



The Colonial Williamsburg Foundation (CWF) is the oldest and largest outdoor living history museum in the United States. The site includes over 800 structures on more than 300 acres. Collections include archeological material, decorative arts and other cultural heritage items.



For many years, CWF contracted with a pest service company to handle our collections, rodent, stinging insect, and miscellaneous pest problems. Early in 2009 a team was assembled of facilities maintenance, landscape, collections, and finance colleagues to write a request for pricing to renew our contract. We laid out a definition of success - we wanted to prevent harm to people, collections and buildings, use minimal pesticide, and foster a sense of ownership of the IPM program by Foundation employees. Our provider needed to be familiar with the complicated interconnectedness of our collections, architecture, landscape, livestock, commercial, and residential activities.



We recognized that a properly run IPM program, focused on prevention, should reduce typical pest company actions, and that no company planned to work itself out of a job. It became obvious that whoever did this work really should be one of us. We presented this rationale and a remarkably reasonable budget and were allowed to create a job during challenging financial times. Ryan Jones had all of the qualifications, plus he's a good teacher and learner, a real asset to CW. Since its implementation, our IPM program has not only been successful. Enough efficiency has been realized to expand to include treatment for WDI's, primarily termites. Preventive activities have paid off. We've employed good communication, promoted building fixes and personal responsibility. My time on the program is spent evaluating priorities and backing Ryan up – instead of managing a contract implemented by an outsider.

The screenshot shows the 'CollectionPests.com' data overview page. The page has a dark blue header with the site name and a pest icon. Below the header is a navigation bar with tabs: Overview, Observations, Reports / Graphs, Pests, Traps, Maps, and Help. The main content area displays a table with pest monitoring data. The table has five columns: 'TOTAL OBSERVATIONS', 'LAST 30 DAYS', '30 - 60 DAYS', '60 - 90 DAYS', and 'COUNT DIRECTION'. The data is organized into categories, each with a small icon on the left. The categories and their values are as follows:

	TOTAL OBSERVATIONS	LAST 30 DAYS	30 - 60 DAYS	60 - 90 DAYS	COUNT DIRECTION
Total:	11907	922	152	0	↑ ↑
UNKNOWNs:	215	0	0	0	↔ ↔
Indicators:	85	0	0	0	↔ ↔
Incidentals:	341	0	4	0	↑ ↓
Nuisances:	3349	574	68	0	↑ ↑
Pests:	3299	193	52	0	↑ ↑
Occasional Invaders:	3056	15	23	0	↑ ↓
Rodent Stations:	0	0	0	0	↔ ↔
Rodent Station Pests:	0	0	0	0	↔ ↔
Wood-Destroying Insects:	0	0	0	0	↔ ↔
Stinging Insects:	1025	0	0	0	↔ ↔
Adults:	11186	834	139	0	↑ ↑
Larvas:	430	1	9	0	↑ ↓
Eggs:	4	0	0	0	↔ ↔
UNKNOWNs:	4	0	0	0	↔ ↔
Nymphs:	171	7	0	0	↔ ↑
Pupae:	0	0	0	0	↔ ↔

Ryan inspects all of our monitors or traps and maintains data using Leon Zak's CollectionsPests program. He makes routine building inspections, looking for structural problems that are conducive to pest activity. Work orders are generated to correct these conditions, reducing the need for pesticide applications.



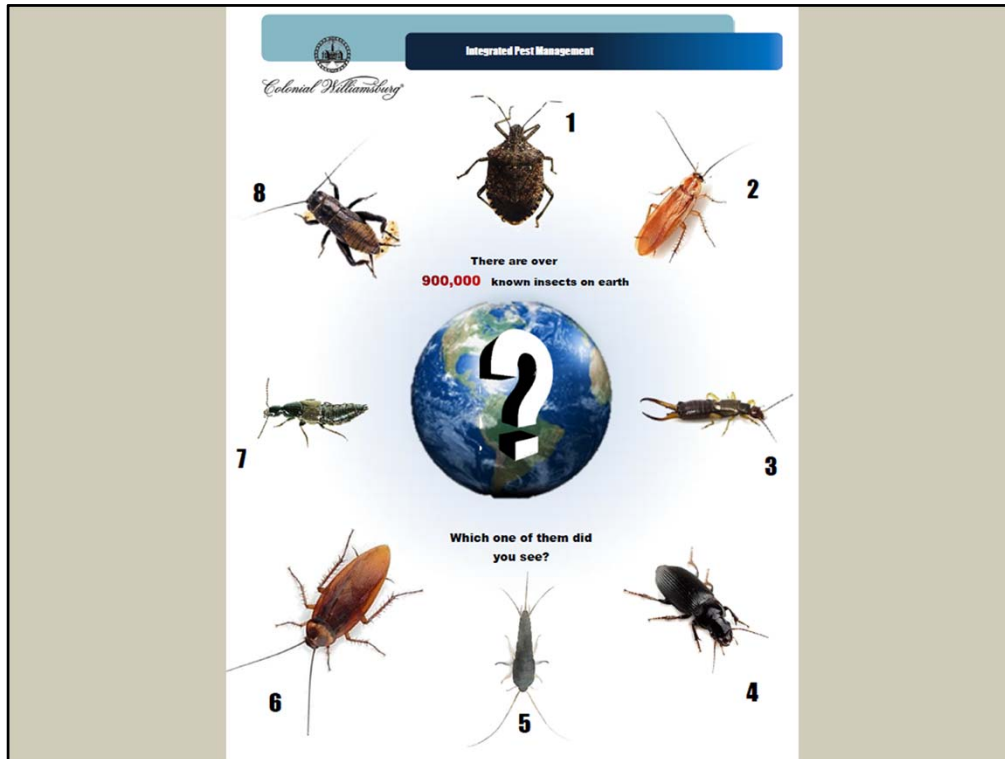


“Eek a mouse, roach, or ant” from a staff member gets an initial response of “clean up the area and we’ll go from there”. Ryan has multiple applicator certifications and because we work closely he can use creative approaches when pesticide application is deemed necessary.

Ryan and a landscape colleague provide annual IPM recertification training for over forty in-house applicators, fulfilling OSHA requirements for use of pesticides by landscape and facilities maintenance staff. During training they emphasize seasonal aspects of pest activity and increase awareness of what is a genuine pest issue. Conservation technicians participate in IPM inspections and practices. They recognize signs of pest activity, understand the rationale of trap and monitor placement, and implement the hygiene piece.

<p><b>Insects</b></p> <p><b>Stinging Insects</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Bald Faced Hornet</a></li> <li>• <a href="#">Carpenter Bees</a></li> <li>• <a href="#">Cicada Killer Fact Sheet</a></li> <li>• <a href="#">European Hornet</a></li> <li>• <a href="#">Solitary Ground Bees</a></li> <li>• <a href="#">Solitary Bees - Mason and Leaf Cutter Bees</a></li> <li>• <a href="#">Honey Bees</a></li> <li>• <a href="#">Mud Dauber</a></li> <li>• <a href="#">Paper Wasps</a></li> <li>• <a href="#">Tiger Fly Bee</a></li> <li>• <a href="#">Yellow Jacket Fact Sheet</a></li> </ul> <p><b>Occasional Invaders</b></p> <p>(Chance of infestation: Slight-None)</p> <ul style="list-style-type: none"> <li>• <a href="#">Ants</a></li> <li>• <a href="#">Boxelder bugs</a></li> <li>• <a href="#">Clover Mites</a></li> <li>• <a href="#">Earwig</a></li> <li>• <a href="#">Green June Beetle</a></li> <li>• <a href="#">Ground Beetle</a></li> <li>• <a href="#">House Centipedes</a></li> <li>• <a href="#">House Cricket</a></li> <li>• <a href="#">Ladybugs</a></li> <li>• <a href="#">Pennsylvania Wood Roach</a></li> <li>• <a href="#">Pill Bug</a></li> <li>• <a href="#">Smoky Brown Cockroach</a></li> </ul>	<p><b>Structural/Artifact Infesting Insects</b></p> <p>(Chance of infestation: Moderate - Probable)</p> <ul style="list-style-type: none"> <li>• <a href="#">American Cockroach</a></li> <li>• <a href="#">Carpet Beetles</a></li> <li>• <a href="#">Cluster Flies</a></li> <li>• <a href="#">Camel Cave Cricket</a></li> <li>• <a href="#">Silverfish</a></li> <li>• <a href="#">Eastern Subterranean Termites</a></li> </ul> <p><b>Stored Product Pests</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Cigarette Beetles</a></li> <li>• <a href="#">Drugstore Beetle</a></li> <li>• <a href="#">Indian Meal Moth</a></li> <li>• <a href="#">Red-Legged Ham Beetle</a></li> </ul> <p><b>Spiders: Danger</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Black Widow Spider</a></li> <li>• <a href="#">Brown Recluse Spider</a></li> <li>• <a href="#">Yellow Sac Spider</a></li> </ul> <p><b>Spiders: Caution</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Garden Spider</a></li> <li>• <a href="#">House Spider</a></li> <li>• <a href="#">Spiny Orb Weaving Spider</a></li> </ul>	<p><b>Identification Aids</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Recluse ID</a></li> <li>• <a href="#">What's That Spider?</a></li> <li>• <a href="#">Spider Chart Key</a></li> <li>• <a href="#">Termite Swarms vs. Ant Swarms</a></li> <li>• <a href="#">Solitary Ground Bee vs. Yellow Jacket</a></li> <li>• <a href="#">What's the Bee?</a></li> <li>• <a href="#">Stink Bugs</a></li> <li>• <a href="#">What's that Bug?</a></li> </ul> <p><b>Prevention</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Firewood</a></li> </ul> <p><b>Pest Management</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Pest Management Policy</a></li> <li>• <a href="#">Pesticides Approved for Application (Attach 1)</a></li> <li>• <a href="#">Spider Comparison Chart and Information Links</a></li> </ul> <p><b>Stinging Insects Prevention</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Stinging Insects Safety Sheet for Staff and Interpreters</a></li> <li>• <a href="#">Stinging Insects Safety Sheet for Food Service</a></li> <li>• <a href="#">Stinging Insects Safety Sheet for Maintenance</a></li> </ul>
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We save time and teach IPM by using info sheets about pests, safety, and IPM aspects of preventive conservation. These are available on our intranet and sent out in response to problems – real or perceived.



This one is often sent out in response to “I found a bug”.

## Colonial Williamsburg

### Integrated Pest Management Insect Fact Sheet

#### Firewood: Correct Storage Procedures

Cold weather instigates increased consumption of firewood in the historic area. While the cracking of a warm blaze can create a hospitable atmosphere, improper storage practices invite pest problems that can be difficult to extinguish.

Follow these simple guidelines to minimize the likelihood of pest activity at your site:

Store firewood away from exterior walls of building.

This will prevent earwigs, cockroaches, centipedes, and even termites from nesting directly against the structure and finding their way into wall voids and other interior areas.

Try to purchase only enough firewood to last through a single season.

Woodpiles that sit for several seasons are a primary harborage area for vermin. Termites often infest damp, undisturbed wood during the summer months, pulling colonies closer to historic structures. Stack leftover wood on metal supports away from houses and outbuildings to minimize wood/ground contact. Avoid storing firewood in outbuildings.

Never store firewood indoors.

Ants, cockroaches, termites, and other insects often lurk inside of firewood, even that which has been recently stacked (see above images of Old House borer and Powder post damage to newly purchased wood). Avoid exposing historic structures to destructive pests by burning wood as soon as it is brought inside.



**“ A new study published in the Journal of Economic Entomology reports that live insects were found in 47% of firewood bundles purchased from big box stores, gas stations and grocery stores in Colorado, New Mexico, Utah and Wyoming. ”**

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*ScienceDaily*  
Top Story for the Week of October 2012

## Colonial Williamsburg

### Integrated Pest Management Insect Fact Sheet

#### Ant Treatment Protocol

**Did you know?**

1. Ants are natural aerators of soil.
2. Ant predatory foraging habits help keep insect pest populations down.

When ants are in their native environment, they are a necessary and beneficial part of our ecosystem. As such, broad-range insecticidal treatments targeting large outdoor ant populations are unnecessary and unproductive. Strategically placed indoor bait applications are a much safer alternative to liquid treatments, and are usually effective in reducing activity.

In cases of extreme or persistent ant infestation, nonrepellent exterior treatments may be considered as part of a holistic solution.

**Deciding on a Treatment:**

An isolated sighting or a few ants crawling across a desktop might not be cause for an insecticide application. Each situation is unique and calls for good judgment. The following examples can serve as a guideline for making decisions:



**“A few ants on my desk”**

If ants are being seen in low numbers and/or at sporadic intervals, consider a wait-and-see approach.

- Employees should be encouraged to wipe down windowsills and other affected spaces with an appropriate cleaning product to erase pheromone trails and discourage further activity.
- Employees should be encouraged to store food and beverages in sealed containers, or, better yet, eliminate snacking from their worksite.
- Items offered for recycling (cans, bottles, etc.) should be rinsed before being placed in recycling containers.

**“Lots of ants have been trailing in my area for several days”**

If ants are still being seen after a week of heightened sanitation and diligent cleaning of pheromone trails, a bait application may be made in problem areas.

- Ant activity may increase for a couple of days while bait is distributed throughout the colony.

**Contact one of our IPM technicians at ext. 7080 if:**

- Activity has not improved in 3-5 days.
- Ant activity is excessive.
- Carpenter ants are identified anywhere on property (see fact sheet on Carpenter ants).

Follow up might be fact sheets like these.







We've found that visitors are very curious about our pest program. Colleen and I share information about it in regular museum tours.



Even our PR colleagues have become aware of the pest program – this article was on our home web page in conjunction with the IPM conference we had in March.

Keeping colleagues informed about pest problems and prevention has paid dividends. Activities that are kept in the background in many museums have become a point of interest and pride for staff, donors and visitors at the Colonial Williamsburg Foundation.