

**The National Park Service
Department of the Interior**

Vanishing Treasures Program



The Vanishing Treasures Pest Management Guide:

Resources to Develop & Implement Integrated Pest Management Plans

**Prepared by: The Architectural Preservation Institute at Colorado
State University
Katherine Mattor & Christopher Koziol
November 6, 2006**

The NPS Vanishing Treasures Pest Management Guide: Resources to Develop & Implement Integrated Pest Management Plans

Introduction

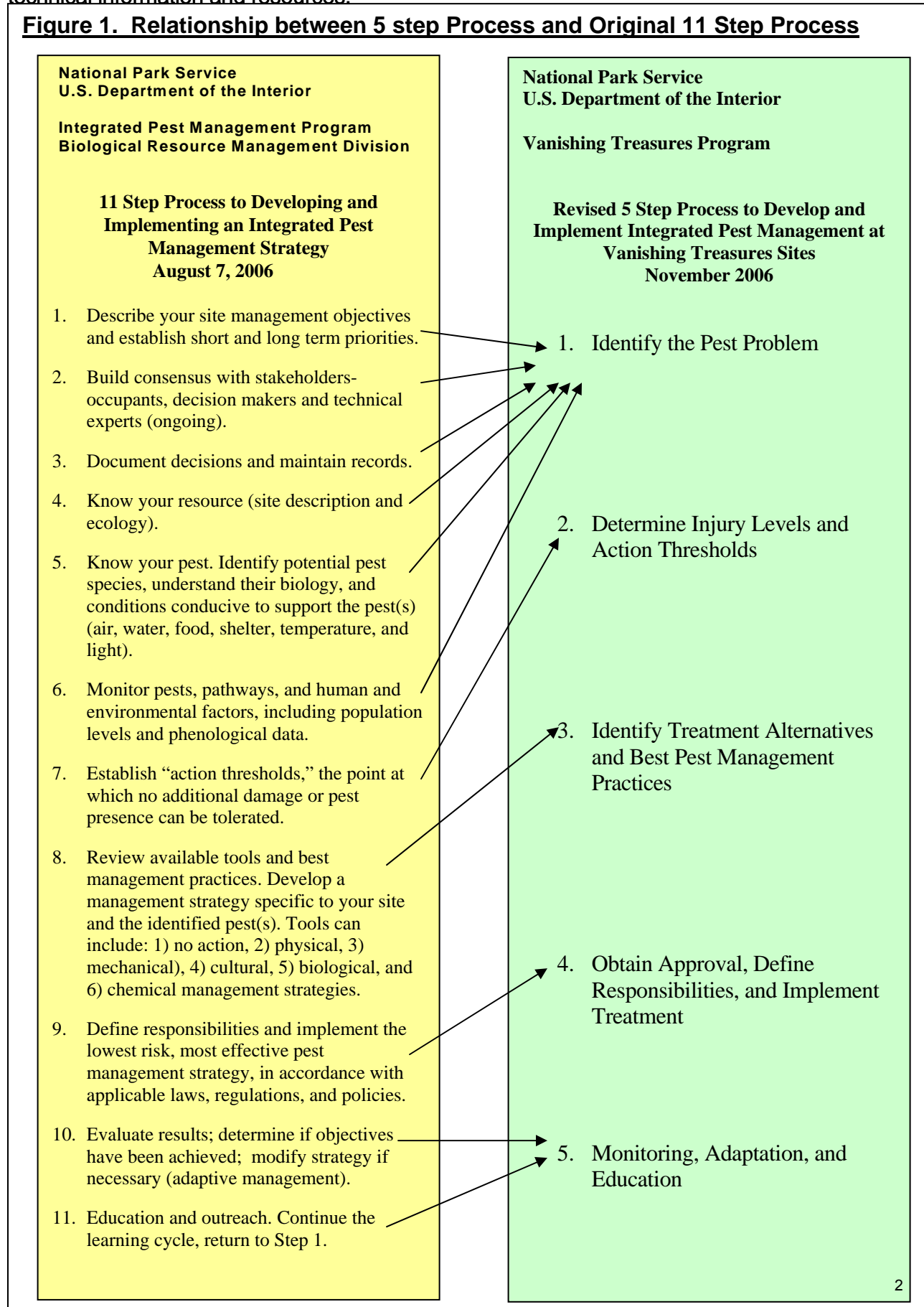
As defined by the National Park Service Management Policies (2006), "Pests are living organisms that interfere with the purposes or management objectives of a specific site within a park, or that jeopardizes human health or safety." Any organism can be a pest depending on the situation. A pest can be species of bird, mammal, insect, plant, fungus, etc. Pests are often symptoms of underlying problems and can be managed effectively through an Integrated Pest Management (IPM) program. The most suitable method(s) used to manage pests will vary depending on the situation and characteristics of the site.

IPM is a science based decision-making process that combines the knowledge of pest biology and the environment where the pest is occurring in order to coordinate an effective pest management strategy with the least risk to people, resources, and the environment. It is a systematic approach that focuses on solving the underlying problems in order to address pest issues for the long-term rather than repeatedly addressing the pest or symptoms on a short-term or "quick fix" basis. The IPM approach includes changing the immediate site conditions and modifying associated human behavior through education and concurrence of the site manager or superintendent. By using a site specific, interdisciplinary approach to pest management, IPM is able to prevent unacceptable levels of pest damage in a way that balances costs, benefits, public health, and environmental quality.

This guide was developed to assist National Park Service Vanishing Treasures managers in addressing pest problems efficiently and with ease. Since the Vanishing Treasures sites are identified as being threatened by significant deterioration, successful IPM programs are critically important for the prevention and control of irreversible pest damages. This guide corresponds with the "11 Step Process to Developing and Implementing an Integrated Pest Management Strategy." These eleven steps have been abridged into the following five steps: Identify the Pest Problem; Determine Action Thresholds; Identify Treatment Alternatives and Best Pest Management Practices; Obtain Approval, Define Responsibilities, and Implement Treatment; and Monitoring, Adaptation, and Education (Refer to Figure 1). This guide can be used as a quick reference to answer common questions

about IPM for Vanishing Treasures park managers. The appendices provide applicable technical information and resources.

Figure 1. Relationship between 5 step Process and Original 11 Step Process



Step 1. Identify the Pest Problem (Corresponds to original steps 1-6)

1. *Is it a pest?*

According to the National Park Service Management Policies (2006), "Pests are living organisms that interfere with the purposes or management objectives of a specific site within a park, or that jeopardize human health or safety." Any organism can be a pest depending upon the situation. A pest may be a species of bird, mammal, insect, fungus, or plant.

The most effective way to address a pest problem is to alter or eliminate the site conditions that foster the pest so they are not conducive to supporting the pest. One of the first actions to take when damage or a suspected organism is found on site is to identify the species and determine the conditions that support it. This includes determining the pest's biological needs (food, water, appropriate shelter), distribution, feeding habits, reproduction, predators, social structure, senses, and habits, as well as site uses that may affect the pest and any potential threats to humans and the environment it is found in.

It is important to determine if the pest is interfering with the management objectives of the site. This will verify whether it is indeed a pest or simply a casual passerby. The park managers can then identify and incorporate the most effective and lowest risk actions into the site's management plan for long-term control of the pest problem. For example, when the weather cools down, rodent pressure increases as they try to gain access to heated structures for warmth and shelter. By scheduling annual exclusion efforts in late summer, the park will be able to greatly reduce the risk of damage to artifacts or the presence of rodent borne disease (i.e. hantavirus, leptospirosis) from rodent activity.

Proactive measure –identify potential pest species in your site management plan. Prevent these pests by identifying the conditions that may be conducive to them, and implement a course of action to correct those conditions. For example, if food products are stored in an exhibit building or a living history exhibit, you can expect to attract rodents and grain moths. In such instances, it is appropriate to switch to synthetic food in the display and ensure the building windows and doors seal tightly.

Step 1. Identifying the Pest Problem (Continued)

2. *How do you determine if you have a pest problem?*

Early detection and rapid response is critical to identifying pests as they arrive, rather than after they are established. In order to recognize and accurately determine the extent of any pest problem, a regular monitoring program should be in place. Monitoring is used to detect pest issues and any environmental conditions conducive to pests. It is an ongoing evaluation used to identify and evaluate changing conditions over time.

The monitoring program should comply with the short and long-term objectives of the site. Record your site management objectives before you have a pest problem and review them prior to developing a management plan should a pest issue arise. This will ensure that all involved parties are working toward the same goal. The protocols for monitoring should be documented and repeatable, allowing for continuity if staff changes occur. Park managers should periodically evaluate the monitoring program and adjust it if changes are needed. If the site uses change with the seasons, your monitoring protocols may also change.

The monitoring program should identify and record pest concentrations and conditions over time, allowing park managers to determine whether it is an actual pest or just a casual invader. Monitoring records will include identification of pest species, food and water sources, shelter sites, entrance sites, and changes in the numbers or frequency of invasions. Maintain a record of the site conditions, including but not limited to, historical and current assessments of structural and ecological conditions, site use, weather, and schedules of maintenance and inspections. It is important to document whether those conditions meet the site management objectives.

Sticky traps are a commonly used tool in monitoring programs. Set in specified locations with a master map of locations, sticky traps will assist in the development of a long-term record of potential and/or actual pests. It is also extremely advantageous to build a reference collection of identified specimens collected from your Vanishing Treasures site. This has proven to be an effective tool that provides visual references in addition to a record of the date, time and exact location the specimen were found.

Step 1. Identifying the Pest Problem (Continued)

3. *Is it a native or exotic species?*
- Appropriate management options will vary according to whether the species is native or exotic, noninvasive or invasive, and threatened or endangered. Management options will also depend on what management zone the pest is found. Native species are protected on NPS lands; however, native species can reach pest status in some situations. Proposed management actions that may affect a threatened or endangered species or its habitat must be reviewed in accordance with the Section 7 of the Endangered Species Act. Section 7 directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the Fish and Wildlife Service, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. This legislation applies to management of Federal lands as well as other Federal actions that may affect listed species, such as Federal approval of private activities through the issuance of Federal permits, licenses, or other actions. Proposed management of pest bird species may require review through the Migratory Bird treaty Act. Contact your IPM Coordinator for assistance.
4. *Where can we find historical data pertinent to the Vanishing Treasures site?*
- There are several resources for historical data of Vanishing Treasures sites. Regional and Service-wide IPM Coordinators have knowledge of similar pest issues in other sites and some have historical files on pest issues at different parks. Historical data may also be found in various National Park Service archives and databases.

Step 1. Identifying the Pest Problem (Continued)

5. *Who should be notified of the pest problem?*

If any immediate threats to humans or resources are identified, direct action should be taken to prevent visitor access to affected areas by closing the area or posting warning signs. The first point of contact should be the park IPM Coordinator and the public health representative if human safety is at risk. As some parks do not have an IPM Coordinator, the park managers will need to identify an individual who will carry out the tasks of a park IPM coordinator.

An interdisciplinary (ID) team of experts should be involved with all IPM decisions at Vanishing Treasures sites. The ID team should consist of technical subject experts from every field associated with potential pest problems at the site. This may include, but is not limited to cultural resources, archeology, anthropology, engineering, natural resources, maintenance, integrated pest management, interpretation, public relations, public health specialists, tribal representation, and architectural conservation. The ID team should involve an NPS IPM Coordinator who can provide guidance with pest management issues and is familiar with pertinent policies, management actions, and the appropriate technical experts. The ID team will facilitate the review and approval of proposed management alternatives.

Management alternatives should include input from the decision-makers, technical experts, staff, site users, and other stakeholders through regular communication and outreach. This will assist in developing management strategies in accordance with applicable policies and stakeholder concerns. The Superintendent has the final authority and responsibility for decision-making and for the condition of the resource.

Step 2. Determine the Injury Level and Action Threshold (Corresponds to Original Steps 6, 7)

- 1. What is an Injury Level?*

The injury level is the point at which absolutely no additional damage can be tolerated. The ID team will determine the injury level according to the number of pests or the amount of pest-related damage the site can tolerate before the damage conflicts with the management objectives of the site and becomes a threat to the structure, the environment, or human health. The injury level will depend on the kind of pest and the management zone where it is located. Oftentimes, the injury levels for the same pest will vary at different sites or management zones. Understanding the injury level is vital to making sound integrated pest management decisions and must be determined before the action level.
- 2. What is the Action Threshold?*

The action threshold is established after the injury level is determined. The action threshold is defined as the number of pests or the level of pest damage that will trigger the implementation of appropriate pest management actions. The action level will therefore be lower than the injury level. The ID team will establish the action thresholds to initiate action before pest or damage levels reach the injury level, where unacceptable levels of damage will occur.

Sighting a single pest does not always mean immediate management is needed. Understanding the level at which a pest becomes a threat to the structure, the environment or human health is vital to making sound pest management decisions.
- 3. How are the Injury Level and Action Threshold established?*

The ID team establishes the Injury Level and Action Thresholds based on the monitoring records, pest biology, and estimations of the tolerable damages at the site. The injury level and action thresholds must adhere to the management goals and objectives of the park and the management zone(s) the pest is occupying. Identification of the injury level and action threshold should be determined through consensus from the decision makers and technical experts. Input may also be included from stakeholders. The superintendent, who is ultimately responsible for the park's management, will make the final decision on injury and action threshold levels.

Step 2. Determine Injury Levels and Action Thresholds (Continued)

4. *How do you determine if the action threshold has been met?*

An IPM pest monitoring program allows for early detection and an immediate response when the level of pest activity has reached the action threshold. The IPM pest monitoring program goes beyond the standard monitoring program through a more frequently scheduled analysis and detailed record of the pest and/or damage levels. This will prevent damages from reaching the injury level. By documenting pest population trends and damages to the resource before and after the treatment begins, managers will be able to identify if the proposed injury level and action thresholds are accurate.

5. *What should the IPM monitoring program include?*

The IPM pest monitoring program provides baseline and regularly scheduled analysis and recording of the pest and/or damage levels. The frequency and the tools used for pest monitoring are determined by several factors, including pest biology, climate, staffing capability, and the type of resource. Monitoring protocols should be developed for data to be collected in a uniform manner to determine trends. Quantitative data is valuable because it can be compared scientifically and statistically. This should be combined with qualitative observations to provide phenological records. Monitoring may include records of pest sightings, population levels, number of active burrows or nests, sources of pest intrusion, amount of pest activity and damage, and changes in the rate of structural deterioration.

An important part of the IPM pest monitoring program is to assign well-defined monitoring tasks and responsibilities to specific members of the ID team and staff so monitoring is conducted regularly and each member understands who is responsible for each task. The results of the IPM pest monitoring program will allow the ID team and park supervisor to make informed management decisions that protect the resources.

Step 3. Identify Treatment Alternatives (Corresponds to Original Step 8)

1. *How do you determine appropriate treatment alternatives for pest problems at Vanishing Treasures sites?*

The ID team determines the most suitable strategy for the pest situation by identifying the most target specific, effective, efficient, and least toxic management alternatives. The strategy must also have the least potential hazard to people, property, and the environment and be applied at the most appropriate time.

General management tools include: (a) no action, (b) physical (manual or mechanical), (c) cultural, (d) biological, and (e) chemical management strategies. The ID team must review the available tools and identify several tiered treatment strategies, beginning with the lowest risk treatment alternatives before moving to higher risk management options. IPM management tools should be used in combination to best manage each pest situation. Short and long-term treatment strategies may include different tools and procedures. The appropriate management tools need to be determined on a case-by case basis.

The ID team must take into account any risks to the resource, public health, and the surrounding environment during the review process. Each tool has specific risks associated with it and may be a low risk option in one situation and high risk in another. Hand removal of a weed with a tap root from a historic stone wall for example, will present two risks: one is the risk of loosening the mortar from the pulling action; second is that the weed may re-sprout with multiple shoots. In this case, use of a systemic herbicide, determined to be low risk for use on historic brick, may be most suitable as the chemical would kill the taproot and prevent re-sprouting.

The proposed treatments must be in accordance with the management objectives of the site, as well as the applicable laws, policies, and regulations. The regional and/or service-wide IPM coordinators can assist the ID team to ensure the treatment strategy meets these requirements.

Step 3. Identify Treatment Alternatives (Continued)

2. *What are non-pesticide actions?*

These are actions taken to modify the pest habitat in order to reduce the carrying capacity of the site, exclude the pest, or otherwise make the site's environment incompatible with the needs of the pest. This alternative is critically important. General management options (a) – (c) above are non-pesticide actions.
3. *When should biological controls or chemical pesticides be used?*

Biological controls and chemical pesticides are used as management tools when non-pesticide actions are determined to be harmful or ineffective for the specific situation. Listed above, general management option (d) refers to biological control agents and general management option (e) refers to chemical pesticides.
4. *How do you identify the impacts of the treatments to cultural resources, staff, and visitors?*

Communicate, Cooperate and Coordinate! Discuss all treatment alternatives with your ID team of technical experts, as well as your decision makers, stakeholders, and tribal entities. The State Historic Preservation Office (SHPO) must be consulted with when IPM treatments are associated with historic structures and sites. SHPO approval of the treatment alternatives is necessary. When the site is affiliated with local tribes, the Tribal Historic Preservation Office (THPO), tribal officials and/or the tribal cultural office must also be consulted. Record all decisions that have been made with your ID team.
5. *What management zone is the pest in?*

Identifying and recording the management zones in which the pest is located is important for identifying the appropriate treatment alternatives. Parks have designated different management zones to address varying resource needs. The most common zones delineate natural, cultural, developed, and special use areas. Different management strategies may be permitted in developed zones that are not permitted in natural areas. For example, modern structures in developed areas can be rodent proofed with a wide variety of tools. However, rodent proofing historic structures at Vanishing Treasures sites requires specific treatment strategies that are effective and compatible with the original fabric. Check park legislation and the general management plan to determine what zone the pest occurs in and develop the management strategy accordingly.

Step 3. Identify Treatment Alternatives (Continued)

6. *What laws, regulations, and policies need to be adhered to?*
- Several laws, regulations and policies may narrow the number of IPM treatment alternatives available at Vanishing Treasures sites. The National Environmental Policy Act (NEPA) oversees all proposed actions that may have an affect on the environment. Review the procedures in Director's Order 12 - Conservation, Planning, Environmental Impact Analysis and Decision-Making to determine what level of environmental compliance is needed. Section 517 of the Department of the Interior Manual on IPM and the National Park Service's Management Policy (2006) also provide useful information on pest management policies. The regional and/or service-wide IPM coordinators will assist you in determining the laws, policies, and regulations may limit the number of IPM treatment alternatives available to you. Refer to Appendix C for Applicable Laws, Regulations, and Policies.
7. *How do you choose the most suitable treatment alternative?*
- Once monitoring, identification, and action thresholds indicate that pest management actions are needed, the next step is to develop and implement a treatment or management strategy that maximizes effectiveness and minimizes risks to people, resources, and the environment.
- Of the identified treatment alternatives, choose to implement the lowest risk, most effective pest management strategy. This may include several management tools and levels of intervention. The most suitable tools are selected for the specific pest situation and are used in combination to best manage each pest situation. The most suitable management strategy will include immediate and long-term treatment regimes and will include the most effective but least hazardous management strategy to people, resources, and the environment. An effective management strategy may include changes in the environment to reduce or eliminate conditions conducive to pests, changes in the behavior of site users, removal of pest species or the food sources they depend upon, etc. The "IPM Tools" section of the NPS Reference Manual 77-7 has an explanation of these tools, procedures, and management strategies. Refer to Appendices A and B for additional resources.

Step 4. Obtain Necessary Approval, Define responsibilities & Implement Treatment (Corresponds to Original Step 9)

1. *Who do you need to obtain approval from before implementing treatments at Vanishing Treasures sites?*

The IPM treatment alternative(s) must receive approval from the park superintendent, the appropriate IPM coordinator, SHPO, and THPO. Approval can be obtained after the ID team has identified the best IPM management strategy for the site's pest problem and established that the alternatives comply with all applicable laws, policies, and regulations. If the ID team includes the park and/or regional IPM coordinator there should be minimal controversy regarding approval of the proposed management action.

When biological controls or chemical pesticides are proposed as part of an IPM treatment strategy the Regional or Service-wide IPM Coordinator must review them through the NPS Pesticide use Proposal Process (PUPS). Once the proposed use has been determined to be a necessary component of the management program in PUPS, the product can be approved for that specific project.

When the proposed IPM treatment strategy has received approval, the Superintendent and the Chiefs of Resources and Maintenance should sign the management strategy to ensure support for its implementation.

2. *How do you define implementation responsibilities and assign them appropriately?*

After determining the most suitable IPM treatment strategy, the implementation responsibilities are assigned among ID team members and staff specialists according to their expertise, management zone and task to ensure the task is conducted regularly. Each task is assigned to the expert who has the appropriate knowledge, certifications, and capabilities. All involved parties are provided with a list of the assigned tasks and associated parties as some tasks are dependant upon others. The staff and ID team should maintain a log documenting the actions taken, dates of actions, name of who performed the action, and any pertinent observations. This log should be maintained on site to ensure communication between the ID team and staff, as well as to document the effects of the IPM treatment strategy.

Step 4. Obtain Approval & Implement Treatment (Continued)

3. *Are there funding resources available to implement IPM treatments?* Yes. There is funding available to implement IPM from federal, state, and private sources. See Appendix F for a list of funding resources
4. *What mechanisms are available for transferring funds?* There are several options you can use to transfer funding. These include Cooperative Ecosystem Studies Units, Cooperative Agreements, Interagency Agreements, and General Agreements (formerly called Memoranda of Agreement and Memoranda of Understanding).
- Cooperative Ecosystem Studies Units or CESU's are one option. A network of CESU's was established to provide research, technical assistance, and education in support of federal land management, environmental and research agencies and their partners. CESU's address a variety of natural and cultural resource issues by using the biological, physical, social, and cultural sciences at multiple scales and in an ecosystem context. Each CESU is composed of federal agencies, a host university, and partner institutions.
- A second option is to develop an interagency agreement. The NPS uses Interagency Agreements to document arrangements that entail only the transfer of funds, goods, property or services between the NPS and another Federal agency. When the purpose of the agreement is merely to document mutually-agreed-to policies, procedures, objectives and/or relationships, with no funds, goods, property or services exchanged, a General Agreement is used.
- Another option is to use a Cooperative Agreement. This is a used to transfer money from the NPS to a state, local or tribal government, other public entity, educational institution, or private nonprofit organization to carry out the public purpose of any National Park Service program.
- Standard mechanisms for fund transfers may also be used.
- Refer to Appendix F for further information.

Step 4. Obtain Approval & Implement Treatment (Continued)

5. *Can we hire technical crews from other NPS sites?* Yes. Refer to Appendix E for contact information for each park and technical crew. Note that anyone working on NPS properties must comply with all policy regulations (pest management and other).
6. *What about volunteer and student assistance?* There are organizations that may be able to provide volunteer assistance to National Park programs. Also contact your park's volunteer program coordinator to create volunteer opportunities as applicable. See Appendix E for a list of resources.
7. *Are there any opportunities for the park staff to undergo training in IPM or cultural resource preservation?* Yes. There are several training opportunities available to park staff. The NPS IPM Program offers technical courses in pest management and the 38 hour IPM Principles Course is offered 1-2 times annually. All park IPM Coordinators should have this training. Refer to Appendix E for a list of resources.

Step 5. Monitoring, Adaptation & Education

(Corresponds to Original steps 6, 10, 11)

1. *How do you monitor the results of the management strategies?*

The IPM pest monitoring program provides regularly scheduled analysis and documentation of the pest levels and condition of the resource. Monitoring includes recording the pest population levels, the number of burrows or nests, sources of pest intrusion, amount of pest activity and damages, and changes in the rate of structural deterioration, as well as information about weather, site conditions, and site use.

An important part of the IPM pest monitoring program is to assign tasks and responsibilities to multiple members of the ID team and staff so monitoring is conducted regularly and in accordance with specifically developed protocols. Duties may or may not be assigned to the same interdisciplinary team member and staff who implemented the IPM treatments.

Monitoring protocols must be repeatable and defined so that the person(s) conducting the monitoring will perform the task uniformly. This is critical in order to compare and analyze data. This information must be reviewed on a regular basis and shared with the ID team to determine if management actions are successful.

2. *What if the adverse pest conditions are not being lowered below the Action Threshold?*

If the monitoring program indicates the chosen IPM treatment strategy is not reducing the pest conditions below the action threshold, the ID team must review the monitoring data to determine the ineffective components of the strategy. They will need to reevaluate the situation, determine if any factors have changed, and check with the experts for possible new tools to adjust the treatment strategy and address the issue effectively. The ID team can then document and incorporate changes to the protocol.

Keep in mind that all pest populations follow natural cyclic changes - one year may be a prolific one for a certain pest and the next may be pest free. Monitoring should continue whether or not damage or pest occurrence has occurred. Documenting these trends will help the staff to determine the factors linked to the pest and when a pest population is beginning to build or approach injury level. Acting at the action threshold will then prevent unacceptable resource damage.

Step 5. Monitoring, Adaptation & Education (Continued)

3. *Is there an opportunity for education and outreach while conducting IPM?*

Absolutely. Education is very important because it creates understanding of the situation and provides support for the necessary IPM actions. Education also can be used as an important proactive measure to prevent pest problems from occurring or recurring. Pest management actions that inconvenience park occupants should be used as an educational opportunity. The IPM Program staff is available to assist in this area.

Appendix A – Expert Contacts

Cultural Resources

American Indian Liaison Office, National Park Service

The mission of the American Indian Liaison Office is to improve relationships between American Indian Tribes, Alaska Natives, Native Hawaiians and the National Park Service through consultation, outreach, technical assistance, education, and advisory services.

Address: 1201 Eye St NW Org 2560, Washington DC 20005-5905
Phone: 202-354-6965
Website: <http://www.cr.nps.gov/ailo/>

Heritage Preservation Services, National Park Service

Heritage Preservation Services (HPS) provides a broad range of products and services, financial assistance and incentives, educational guidance, and technical information to protect and preserve historic properties.

Address: 1849 C Street, NW (2255), Washington, DC 20240
Phone: 202-513-7270
Email: NPS_HPS-info@nps.gov
Website: <http://www.cr.nps.gov/hps/index.htm>

National Association of Tribal Historic Preservation Officers (NATHPO)

NATHPO is a non-profit organization of Tribal government officials who implement federal and tribal preservation laws to support the preservation, maintenance and revitalization of the culture and traditions of Native peoples of the United States.

Address: PO Box 19189, Washington, D.C. 20036-9189
Phone: 202-628-8476
Website: <http://www.nathpo.org/index.html>
List of Tribal Historic Preservation Offices (THPO) at:
http://www.nathpo.org/THPO_Members/state_list.htm

National Center for Preservation Technology & Training (NCPTT)

NCPTT advances the application of science and technology to historic preservation. Working in the fields of archeology, architecture, landscape architecture and materials conservation, the NCPTT accomplishes its mission through training, education, research, technology transfer and partnerships.

Address: 645 University Parkway, Natchitoches, LA 71457
Phone: 318-356-7444
Fax: 318-356-9119
Website: [http://www.ncptt.nps.gov/\(S\(32ap3p45d51mvn45igwojwjkk\)\)/default.aspx?m=2](http://www.ncptt.nps.gov/(S(32ap3p45d51mvn45igwojwjkk))/default.aspx?m=2)

Cultural Resources (Continued)

National Park Service Technical Preservation Services

Technical Preservation Services provides the tools and information necessary to take effective measures to protect and preserve historic buildings.

Address: Historic Preservation Services, 1849 C Street, NW (2255),
Washington, DC 20240
Phone: 202-513-7270
Email: NPS_HPS-info@nps.gov
Website: <http://www.cr.nps.gov/hps/tps>

The National Historic Preservation Program, National Park Service

Established under the National Historic Preservation Act of 1966, the national historic preservation program is a partnership between the Federal, State, Tribal and local governments, private organizations, and the public. State Historic Preservation Officers (SHPO) play a critical role under the Act.

Address: 1201 Eye St., NW, 8th Floor (MS 2280), Washington, DC 20005
Phone: 202-354-2213
Website: <http://www.cr.nps.gov/nr/shpolist.htm>

Integrated Pest Management

Bio-Integral Resource Center (BIRC)

A nonprofit organization that works with local, state, and national agencies in devising IPM programs of scientific research, policy, project design and implementation.

Address: PO Box 7414, Berkeley, CA 94707
Phone: 510-524-2567
Website: <http://www.birc.org/>

Bird Busters

Provide information and products to solve bird pest problems.

Address: 300 Calvert Avenue, Alexandria, Virginia 22301
Phone: 1-800-NO-BIRDS (662-4737) or 703-299-8855
Website: <http://www.birdbusters.com/index.html>

International Urban IPM Association (IUIPMA)

Provides a list of online IPM links, including pest diagnosis, universities with IPM programs, pesticide information, and IPM products.

Address: P.O. Box 163186, Austin, Texas 78716-3186
Phone: 512-306-9720
Website: <http://www.urbanipm.org>

Integrated Pest Management (Continued)

Bat Conservation International, Inc.

BCI's mission is to teach people the value of bats, to protect and conserve critical bat habitats, and to advance scientific knowledge through research and therefore providing beneficial solutions for bats and people.

Address: P.O. Box 162603, Austin, TX 78716
Phone: 512-327-9721; Catalog Orders and Inquiries: 1-800-538-BATS (2287)
Website: <http://www.batcon.org/home/default.asp>

U.S. General Services Administration

Contact: Dr. Al Greene, Entomologist and IPM Specialist (hymenoptera)

Address: 7th & D Streets SW, Washington, DC 20407-0000
Phone: 202-205-5703
Email: albert.greene@gsa.gov

The IPM Institute of North America, Inc.

This is an independent non-profit organization which can provide technical resources and information for all stages of the IPM process.

Address: 1914 Rowley Avenue, Madison, Wisconsin 53726
Phone: 608-232-1528
Website: <http://www.ipminstitute.org/>

Montana State University Extension – Entomology

They have developed an Integrated Pest Management Museum Starter Kit, available by request. The kit provides detailed information on health and safety, pest biology, available control measures, as well as sample traps and data sheets you can use to develop a pest reference collection.

Contact: Will Lanier
Phone: 406-974-3860
Email: wlanier@montana.edu
Website: <http://www.ipm.montana.edu/IPMMuseum/index.html>

National Park Service IPM Program

Provides resources and information on Integrated Pest Management techniques and procedures.

Address: 1201 I Street NW, Washington, DC 20005
Phone: 202-513-7183
Website: <http://www1.nrintra.nps.gov/BRMD/ipm/>

Appendix A – Expert Contacts (Continued)

National Park Service Regional and Service wide Integrated Pest Management Contacts

[Note: NPS IPM Coordinators provide guidance and review of pest management strategies for parks and concessions operations. Federal agencies are required to implement IPM through procurement and when managing pest species.]

Steve Anderson, IPM Coordinator

Pacific Islands Cluster, Haleakala National Park
Address: P.O. BOX 369, Makawao, HI 96768
Phone: 808-572-4480
Fax: 808-572-4498
Email: Hale_veg_mgt@nps.gov

Bruce Badzik, IPM Coordinator

Golden Gate NRA
Address: Bldg.201 Ft. Mason, San Francisco, CA 94123
Phone: 415-561-4831
Fax: 415-561-4400

Steve Cinnamon, IPM Coordinator

Midwest Region
Address: 1709 Jackson Street, Omaha, NE 68102
Phone: 402-661-1864
Fax: 402-661-1984

Carol DiSalvo, Servicewide IPM Coordinator

Address: Biological Resources Management Division, 1201 I (Eye) Street,
11th Floor, Cube #48, MS 2430, Washington, DC 20005
Phone: 202-513-7183
Fax: 202-371-6820
Website: <http://www.nature.nps.gov/biology/ipm/> and
<http://www1.nrintra.nps.gov/BRMD/invasivespecies/ipm/>

Chris Furqueron, IPM Coordinator

Southeast Regional Office
Address: 1924 Building, 100 Alabama Street, SW, Atlanta, GA 30303
Phone: 404-562-3113 x540
Fax: 404-562-3201

Erv Gasser, IPM Coordinator

Columbia Cascade & Pacific
Great Basin Clusters
Pacific West Region
Address: 909 First Avenue, Seattle, WA 98104
Phone: 206-220-4263
Fax: 206-220-4160

Appendix A – Expert Contacts (Continued)

National Park Service Regional and Service wide Integrated Pest Management Contacts (Continued)

Craig Hauke, IPM Coordinator

Colorado Plateau Cluster

Address: Canyonlands National Park, 2282 S. West Resource Blvd.,
Moab, UT 84532-2995

Phone: 435-719-2132

Fax: 435-719-2300

Denise Klein, Archives Technician-IPM

Midwest Region

Address: 1709 Jackson Street, Omaha, NE 68102

Phone: 402-661-1924

Fax: 402-661-1984

Gerald McCrea, IPM Coordinator

Intermountain Regional Office

Address: P.O. Box 728 (NR), Santa Fe, NM 87504-0728

Phone: 505-988-6024

Fax: 505-988-6025

Wayne Millington, IPM Coordinator

Northeast Region

Address: 424 Forest Resources Building, University Park, PA 16802

Phone: 814-863-8352

Fax: 814-863-2621

Website: <http://nps.gov/phso/ipm/>

Pat Owen, IPM Coordinator

Alaska, Denali National Park and Preserve

Address: P.O. Box 9, McKinley Park, AK 99755

Phone: 907-683-9547

Fax: 907-683-9639

Jill Swearingen, IPM Coordinator

National Capital Region, Natural Resources & Science Division/

Address: 4598 MacArthur Blvd., NW, Washington, DC 20007

Phone: 202-342-1443 X 218

Fax: 202-282-1031

Website: <http://www.nps.gov/plants/alien>

USDA Regional IPM Centers Information System

This network provides IPM information on pests and pest management practices and issues with links to sites for each of the four USDA Regional IPM Centers.

Website: <http://www.ipmcenters.org/>

Appendix A – Expert Contacts (Continued)

Natural Resources

National Park Service Natural Resource Program Center

The Natural Resource Program Center provides information and resources on topics associated with air, water, sound, biology, and geology for all aspects of park management..

Address: 1201 Oak Ridge Drive, Suite 200, Ft. Collins, CO 80525
Phone: 970-225-3554
Website: <http://www1.nature.nps.gov/>

Olmsted Center for Landscape Preservation

The Olmsted Center applies expertise in horticulture, landscape architecture, and history to the preservation of cultural landscapes. This is accomplished through an integrated cultural resource approach in the areas of research, planning, stewardship, and education.

Address: 99 Warren Street, Brookline, MA 02445
Phone: 617-566-1689
Fax: 617-232-4073
Email: FRLA_olmsted_center@nps.gov
Website: <http://www.nps.gov/archive/frla/oclp.htm>

U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS)

APHIS provides leadership and expertise through its Wildlife Services program to resolve wildlife conflicts and create a balance that allows people and wildlife to coexist peacefully.

Address: 4700 River Road, Riverdale, MD 20737
Phone: See website for regional office contact information
Website: <http://www.aphis.usda.gov/>

U.S. Geological Survey National Wildlife Health Center (NWHC)

The USGS National Wildlife Health Center provides information, technical assistance, research, education, and leadership on national and international wildlife health issues.

Address: 6006 Schroeder Road, Madison, WI 53711-6223
Phone: 608-270-2400
Website: <http://www.nwhc.usgs.gov/>

Public Health Experts

National Park Service Public Health Program

The Public Health Program provide pertinent, timely and accurate information regarding public health issues that impact concessions, park visitors, and sister agency populations.

Contact: Charles Higgins
Address: 1201 I Street NW, Washington , DC 20005
Phone: 202-513-7217
Website: http://www.nps.gov/public_health/index.htm

Technical Crews

Olmsted Center for Landscape Preservation

The Olmsted Center applies expertise in horticulture, landscape architecture, and history to the preservation of cultural landscapes. This is accomplished through an integrated cultural resource approach in the areas of research, planning, stewardship, and education.

Address: 99 Warren Street, Brookline, MA 02445
Phone: 617-566-1689
Fax: 617-232-4073
Email: FRLA_olmsted_center@nps.gov
Website: <http://www.nps.gov/archive/frla/oclp.htm>

Harpers Ferry Center for Preservation

Harpers Ferry Center is a resource for National Park Service history collections, trade catalogs, and photographs.

Contact: Barbara Cumberland, Conservator
Address: PO Box 50, Harpers Ferry WV 25425
Phone: 304-535-5050
Website: <http://www.nps.gov/hfc/>

Historic Preservation Training Center (formerly the Williamsport Preservation Training Center)

The Historic Preservation Training Center is dedicated to the preservation and maintenance of historic structures of the National Park Service and its partners by demonstrating outstanding leadership in preservation education and skills and craft development.

Address: 4801 A Urbana Pike, Frederick, MD 21704
Phone: 301-663-8206
Fax: 301-663-8032
Website: <http://www.nps.gov/training/hptc/>

Appendix B – Literature

- Advisory Council on Historic Preservation (ACHP). 2006. *Section 106 regulations users guide*. Available at <http://www.achp.gov/usersguide.html>
- Allen, Lawrence A. *Urban vertebrate pests*. Van Waters and Rogers Pest Control Library, San Mateo, CA.
- Baker, Rex O., Gerald R. Bodman, and Robert M. Timm. 1994. *Rodent-proof construction and exclusion methods*. In: Hygnstrom, Scott E., Robert M. Timm, and Gary E. Larson, *Prevention and Control of Wildlife Damage*. Univ. of NE Coop. Extension and US Dept of Agriculture, APHIS.
- Bennett, Gary W., John M. Owens, Rober M. Corrigan. 1988. *Truman's scientific guide to pest control operations*. Purdue University, Edgell Communications.
- Bischoff, Judith, J., Virginia L. Boucher, Shelley Sass. In Draft. *Guidelines for vegetation control and management*. Department of the Interior, National Park Service, Harpers Ferry Center, Harpers Ferry, WV.
- Borror, Donald J., Richard E. White. 1970. *A field guide to the insects of America north of Mexico*. Houghton Mifflin Co.
- Burt, William Henry. 1980. *A field guide to the mammals of North America north of Mexico*. Haughton Mifflin Co., Boston, MA.
- Canadian Conservation Institute. 1986. *Examining for insect infestations*. Ottawa, Canada.
- The Chicora Foundation. *Managing pests in your collection*. 1994. Columbia, S.C. Available online at: <http://palimpsest.stanford.edu/byorg/chicora/chicpest.html>
- Christiansen, Chris. *A technician's handbook to the identification and control of insect pests*. 1983. Pest Control Technology, 4012 Bridge Ave., Cleveland, OH.
- Corrigan, Robert M. 2001. *Rodent Control: A practical guide for pest management professionals*. Pest Control Technology, 4012 Bridge Ave., Cleveland, OH.
- Dawson, John E. *Dealing with the insect problem in museums: prevention, identification and non-chemical control*. Canadian Conservation Institute Technical Bulletin.
- The Department of the Interior. *The department manual: museum property handbook, Volume I, Chapter 6*. Available at: <http://www.doi.gov/museum/policy/pdf/mphi-6.pdf>.
- Ebeling, Walter. 1978. *Urban entomology*. University of California, Berkeley.
- Edwards, Stephen R., Bruce M. Bell, and Mary Elizabeth King. 1980. *Pest control in museums: a status report*. Assn. Systematics Collections, Mus. Nat. Hist. Univ. of Kansas, Lawrence KS 66045.

Appendix B – Literature (Continued)

- Florian, Mary-Lou. 1986. The freezing process- effects on insects and artifact materials. *Leather Conservation News*, Vol. 3, No. 1.
- _____. 1987. Control of biodeteriorations: methodology used in insect pest surveys in museum buildings - a case history. *International Council of Museums Committee for Conservation*.
- _____. 1997. *Heritage eaters: insects & fungi in heritage collections*. James & James, London.
- Garbe, Robert and Tim Radtke. 1998. *Protocol for inspection and decontamination of paper records potentially contaminated by rodents*. US Department of the Interior Office of Policy Management and Budget, Office of Managing Risk and Public Safety. Available online at: <http://medical.smis.doi.gov/alerts/protwApp.pdf>.
- Harmon, James D. 1993. *Integrated pest management in museum, library and archival facilities*. Harmon Preservation Pest Management. P.O. Box 40262, Indianapolis, IN 46240.
- Hedges, Stoy. 1991. *Managing pests without pesticides*. Pest Control Technology, January 1991: 451-490.
- _____. 1993. *Field guide for the management of structure infesting ants*. Franzak & Foster Co., Cleveland OH.
- _____. 1994. *Field guide for the management of structure infesting flies*. Franzak & Foster Co., Cleveland OH.
- _____. 1994. *Preserving artifacts*. Pest Control Technology., January 1995:62-82.
- Hedges, Stoy A. and Mark S. Lacey. 1995. *Field guide for the management of urban spiders*. Franzak & Foster Co., Cleveland OH.
- _____. 1996. *Field guide for the management of structure infesting beetles*. Franzak & Foster Co., Cleveland OH.
- Hoddenbach, Gerry. 1999. *Model museum IPM action plan*. National Park Service.
- Hoddenbach, Gerard, Jerry Johnson, and Carol Disalvo. 2005. *National Park Service rodent-exclusion manual: mechanical rodent-proofing techniques: a training guide for National Park Service employees*. Available online at: http://www.nps.gov/public_health/inter/info/general/NPS_RP_Manual_v2.pdf
- Hygnstrom, Scott E., Robert M. Timm, and Gary E. Larson. 1994. Prevention and control of wildlife damage. University of NE Coop. Exten. and US Dept of Agric., APHIS. Available at: <http://wildlifedamage.unl.edu/handbook/handbook/>

Appendix B – Literature (Continued)

- Jessup and Associates, Inc. 2006. Integrated pest management: a selected bibliography for collections care. Available online at: <http://palimpsest.stanford.edu/byauth/jessup/ipm.html>.
- Johnson, Ron. 1997. *Bird exclusion: lines, wires, and hoop devices* University of Nebraska Cooperative Extension. Available at: <http://lancaster.unl.edu/enviro/pest/factsheets/072-99.htm>
- Kramer, Richard, Ph.D. 1999. *Bird management field guide*. Pest Control Technology.
- Krzysik, Anthony. 1989. *Birds in human modified environments and bird damage control: social, economic, and health implications*. USACERL Tech. Rep. N-90/03, US Army Corp of Engin., Constr. Engin. And Res. Lab.
- Maekawa, Shin and Kerstin Elert. 2003. *The use of oxygen-free environments in the control of museum insect pests*. The Getty Conservation Institute, Los Angeles.
- Mallis, A. 2004. *Handbook of pest control, 9th Edition*. GIE Media, Inc., Cleveland, Ohio.
- Milne, Lorus and Margery. 1988. *Field guide to North American insects and spiders*. Alfred A. Knopf, New York.
- Moore, Harry B. 1979. *Wood-Inhabiting Insects in Houses: Their identification, biology, prevention and control*. U.S. Dept. of Agriculture, Forest Service and Dept. of Housing and Urban Development.
- National Invasive Species Council. 2001. *National management plan for invasive species*. Access online at: <http://www.invasivespeciesinfo.gov/council/nmp.shtml> Hard copies of the plan can be obtained by calling the Council staff at (202) 513-7243 or e-mailing invasivespecies@ios.doi.gov.
- National Park Service. 2003. *Brief 14. The peer review of public archeology projects*. Department of the Interior, Departmental Consulting Archeologists and National Park Service Archeology Program, Washington, D.C.
- National Park Service. Conserve O Grams. Available online at:
http://www.cr.nps.gov/museum/publications/consveogram/cons_toc.html
A sample of Conserve O Grams addressing pests of museums:
Number 2/8: Hantavirus Disease Health and Safety Update
Number 3/4: Mold and Mildew: Prevention of Microorganism Growth in Museum Collections
Number 3/6: An Insect Pest Control Procedure: The Freezing Process
Number 3/7: Monitoring Insect Pests With Sticky Traps
Number 3/8: Controlling Insect Pests: Alternatives To Pesticides
Number 3/9: Anoxic Microenvironments: A Treatment For Pest Control
Number 16/1: Causes, Detection and Prevention Of Mold And Mildew On Textiles
- _____. 2006. *The National Park Service integrated pest management manual*. Available online at: <http://www.nature.nps.gov/biology/ipm/manual/ipmmanual.cfm>
- _____. 1998. *Biological Infestations*. The National Park Service Museum Handbook, Part I, Chapter 5. Available at: <http://www.cr.nps.gov/museum/publications/MHI/CHAP5.pdf>

Appendix B – Literature (Continued)

- _____. 2006. *NPS Reference Manual 83G. Vector-Borne and Zoonotic Diseases*. Available online at: http://www.nps.gov/public_health/inter/info/rms/rm83g.pdf
- National Park Service Concession Environmental Management Program (CoEMP). 2006. *Integrated pest management program booklet for concessions*. <http://www.nedcc.org/plam3/leaf311.htm>. CoEMP's website is: <http://concessions.nps.gov/CoEMP.cfm>
- National Park Service Public Health Program. 2006. *Information on Zoonotic and Vectorborne diseases*. Includes links to Bats, Bubonic plague, Dengue, Hantavirus, Hobo Spiders, Lyme, Pfiesteria, Poison Ivy/Oak/Sumac, Rabies, Tickborne Diseases, Viral Encephalitis, and West Nile Virus. Online access at: http://www.nps.gov/public_health/inter/illness/illness.htm
- Olkowski, William, Daar, S., and H. Olkowski. 1991. *Common-sense pest control*. Taunton Press, Newtown, CT.
- Owen Myers, Nancy; Michael J. Raupp, ed. 1992. *Implementing integrated pest management at national historic sites in the mid-Atlantic region of the National Park Service*. Center for Urban Ecology, National Park Service.
- Parker, Thomas A. 1988. *Study on integrated pest management for libraries and archives*. Paris, UNESCO.
- Peltz, Perri and Monona Rossol. 1983. *Safe pest control procedures for museum collections*. Center for Occupational Hazards, New York.
- Pest Control and Pest Control Technology Periodical*. GIE Publishers, 4012 Bridge Ave., Cleveland OH 44113.
- Pinniger, David. 1990. *Insect pests in museums*. Archetype Publ. Ltd, London WC1H OPY.
- Pinto, L.D. 1993. *Commensal rodents: IPM training manual*. US Department of the Interior, National Park Service, Wildlife & Vegetation Division. Available online at: <http://www1.nintra.nps.gov/brmd/CommensalRodents.pdf>
- Putnam, Stuart E Jr. *Controlling stinging and biting insects at camp sites*. ED&T Publ. #2689. USDA US Forest Service Equipment Development Center, Missoula, MT.
- Selwitz, Charles and Shin Maekawa. 1998. *Inert gases in the control of museum insect pests*. *Journal of the American Institute for Conservation* 39(3): 393-396.
- Smith, Eric H. and Richard C. Whitman. 1992 and 1995 (Supplement I). *NPCA field guide to structural pests*. National Pest Control Association.
- Story, K.O. 1984. *Approaches to pest management in museums*. Conservation Analytical Lab, Smithsonian Institute.

Appendix B – Literature (Continued)

Strang, Thomas J.K. and John E. Dawson. *Controlling museum fungal problems*. Canadian Conservation Institute Technical Bulletin #12.

_____. *Controlling vertebrate pests in museums*. Canadian Conservation Institute Technical Bulletin #13.

Timm, Robert M. 1994. *House mice*. In: Hygnstrom, Scott E., Robert M. Timm, and Gary E. Larson, *Prevention and Control of Wildlife Damage*. Univ. of NE Coop. Extension and US Dept. of Agriculture, APHIS.

Truman, Lee C., Gary W. Bennett, and William L. Butts. 1982. *Scientific guide to pest control operations*. Harcourt Brace Janovich, Inc.

U.S. Dept. of Health, Education and Welfare. 1967. *Pictorial keys to arthropods, reptiles, birds and mammals of public health significance*. Atlanta, GA.

Ware, George W. 1988. *Complete guide to pest control – with and without chemicals*. Thomson Publications, Fresno, CA.

Wellheiser, Johanna G. 1992. *Nonchemical treatment processes for disinfestation of insects and fungi in library collections*. International Federation of Library Associations and Institutions, Netherlands.

White, Richard E. 1983. *A field guide to the beetles of North America*. Houghton Mifflin Co.

Yepsen, Roger B. 1984. *The encyclopedia of natural insect & disease control*. Rodale Press, Emmaus, PA.

Zyberman, L.A. 1988. *A guide to museum pest control*. Amer. Inst. For Conservation Hist. and Artistic Works and Assoc. Systematics Collections, Wash., D.C.

Appendix C – Applicable Laws, Policies, and Regulations

Law Reference pages:

<http://www4.law.cornell.edu/uscode/>

<http://uscode.house.gov/search/criteria.shtml>

Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm)

ARPA expands the protections provided by the Antiquities Act of 1906 in protecting archaeological resources and sites located on public and Indian lands. It prohibits the unauthorized disturbance or removal of archeological resources on public lands. This Act also mandates the National Park Service to "undertake all necessary actions to prevent or minimize the destruction, loss of, or injury to park system resources" and to "assess and monitor damages to park system resources." Park managers can use ARPA Section 7(2)B to recover restoration costs.

Department of the Interior Manual Section 517, Pesticide Use Policy (under revision Sept., 2006)

States that bureaus will use an IPM approach when managing pest species. This chapter prescribes the Department's policies for the use of pesticides on the lands and waters under its jurisdiction and for compliance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended. "...It is the Department's policy to manage pests and use IPM principles in a manner that reduces risks from both the pests and associated pest management activities, in compliance with applicable laws and regulations. Pest management will be accomplished through cost-effective means that pose the least risk to humans, natural and cultural resources, and the environment." Access online at: <http://elips.doi.gov/elips/release/2336.htm>

Endangered Species Act of 1973 (16 U.S.C. 1531-1544)

Provides broad protection for animals and plants that are listed as endangered or threatened. If any proposed resource management actions may affect these species or critical habitat, a consultation and written opinion must be obtained from USFWS stating how the action affects the species or critical habitat and include appropriate measures to mitigate impacts.

Executive Order 13112 of February 3, 1999, on Invasive Species Management

In concert with other authorities, will explain that invasive species shall be managed to minimize the economic, ecological, and human health impacts.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 136 et seq., 1988)

(Includes Food Quality Protection Act of 1996, as amended.)

Section 136r-1 on Integrated Pest Management, (7 U.S.C.136r-1) states that "The Secretary of Agriculture, in cooperation with the Administrator, shall implement research, demonstration, and education programs to support adoption of Integrated Pest Management. Integrated Pest Management is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks. The Secretary of Agriculture and the Administrator shall make information on Integrated Pest Management widely available to pesticide users, including Federal agencies. *Federal agencies shall use Integrated Pest Management techniques in carrying out pest management activities and shall promote Integrated Pest Management through procurement and regulatory policies and other activities*". Title 7 USC 136r-1 (IPM Directive) agrees with and supports the Organic Act, and jointly these two documents commit the Service to make informed decisions that perpetuate the conservation and protection of park resources unimpaired for the benefit and enjoyment of future generations. Online at: <http://www.epa.gov/region5/defs/html/fifra.htm>

Appendix C – Applicable Laws, Policies, and Regulations (Continued)

Federal Register, July 19, 2000, Department of the Interior, National Park Service, Part III; Simplified Concession Contract: Revision, Part III Department of the Interior, National Park Service, Section 6, Environmental and Cultural Protection, (g) Weed and Pest Management.

Directs concessions operations to use IPM when managing weeds and other pest species.

Migratory Bird Treaty Act of 1918 (16 USC 703-716)

Establishes a federal prohibition, unless permitted by regulation, to "pursue, hunt, take, capture, kill, attempt to take, in any manner, any migratory bird". This prohibition applies to birds included in respective conventions the US has established with Canada, Great Britain, Russia, Mexico, and Japan.

National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.)

NEPA is a national policy enacted to ensure that agencies fully consider the environmental costs and benefits of their proposed actions before they make any decision to undertake those actions. The purpose of the act is to "declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality."

National Park Service Director's Orders (DO):

(available online at <http://home.nps.gov/applications/npspolicy/DOrders.cfm>)

- DO 12 Conservation Planning, Environmental Impact Analysis, and Decision-Making (NEPA)
- DO 13 Environmental Leadership
- DO 20 Agreements
- DO 24 Museum Collections Management
- DO 25 Land Acquisition
- DO 28 Cultural Resources Management
- DO 36 Housing Management
- DO 48 Concessions
- DO 77-7 Integrated Pest Management
- DO 77-8 Threatened and Endangered Species
- DO 83 Public Health

National Park Service Management Policies 2006- 4.4.5.2 Integrated Pest Management Program

This directs the National Park Service and each park unit to use an IPM approach to address pest issues in order to reduce risks to the public, park resources, and the environment from pests and pest-related management strategies. It states that proposed pest management activities must be conducted according to the IPM process prescribed in Director's Order #77-7: Integrated Pest Management. Pest issues must be reviewed on a case-by-case basis. Also see other sections referring to cultural, natural resources, pest management, and maintenance.

National Park Service PS 77-7 Natural Resource Guidelines, 1991.

NPS 77 is a comprehensive guideline and fundamental reference on natural resource management in the National Park Service.

Appendix C – Applicable Laws, Policies, and Regulations (Continued)

Title 41 CFR 102-74.35 Facility Management - Occupancy Services: What Building Services Must Federal Agencies Provide? (updated July 1, 2005)

States, “Executive agencies, upon approval from GSA, must provide building services such as custodial, solid waste management (including recycling), heating and cooling, landscaping and grounds maintenance, tenant alterations, minor repairs, building maintenance, integrated pest management, signage, parking, and snow removal, at appropriate levels to support federal agency missions. Access online at: http://www.access.gpo.gov/nara/cfr/waisidx_05/41cfr102-74_05.html

National Park Service Organic Act of 1916 (16 USC 1 et. seq.)

The National Park Service Organic Act created the National Park Service to conserve the scenery and the natural and historic objects therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

National Historic Preservation Act of 1966 (16 U.S.C. 470)

The National Historic Preservation Act (NHPA) was enacted in 1966 to protect the Nation’s historical resources from increasing development and expansion pressures by establishing a comprehensive national historic preservation policy. It defines historic properties to encompass a broad interpretation of American history and acknowledges significance at all levels, not just nationally. Furthermore, historic properties are now understood and appreciated as part of—not isolated from—the landscape in which they belong. The regulations that implement the NHPA and their accompanying guidance documents formulate a proactive national policy on historic preservation. It specifically directs federal government agencies to take historic preservation into account in planning their initiatives and actions.

The Park System Resource Protection Act (16 U.S.C. 19jj)

The Park System Resources Protection Act (PSRPA) requires the Secretary of the Interior to assess and monitor injuries to park system resources. The act specifically allows the Secretary to recover response costs and damages from the responsible party causing the destruction, loss of or injury to park system resources. It provides that any monies recovered by the National Park Service may be used to reimburse the costs of response and damage assessment and to restore, replace, or acquire the equivalent of the injured resources.

Presidential Memorandum of August 2, 1979

Directs federal agencies to implement Integrated Pest Management.

Section 106 of the National Historic Preservation Act of 1966. (36 CFR PART 800)

(incorporates amendments effective Aug. 5, 2004)

Requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP; if a federal agency proposes an activity that may affect a historic property, the State Historic Preservation Office must be contacted for consultation and comment on the process. Public comment should be requested as well.

Available online at <http://www.achp.gov/regs-rev04.pdf>

The Secretary of the Interior’s Standards for Rehabilitation (36 CFR Part 67)

Consists of ten basic principles which help to preserve the distinctive character of historic buildings and sites while allowing for reasonable change to meet new needs.

Appendix D – Archives and Databases

Archeological Site Management Information System (ASMIS)

ASMIS is the National Park Service's database for the basic registration and management of park prehistoric and historic archeological resources. ASMIS records contain data on site location, description, significance, condition, threats to, and management requirements for known park archeological sites. The ASMIS database is available at every park.

Denver Service Center - Technical Information Center

The Technical Service Center is a service-wide information management and storage retrieval system for documents and drawings. The Denver Service Center is the National Park Service's centralized planning, design, and construction project management office providing environmentally responsible and fiscally sound products jointly with private industry.

Address: P.O. Box 25287, Denver, CO 80225-0287
Phone: 303-969-2130
Email: TIC-requests@nps.gov
Website: <http://www.nps.gov/dsc/index.htm>

Harpers Ferry Center for Preservation

Harpers Ferry Center is a resource for National Park Service history collections, trade catalogs, and photographs.

Contact: Barbara Cumberland, Conservator
Address: PO Box 50, Harpers Ferry WV 25425
Phone: 304-535-5050
Website: <http://www.nps.gov/hfc/>

National Archives and Records Administration

The National Archives and Records Administration preserves records of government actions and decisions, including those affecting the National Park Service.

Address: 8601 Adelphi Road, College Park, MD 20740-6001
Phone: 1-866-272-6272
Website: <http://www.archives.gov/>

National Register of Historic Places

The National Register of Historic Places is the Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources.

Address: 1201 Eye St., NW, 8th Floor (MS 2280), Washington, DC 20005
Phone: 202-354-2213
Email: nr_info@nps.gov
Website: <http://www.cr.nps.gov/nr/>

Appendix D – Archives and Databases (Continued)

Natural Resources Bibliography (NRbib or NatureBib)

NatureBib is the master web-based database for scientific citations presented as bibliographic references available at each park. NatureBib merges a number of previously separate databases dealing with natural resource related topics like air, deer, geology and paleontology. In addition, citations from individually maintained databases like NPSpecies and the Water Resource bibliography are imported to facilitate searching. Although currently focusing on natural resource references, NatureBib may eventually be linked to references on cultural resources and other park operations. Online tutorials are available at: <http://www.nature.nps.gov/nrbib/>

National Park Service Library Information Center

This is an online database of National Park Service libraries and publications.

Address: NPS Library Program Manager, NPS National Information Systems Center
c/o 3576 Morningside Dr., El Sobrante, CA 94803
Phone: 510-758-3975
Website: <http://www.library.nps.gov/>

National Park Service Offices:

Each National Park has a database of historical records relevant to the park.

National Park Service Headquarters

Director of the National Park Service
Address: 1849 C Street NW, Washington, DC 20240
Phone: 202-208-6843

Alaska Area Region

Marcia Blaszak, Regional Director
Address: 240 West 5th Avenue, Suite 114, Anchorage, AK 99501
Phone: 907-644-3510

Northeast Region

Regional Director
Address: National Park Service, U.S. Custom House, 200 Chestnut St., 5th Floor,
Philadelphia, PA 19106
Phone: 215-597-7013

Midwest Region

Ernie Quintana, Regional Director
Address: 601 Riverfront Drive, Omaha, NE 68102-4226
Phone: 402-661-1524

National Capital Region

Joe Lawler, Regional Director
Address: 1100 Ohio Dr., SW, Washington D.C. 20242
Phone: 202-619-7000

Appendix D – Archives and Databases (Continued)

National Park Service Offices (Continued):

Intermountain Region

Mike Snyder, Regional Director

Address: 12795 Alameda Pkwy, Denver, CO 80225

Phone: 303-969-2500

Southeast Region

Pat Hooks, Regional Director

Address: 100 Alabama St. SW, 1924 Building, Atlanta, GA 30303

Phone: 404-562-3100

Pacific West Region

Jon Jarvis, Regional Director

Address: One Jackson Center, 1111 Jackson Street, Suite 700, Oakland, CA 94607

Phone: 510-817-1304

Western Archeological & Conservation Center (WACC)

The Western Archeological & Conservation Center is a National Park Service repository, holding collections from the National Parks and Monuments of the Western U.S.

Address: 255 N Commerce Park Loop, Tucson, AZ 85745

Phone: 520-670-6501

Website: <http://www.nps.gov/wacc/>

Appendix E – Training and Assistance Opportunities

Bird Barrier

Bird Barrier a private manufacturer and supplier of pest bird control products. They offer a two day course on birds, bird exclusion, and hands on installation of their products throughout the country.

Address: 20925 Chico Street, Carson, CA 90746
Phone: 1-800-503-5444
Email: bbatech@birdbarrier.com
Fax: 310-527-8005
Website: <http://www.birdbarrier.com>

Earthwatch Institute

Earthwatch Institute is an international non-profit organization that supports scientific field research by offering volunteers the opportunity to join research teams around the country and the world.

Address: 3 Clock Tower Place, Suite 100, Box 75, Maynard, MA 01754
Phone: 978-461-0081 or 1-800-776-0188
Fax: 978-461-2332
Email: info@earthwatch.org
Website: <http://www.earthwatch.org>

The George Wright Society

The George Wright Society is a nonprofit association of researchers, managers, administrators, educators, and other professionals who work on behalf of the scientific and heritage values of protected areas. GWS also sponsors a biennial interdisciplinary conference on issues relating to park management.

Address: P.O. Box 65, Hancock, Michigan 49930-0065
Phone: 1-906-487-9722
Fax: 1-906-487-9405
Email: info@georgewright.org
Website: <http://www.georgewright.org/>

Historic Preservation Program

Heritage Preservation Services (HPS) partners with State Historic Preservation Offices, local governments, tribes, federal agencies, colleges, and non-profit organizations to provide a broad range of products and services, financial assistance and incentives, educational guidance, and technical information.

Address: PO Box 728, Sante Fe, NM 87504-0728
Phone: 505-988-6794
Fax: 505-988-6123
Website: <http://www.cr.nps.gov/hps/index.htm>

Appendix E – Training and Assistance Opportunities (Continued)

National Center for Preservation Technology & Training

NCPTT advances the application of science and technology to historic preservation. Working in the fields of archeology, architecture, landscape architecture and materials conservation, the Center accomplishes its mission through training, education, research, technology transfer and partnerships.

Address: 645 University Parkway, Natchitoches, LA 71457
Phone: 318-356-7444
Fax: 318-356-9119
Website: [http://www.ncptt.nps.gov/\(S\(32ap3p45d5lmvn45igwojwjk\)\)/default.aspx?m=2](http://www.ncptt.nps.gov/(S(32ap3p45d5lmvn45igwojwjk))/default.aspx?m=2)

Olmsted Center for Landscape Preservation

As part of the National Park Service mission to provide technical assistance to national parks and other historic property managers, the Olmsted Center applies expertise in horticulture, landscape architecture, and history to the preservation of cultural landscapes.

Address: 99 Warren Street, Brookline, MA 02445
Phone: 617-566-1689
Fax: 617-232-4073
Email: FRLA_olmsted_center@nps.gov
Website: <http://www.nps.gov/archive/frla/oclp.htm>

Student Conservation Association (SCA)

SCA offers highly motivated and dependable interns and crew members to help meet objectives effectively and economically. With nearly five decades of partnership experience, SCA offers public land managers proven solutions for virtually any need.

Address: 689 River Road, PO Box 550, Charlestown, New Hampshire 03603-0550
Phone: 603-543-1700 • Fax: 603-543-1828
Website: http://www.thesca.org/environmental_protection/

Western National Parks Association

Western National Parks Association promotes preservation of the national park system and its resources by creating greater public appreciation through education, interpretation, and research.

Address: 12880 North Vistoso Village Dr., Tucson, AZ 85755
Phone: 520-622-1999
Email: info@wnpa.org
Website: <http://www.wnpa.org/>

Appendix F – Potential Funding Sources

Cost Share Opportunities

Cooperative Ecosystem Studies Units (CESU) Network

A network of CESU's has been established to achieve science-based goals that federal land management, environmental, and research agencies share with the nation's universities.

Email: info@cesu.org
Website: <http://www.cesu.org/>

Earthwatch Institute

Earthwatch Institute is an international non-profit organization that supports scientific field research by offering volunteers the opportunity to join research teams around the country and the world.

Address: 3 Clock Tower Place, Suite 100, Box 75, Maynard, MA 01754
Phone: 978-461-0081 or 1-800-776-0188
Fax: 978-461-2332
Email: info@earthwatch.org
Website: <http://www.earthwatch.org>

National Park Service Partnership Office

The Partnerships Office offers resources to help managers more effectively broker and manage successful partnerships. The office also provides information on grant opportunities.

Website: <http://www.nps.gov/partnerships/index.htm>

Intermountain Region Partnership Office

Phone: 303-969-289

Grants

Certified Local Government Program Grant

Website: <http://www.cr.nps.gov/hps/clg/index.htm>

The Getty Foundation

Address: 1200 Getty Center Drive, Suite 800, Los Angeles, California 90049-1685
Phone: 310-440-7320
Website: <http://www.getty.edu/grants/>

Historic Preservation Grants

Address: National Park Service, 1849 C Street, NW (2256), Washington, DC 20240
Email: Preservation_Grants_Info@nps.gov
Website: <http://www.cr.nps.gov/hps/hpg/index.htm>
State Historic Preservation Offices (SHPO) may have grant opportunities as well.
SHPO Web Sites listed by State at: <http://www.cr.nps.gov/nr/shpolist.htm>

Pesticide Environmental Stewardship Grant (PESP)

Website: <http://www.epa.gov/oppbppd1/PESP/grants.htm>

Appendix F – Potential Funding Sources (Continued)

Grants (Continued)

The Preservation Technology and Training (PTT) Grants Program

Administered by National Center for Preservation Technology and Training (NCPTT)

Address: 645 College Avenue Natchitoches, LA 71457

Phone: 318-356-7444

Fax: 318-356-9119

E-mail: ncptt@nps.gov

Website: <http://www.ncptt.nps.gov/ptt2006/>

Save America's Treasures Grant

Website: <http://www.cr.nps.gov/hps/treasures/index.htm>

Tribal Preservation Program

Website: <http://www.cr.nps.gov/hps/hpg/tribal/index.htm>

Legislative Provisions

Archaeological Resources Protection Act of 1979

ARPA mandates the National Park Service to "undertake all necessary actions to prevent or minimize the destruction, loss of, or injury to park system resources" and to "assess and monitor damages to park system resources." Park managers can use ARPA Section 7(2)B to recover restoration costs.

The National Park System Resource Protection Act (PSRPA)

PSRPA allows the Secretary of the Interior to recover costs and damages from the responsible party causing the destruction, loss of or injury to park system resources. It provides that any monies recovered by the National Park Service may be used to reimburse the costs of response and damage assessment and to restore, replace, or acquire the equivalent of the injured resources. PSRPA allows the National Park Service to accept funds for restoration or mitigation of damages to resources and establishes appropriate fund management procedures. Once deposited into a 19jj account, funds are permanently earmarked for restoration and mitigation projects only.

National Park Service Programs

Concession Contracts

The Park Service has the authority to charge and retain concessions fees from private concessionaires operating within the parks.

Intermountain Region Concessions Program Office

Phone: 303-969-2582

Appendix F – Potential Funding Sources (Continued)

National Park Service Programs (Continued)

The Facility Management Software System (FMSS)

FMSS is an integral part of the National Park Service system-wide asset management program. This program allows park, regional office, and National Park Service headquarters managers to track maintenance requests managers have posted and/or maintenance projects that have been completed at each park. This is used to prioritize and allocate funding for maintenance programs across the National Park Service. FMSS is a servicewide intranet application available at each park.

Operations Formulation System (OFS)

OFS is the system designed for parks to request operational funding increases within the National Park Service. [Note: Refer to the Project Management Information System for project funding.] The OFS system contains all unfunded NPS budgetary requests for ongoing or operational needs for five years. OFS is available through the servicewide intranet system.

Operations National Park Service (ONPS)

Congress provides funding for the Park Service through a number of appropriations accounts with ONPS being the main source of funding for National Park operations. ONPS funds the management, operations, and maintenance of park areas and facilities and the general administration of the Park Service. Ongoing projects associated with Vanishing Treasures IPM programs may allow park managers to request additional funding through ONPS.

Project management information system (PMIS)

PMIS is the system used to manage all requests for project funding within the National Park Service. [Note: For general operational funding requests refer to the Operations Formulation System.] PMIS enables parks to submit project proposals for the regional directorates and Washington Office to review, approve, and prioritize. PMIS is available through the servicewide intranet system. Additional information on PMIS is available at <http://npsfocus.nps.gov/docs/guide/metadata/AboutPMIS.htm>.

The Recreational Fee Demonstration Program

The recreational fee demonstration program allows authorized parks to charge fees to visitors. Eighty percent of the money remains in the park collecting the fees to make local improvements, including maintenance and repair of facilities, and cultural and natural resource management. The remaining twenty percent is distributed park-wide to parks that are not collecting fees and/or have low revenue.

Intermountain Region Fee Demo Coordinator

Phone: 303-969-2894

Appendix G – Additional Online Resources

#12 Controlling Museum Fungal Problems	https://www.cci-icc.gc.ca/bookstore/viewCategory-e.cfm?id=18&thispubid=273
#13 Controlling Vertebrate Pests in Museums	https://www.cci-icc.gc.ca/bookstore/viewCategory-e.cfm?id=18&thispubid=437
#15 Solving Museum Insect Problems: Chemical Control	https://www.cci-icc.gc.ca/bookstore/viewCategory-e.cfm?id=18&thispubid=275
A Virtual Exhibition of the Ravages of Dust, Water, Molds, Fungi, Bookworms and Other Pests	http://www.knaw.nl/ecpa/expo.htm
Archival Products News: Silverfish, Their Activities and How To Stop Them	http://www.archival.com/newsletters/apnewsvol10no1.pdf
Centers for Disease Control and Prevention: Mold	http://www.cdc.gov/health/mold.html
Center for Disease Control and Prevention: The Human Ehrlichiosis in the United States: Prevention and Control	http://www.cdc.gov/ncidod/dvrd/ehrlichia/Prevention/Prevention.htm
Collection Forum: Proceedings from <i>Contaminated Collections: Preservation, Access and Use</i> Symposium	http://www.spnhc.org/documents/CF17-1_2.htm
EPA: A Brief Guide to Mold, Moisture and Your Home	http://www.epa.gov/iaq/molds/moldguide.html
Gempler's IPM Almanac	http://www.ipmalmanac.com/
Global Biodiversity Information Facility	http://www.gbif.org/Stories/STORY1109098326
Identifying Stinging Insects	http://www.pesticide.org/BeesWaspsIdentification.pdf
Insects on the World Wide Web	http://www.ento.vt.edu/Courses/Undergraduate/IHS/InsectsonWWW/
Insects, Disease and History	http://scarab.msu.montana.edu/historybug
ITIS: Integrated Taxonomic Information System	http://www.itis.usda.gov/
Living With Bugs: Least Toxic Solutions to Everyday Bug Problems	http://www.livingwithbugs.com/
Managing a Mold Invasion: Guidelines for Disaster Response	http://www.ccaha.org/mold_eng.html

Appendix G – Additional Online Resources (Continued)

Mold Help	http://www.mold-help.org/
Mold: It's Causes and How to Reduce the Threat	http://palimpsest.stanford.edu/byauth/sagraves/sagrmold.html
National Center for Infectious Diseases: Insects and Travel, Outdoor Risks, Technical and CDC Program Information	http://www.cdc.gov/ncidod/diseases/insects/special_topics.htm
National Center for Infectious Diseases: Selected Insects and Selected Diseases Related to Them, United States	http://www.cdc.gov/ncidod/diseases/insects/diseases.htm
Natural Science Collection Alliance	http://www.nscalliance.org/
NBII: National Biological Information Infrastructure	http://www.nbio.gov/
Northeast Document Conservation Center: Integrated Pest Management	http://www.nedcc.org/plam3/tleaf311.htm
Northern States Conservation Center Museum Collection Care-Pest Control	http://www.collectioncare.org/cci/ccip.html
NPS Museum Pests	http://www.nps.gov/phso/ipm/museum.htm
NPS: Public Health Program: Illnesses and Diseases	http://www.nps.gov/public_health/inter/illness/illness.htm
Pest Management Slideshow: National Museum of the American Indian	http://www.museumpests.net/resources/NMAI%20Pest%20Management_files/frame.htm
Pest Web	http://www.pestweb.com
Taxonomy Trainer	http://www.omne-vivum.com/
Univ. of California-IPM On-line: Carpet Beetles	http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7436.html
University Nebraska-Lincoln (UNL) Cockroach Control Manual	http://pested.unl.edu/cocktoc.htm
UNL Subterranean Termite Handbook	http://pested.unl.edu/termite/termtoc.htm
What's That Bug?	http://www.whatsthatbug.com/