water drawn from wells on the property. This water is pulled into the piping in the tunnels and used for watering all the plants as well as refilling the Exhibition Hall floor.

POTTING SHED,TUNNELS,HEATING,WATER,AND ELECTRICAL SYSTEMS

Boiler Room

The Maintenance Department keeps miles of steam lines in operation and the thousands of different types of plants grown indoors enjoy a favorable climate round-the-clock.

Three giant boilers of 8,000, 16,000, and 24,000 pounds of steam per hour make this possible. This graduated system utilizes the smallest boiler in mild weather, stepping up to the larger boilers as the weather gets colder.

Alone, the largest unit can supply all of the greenhouse heating needs, which leaves the other boilers for backup. Together, there is enough capacity to heat as many as 500 homes.

The boilers are capable of burning either fuel oil or natural gas, market dependent.

An electrical generator is activated in case of a power failure.

Two 150,000-gallon fuel tanks are buried underground, and to heat four acres of display and $\frac{3}{4}$ of an acre of production greenhouses for a year usually requires oil and gas totaling the equivalent of 300,000-gallons of fuel.

As steam runs in pipes hidden in a maze of tunnels beneath the Conservatory, thermostats in each greenhouse measure the temperature and open and close steam valves as well as control electric motors that operate overhead vents.

Most of our glass houses are kept at least ten degrees cooler at night, and a night watchman makes six rounds during the evening to ensure that temperatures are always what they should be throughout the greenhouses.

Plant Production, Research, and Sustainability

Longwood takes ordinary plants and makes them extraordinary. To provide these extraordinary plants we produce many of them in our production facilities. We also grow rare and unusual specimen plants. Longwood's standard of excellence and desire for beautiful and unique displays of specimen plants creates a need for unique display forms and larger scale plants to fit the soaring Conservatory. Our production team is responsible for growing and creating most of these plants and display forms. The production staff is dedicated to quality plant production. They take plants and through exceptional care, pinching and disbudding create huge blooming plants which are all of the highest quality.

Highlights

- We produce 65% of the plants used for display , 80,000 pots ranging from small peat pots to large topiary standards. In total, we display 120,000 pots each year, produced in house and by select commercial producers.
- Our production space comprises 80,000 square feet (two acres) of total greenhouse production space ,more space than most other public gardens.
- There are an additional 100,000 square feet (2 ½ acres) of field production. This does not include nursery and field grown plants.
- Our research division has introduced more than 130 new cultivars including garden standbys such as New Guinea impatiens or exotics like our gigantic waterplatters.
- We mix our own potting medium and have over 50 different types of specialized potting media.
- Longwood's Integrated Pest Management (IPM) team leads the field in applying IPM techniques to achieve horticultural excellence while preserving high environmental standards.
- Some plants are added into production planning five or more years out , especially when we need something quite large such as our lantana standards.

Plant Production, Research, and Sustainability

Interpretive Tips

When guests admire plants and ask where we grow these gorgeous plants, it is a perfect opportunity to talk about our facilities and how the plants are grown.

One talking point is the plant production staff's dedication to excellence . Every plant is a specimen vs. a standard potted plant. The excellence of our displays is directly related to the dedication of the production staff - pinching, disbudding, and tying up each plant. Most commercial growers can't put that time into each plant. Our growers at times will come in after hours to make sure their plants get the best care.

Encourage guests to return for one of our behind the scenes production tours which occur Thursdays through Sundays.

When talking about the size of the plants or blooms, point out that you can't buy plants of this size easily. We grow them to fit the scale of our soaring Conservatory not the average home.

IPM – When guests ask about disease or insects, point out that Longwood uses many low impact treatments such as spraying plants with water or using beneficial insects to keep our plants and environment healthy.
You can point out the sticky yellow cards which are used to collect and identify insects.

History

The first production greenhouses were built in 1921 at the west end of the Conservatory during the original construction by Pierre du Pont. The nursery was constructed originally as a temporary production facility in 1956.

There have been steady additions of new hoop houses added to the nursery area throughout the years. Research greenhouses north of the Conservatory were added in 1956 and remodeled in 1999 as well also adding nine more state of the art greenhouses. Sophisticated computerized systems in the newer houses mark Longwood Gardens as one of the leading users of technology in growing plants in a public garden.

Plant Production, Research, and Sustainability

Production Facilities

Two acres (80,000 square feet) of total greenhouse production space include a nursery, hoop houses, the original estate greenhouses, and nine newer production greenhouses. An additional 100,000 square feet (2 ½ acres) of field production adds more capability.

Nursery

Sixteen hoop houses (half round, poly covered greenhouses) are used for outdoor bedding plants, propagation, specialty chrysanthemums, and research.

Two and a half acres (100,000 square feet) of field production include chrysanthemums, outdoor bedding plants, replacement ornamental plants, and research plantings.

Conservatory Complex – (original growing houses and hoop house) There are dedicated areas for plant holding areas for different indoor display areas as well as production of seasonal indoor plantings. It includes five orchid houses and two small offseason waterlily tanks for early plant production and preparation.

Newest Production Facility

The facility behind our Conservatory contains 30,000 square feet of state- of- the- art production greenhouse space and 5000 square feet of research greenhouses.

In 1999 nine new greenhouses were added behind the Conservatory. Argus computers are used by growers in the range of nine greenhouses, making it possible to produce exquisite plants year round under all conditions. Each greenhouse is equipped with its own computerized system that automatically controls temperature, bench and perimeter heat, snow melters, and devices for cooling and shading. Unlike many production facilities, most of our mechanical systems are located beneath the greenhouses in a complex tunnel system. The production facility includes a soil mixing room and four large cooler rooms for forcing bulbs. The building also houses our research division where they trial new plants and develop new cultivars.

Production Practices and Techniques

Everything is grown on a specific schedule to ensure plants are produced for display when needed. Of course Mother Nature can interfere with that at times, and despite all efforts from a dedicated staff, plants may bloom too early or too late.

We can produce 65% of the plants used for display – 120,000 pots ranging from small peat pots to large topiary standards. Many large specimen plants are grown which take up a lot of space in the production houses and limit the ability to produce a higher number of plants. Throughout the past decade, a more rapid display turnover also demands more plants and more space.

Plant Production, Research, and Sustainability

Selecting which plants are grown in house and which are grown by contracted growers depends on the crop and our expertise. Some crops are more easily grown by other growers with the expertise and facility to produce a Longwood quality plant.

A computerized soil mixing system was introduced in 2000; now the growers “dial-up” the desired soil mixture. Over 50 recipes are stored.

Our gardeners want beautiful plants with larger blooms. How do we create these large plants?

1. Pinching off some of the flowers and disbudding some of the branches of a plant forcing all the energy to create fewer, larger flowers.
2. Choosing good cultivars – selecting strong and larger cultivars
3. Good management and plant practices

A number of different techniques are used for propagation of plants, including germinating seeds, rooting cuttings, grafting and micro-propagation, or tissue culture.

Creating Large Hanging Baskets

There are two main construction techniques:

1. Stainless steel baskets are constructed in two halves by Longwood’s metal shop. They are lined with very wet sphagnum moss and filled with damp planting medium. Each half is planted and allowed to grow, then bolted together.
2. Sphagnum moss baskets are also used. Gardeners push the root balls of plants such as orchids through a metal basket cage which supports them. There is damp sphagnum moss around the outside of the basket, and damp planting medium fills the center. A pot is placed into the top of the basket so that they can water the baskets by filling the empty pot on top. See illustration on the following page.

Plant Production, Research, and Sustainability

Sphagnum Moss Hanging Baskets at Longwood Gardens

Top-Planted Baskets

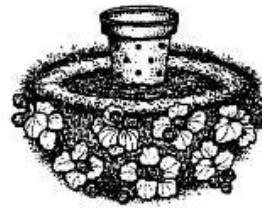


A perforated pot serves as a water reservoir. The wire frame is lined with 2-3" of wet sphagnum moss. The moss is built up the sides and over the rim.

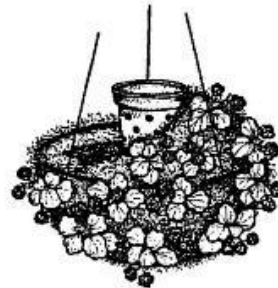


Plants are planted in the soil around the edge of the basket.

Top and Side-Planted Baskets



Rooted cuttings are planted in the sides of the baskets as the moss and soil are built up.



Continue to plant the sides as you build up the soil and moss around the pot.



The pot acts as a reservoir and distributes water evenly through the ball.

Plant Production, Research, and Sustainability

Creating Standards

A standard is a plant which is trained to have a long bare stem and full, shaped top. Standards can take anywhere from one to six years to reach display size. Some standards are grafted but not all. It depends on the plant used.

Grafted plants can be created using a bud graft or slit graft. The graft is rubber-banded in place and covered in Para film. Once the graft takes and new growth starts, the gardener lets the stems get to a specific length and then starts pinching and shaping the plant to create the shape they want.

Ungrafted plants are grown to a specified size. Once they reach that size all the branching structure and foliage along the stem is removed to a specific height. Then the upper branches are pinched and shaped to form the topiary top.

Growing Standards – Plants grown in a stylized tree form

Standard tree forms are plants which may not naturally have a tree form. They are started as cuttings with one straight stem trained to grow up a stake. Any side shoots or flowers are pinched or pruned off without disturbing the apical meristem or top growing point of the stem. Once the single stem plant reaches the desired height, the growing point is pinched or pruned off which causes the plant to start to branch. Once the desired height is achieved, the plant is shaped with uniform branching. Both *Allamanda* and *Euphorbia* are fast growing and get to be a display size plant in two to three years. Heads of standards are uniform in shape and well-proportioned to height. The Standards displayed in the Garden are not in containers. They are dug up in the fall and returned to the Production Greenhouses.

Plant Production, Research, and Sustainability

IPM – Integrated Pest Management

Integrated Pest Management (IPM) is the philosophy and strategy used to promote the health and well-being of all the desirable plants (trees, shrubs, flowers) and the physical plant at Longwood Gardens for over 20 years. Insects, mites, plant diseases, weeds, deer, mice, etc. may threaten our displays. They are called “pests” in this document for discussion. Our program’s goal is not total pest elimination, but instead, the successful management of pest populations at levels which are aesthetically acceptable and promote plant/public health.

Longwood's Integrated Pest Management (IPM) team leads the field in applying IPM techniques to achieve horticultural excellence while preserving environmental quality. IPM programs include: implementing innovative pest control measures, optimizing environmental conditions for plants, conducting relevant research to solve pest management problems, and applying the highest standards of pesticide safety. Simple steps like watering foliage to remove insects or using beneficial insects can reduce the need for application of pesticides.

When chemicals are used, our staff uses the highest standards of pesticide safety. We exceed established State and Federal Guidelines regarding pesticide use. We protect our highly trained applicators with Personal Protective Equipment, treating every pesticide as if it was the most toxic. The applicators take measures to isolate the public and other workers from these chemical applications until re-entry in areas of application are considered safe. Any pesticide applications occur after hours when guests are not affected.

IPM Practices

Longwood Gardens has a rich tradition of utilizing innovative methods and diverse principles to achieve our pest management objectives. Safety is of prime importance for both guest and staff. IPM is a team effort with the IPM staff working closely with the horticulture staff to identify and create treatment plans for different areas. The Gardens are scouted; an IPM plan is developed for each area or crop and then implemented.

Scouting

The IPM team, which consists of two full time staff and one intern, scout garden areas regularly to control insect and pest populations, weeds, and disease before they get out of control. They scout the production facilities, conservatories, and outdoor spaces on a regular schedule and are also notified by staff if there is a sudden plant health issue.

Sticky yellow cards are used to collect and identify insects in many areas of the greenhouses.

Plant Production, Research, and Sustainability

The Conservatory spaces are scheduled to be scouted every two weeks depending on the area and plants. IPM staff and interns look closely at plants to take bug counts and look for signs of disease or poor plant health.

A report is made to the gardener in charge of that space or garden. A decision is made to do nothing or to take action. The range of care includes taking no action, spraying a plant, using a beneficial or at times composting the crop of infected plants. It is all dependent on how much the plant or crop can tolerate before it is too severely weakened.

Generally the gardeners responsible for each area or crop do the actual treatments when needed.

Treatment Options

- Cultural control - Rotating infected plants out of display before issue gets too bad
- Watering techniques ; many fungal issues are caused by overwatering
- Physical control – get rid of an infected branch or few plants
- Weather – as seasons change pest population may fall
- Biological control – using good bugs to reduce bad bugs. Using biological controls are more costly and time consuming but much better for the environment. Longwood is working to grow their own beneficial insects such as *Vidalia* beetles and mealy bug destroyers Example: *Vidalia* beetle eats cottony cushion scale in the Acacia Passage
- Chemical control – last resort and least toxic option is always used.

Plant Selection

Plant Selection also plays a role in limiting use of chemical treatments. Thoughtful planning and layout of the plants in these gardens is the most important ingredient for healthy plants in this area. Preventive measures include: diverse plantings, strong healthy seedlings, disease resistant varieties, proper sunlight, air circulation, and healthy soil is used to prevent plant disease, rather than deal with pests later.

Healthy soil

Soil testing is performed so that the appropriate soil amendments are added. Healthy soil is essential for strong healthy disease resistant plants.

Plant Production, Research, and Sustainability

Wildlife

Longwood pursues a multifaceted approach in all its wildlife management efforts.

Deer Management

Netting is placed in the fall over spring bulbs to discourage deer from stepping in the beds and squirrels from collecting the bulbs. It is removed once the foliage emerges, usually in early March.

Deer fence: In the spring, once the spring bulbs start to grow and show some green, deer fencing is used. The 30 inch tall electric fence (2 wires) is put up every night and taken down in the morning. It is baited with peanut butter. Once deer have been shocked tasting the peanut butter they then learn to avoid the fencing and hopefully the plants.

Critter Management

Longwood has a team of about 15 cats that help control rodent problems in the gardens.

Sustainability

Longwood Gardens recently established its Eco-footprint, which has provided a quantitative measure of Longwood's environmental and energy inputs/outputs. It will be used to develop strategies to reduce demand-side energy consumption, reduce waste and enhance water conservation.

Land stewardship management seeks to preserve and protect the four watersheds and other valuable ecosystems which are contained within the property.

Longwood strives to be a model for recycling and re-use for the community. Our environmental practices are firmly grounded in our mission as the living legacy of Pierre S. du Pont. Our composting program collects 8,000 cubic yards of discarded organic material. We recycle everything possible from batteries, paper and plastic, aluminum and much more.

Our solar field produces about 2 million kilowatt hours per year, which is the electrical equivalent of powering 181 average homes. It is expected to offset our energy consumption by nearly 28% and can reduce our annual carbon dioxide emissions by 1,367 tons.

Plant Production, Research, and Sustainability

Research

The Research Division at Longwood Gardens focuses on finding and evaluating new plants, studying and improving growing methods, improving plant characteristics through breeding efforts and cultural techniques, and correctly identifying, recording, and mapping all plant accessions. A staff of five maintains this rigorous program.

Plants are obtained from expeditions (program started in 1958 and has traveled to 50 countries and all continents except Antarctica). Plants are obtained from breeding projects, plant donations, seed exchanges, and commercial sources. Approximately 200-250 new plants are evaluated each year

Current Longwood breeding projects include projects working with *Clivia*, *Camellia*, *Canna*, *Sarracenia* and *Cestrum*. Current breeding projects include:

Camellia: developing an ever blooming, cold hardy, and fragrant plant

Clivia: developing a multi-petal or double yellow flower cultivar

Cannas: produce a compact plant in a wide range of colors that are “self-cleaning”.

Today the cannas project is focused on eliminating viruses from Longwood cultivars and selecting new cultivars from a breeding program.

Longwood has introduced more than 130 new cultivars including

- Impatiens
- Cannas
- Camellias
- Ivies
- Hollies
- Rhododendrons
- Water platters

A plant evaluation committee decides if the new plant is worthy of display or further work. Many of these unusual plants are then grown into a crop which will appear in our displays.

Research Facilities

Non-hardy plants trials and greenhouse experiments are conducted in our 5500 square foot research greenhouses and hardy plant trials and field research occupy about 8 acres at the Longwood nursery. Longwood facilities include a soil lab and tissue culture lab. Tissue culture, or growing plants in test tubes, is an important part of that process. Tissue culture allows us to grow plants in a sterile environment to multiply plants quickly, eliminate viruses, and/or maintain a bank of virus-free plant stock.

Resources

Longwood Gardens Resources

- Garden Ambassador trainings
- Garden Ambassador Manual
- Daily Line-Up on the Garden Ambassador Desk
- Garden Map– way finding, events and current activities
- Staff – staff are happy to help but be respectful of their time
- Library – you may take books out of the library or browse there
- Website – www.longwoodgardens.org

There is a wealth of information found here

- Garden Highlights <http://longwoodgardens.org/gardens/highlights>
- Blog - <http://longwoodgardens.org/blog> - a great source of interesting stories
- Heritage Exhibit in the Peirce–du Pont House – excellent source for history questions
- Take time to walk the Gardens and look at the plants and locations you have read about.
- Talks and tours led by staff and experienced volunteers throughout the gardens are a wealth of information.
- Weekly email updates

Resources

Plant and History Resources

- Chester County Historical Society
225 N. High Street
West Chester, PA 19380-2658
610-692-4800
<http://www.chestercohistorical.org/>
- Hagley Museum and Library
200 Hagley Road
Wilmington, Delaware
302-658-2400
<http://www.hagley.org/>
- The Pennsylvania Horticultural Society has an information service:
610-625-8250
- To find your local extension agency, visit:
<http://www.csrees.usda.gov/Extension/index.html>
- Plant information web sites:
- Plant hardiness zones:
<http://www.usna.usda.gov/Hardzone/ushzmap.html>
- USDA plants data base:
<http://plants.usda.gov/>
- List of native plants in PA:
<http://www.fhwa.dot.gov/environment/rdsduse/pa.htm>
- Native plants in PA:
<http://www.dcnr.state.pa.us/forestry/wildplant/native.aspx>
- Invasive plants in PA:
<http://www.dcnr.state.pa.us/forestry/wildplant/invasive.aspx>
- Brandywine Conservancy, Environmental Management Center, protecting the natural resources of the Brandywine watershed:
<http://www.brandywineconservancy.org/index2.html>