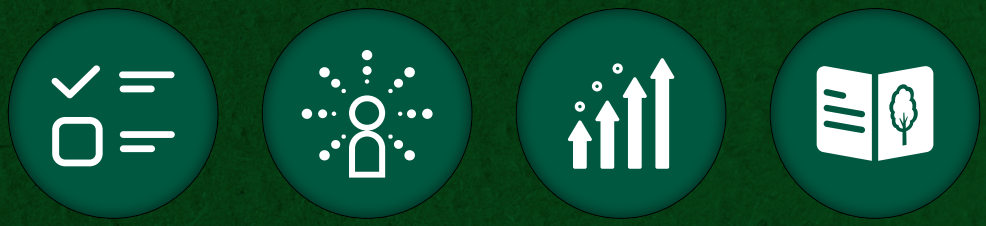
The State of Washington

URBAN FOREST PEST *READINESS*

PLAYBOOK



URBAN FOREST PEST *READINESS*

PLAYBOOK

The State of Washington
Urban Forest Readiness Playbook

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Additional contributors:
AKS Engineering & Forestry; City of Renton; City of Seattle, Seattle Department of Transportation and Seattle Public Utilities; City of Spokane; City of Tacoma; City of Vancouver; Clark County Forestry; Clark Public Utilities District; Forterra; Mason County Conservation District; Spokane Conservation District; USDA Forest Service; USDA-APHIS-PPQ; Washington Invasive Species Council/Washington State Recreation and Conservation Office; Washington State Department of Natural Resources; Washington State Department of Agriculture; Washington State University; Washington State University - Spokane County Extension; Whitworth University.

The State of Washington Urban Forest Pest Readiness Playbook

Find resources online at
https://invasivespecies.wa.gov/projects/pest-ready/

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Questions about obtaining copies of the Playbook or additional comments?
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Executive Summary

The Problem

A single detected pest can, and often does, indicate the presence of a much larger population. Without organizational structures and prevention methods in place, the worst of these pests can have costly, irreversible and lasting impacts to the forests they infest.

Ultimately, if an invasive pest is detected and a response is not successful, the result is a new established pest requiring long-term costly controls and mitigation of impacts to surrounding agricultural economies or natural ecosystems. Costly quarantines, lost profits, and perpetual management of damaging insect and pathogen pests is estimated to cost billions of dollars annually to United States forests.[1]

Due to the nature of pest infestations, local municipalities and individuals typically bear the long-term costs.[1]

What You Can Do

Take actions to be Urban Forest Pest Ready. The State of Washington Urban Forest Pest Readiness Playbook (playbook) provides a set of actions to address the threats of forest pests and closes a gap in readiness and response capabilities between community leaders managing urban forests and state and federal responders.

Who should use this playbook?

Community leaders managing urban forests and a broad range of partners and stakeholders involved in the planning process.

1 — Lovett G.M et al. 2016. Nonnative forest insects and pathogens in the United States: Impacts and policy options. *Ecological Society of America* (26) 5: 1437–1455.

Planning Steps

Step 1. Identify one or more local playbook leads who understand the issues and risks of urban forest pests to coordinate the planning process.

Step 2. Review the playbook overview sections and primary resources and download appropriate templates.

Step 3. Run through a self-assessment to answer the question: "Are you Urban Forest Pest Ready?"

Step 4. Send contact information for your local playbook leads to the State Invasive Species Coordinator

Step 5. Work through the tasks identified in the playbook, prioritizing tasks based upon your self-assessment score, and document information identified for each action.

After finishing Step 3 evaluate your risks and action priorities based on the Urban Forest Pest Readiness benchmarks:

Understanding Risk: 12 points of 21

Risk of falling below benchmarks: Not knowing the natural resources you are trying to protect and the risks to those resources increases vulnerability to tree loss and pest introductions.

Capacity to Support a Response: 8 points of 12

Risk of falling below benchmarks: Disorganized planning processes drain local resources and decrease your ability to effectively respond to pests and protect natural resources.

Ability to Expedite Informed Decision-Making: 7 points of 13

Risk of falling below benchmarks: Misinformed or slow-paced decision-making diminishes your ability to effectively respond to pests and protect natural resources.

Community Support to Expand your Impact: 4 points of 8

Risk of falling below benchmarks: Poor communication, adversarial relationships with community members, and/or inexperienced team members makes it increasingly difficult to detect and respond to pest threats.

Find "online playbook resources" (accompanying resources and information for the Urban Forest Pest Readiness Playbook) and connect with supporting organizations at:
https://invasivespecies.wa.gov/projects/pest-ready/


PARK PARKADE

I.

Overview

Urban forests lie at the interface of trade, the movement of people, and neighboring forest and agricultural resources. Goods and people coming into the area bring with them the risk of introducing non-native urban forest pests that have the potential to devastate resources, economies, and ways of life.

Urban forests provide measurable positive outcomes for human health, transportation, water quality, jobs, economic development, and safety. Urban trees provide a cooling effect and reduce pollution.[1] Maintaining urban forest health and these positive outcomes will continue to be challenged by climatic stressors such as rising temperatures, drought, and shifting precipitation patterns which are expected to increase tree stress and pest vulnerabilities in the Pacific Northwest.[2]

The management of dead and dying trees in the urban forest is costly. For example, local governments across the country spend an estimated $1.7 billion each year to remove trees killed by non-native insect pests. Homeowners spend an additional $1 billion to remove and replace trees lost to pests. They also suffer an additional $1.5 billion per year in lost property value.[3]

A single detected pest such as the pathogen Sudden Oak Death or the insect emerald ash borer can, and often does, indicate the presence of a much larger population. Without organizational structures in place, the worst of these pests can have irreversible, lasting impacts to the urban forests they infest. Without intervention, a pest can quickly spread to forests outside of the urban area and throughout the Western United States.

The Washington State Urban Forest Pest Readiness Playbook provides a set of actions that towns, cities, counties, and urban forestry programs should take to address the threat of forest pests. The purpose of this playbook is to close a gap in readiness and response capabilities between community leaders managing urban forests and state and federal responders. After using the playbook you should have an understanding of your organization's preparedness, documentation of what you know, and a path forward for improving your pest readiness capabilities.

1 — See additional resources at Vibrant Cities Lab *https://www.vibrantcitieslab.com/*

2 — Snover, A.K, G.S. Mauger, L.C. Whitely Binder, M. Krosby, and I. Tohver. 2013. Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers. State of Knowledge Report prepared for the Washington State Department of Ecology. Climate Impacts Group, University of Washington, Seattle.

3 — Campbell, F.T. and S.E. Schlarbaum. 2013. Fading Forests III American Forests: What Choice Will We Make? The Nature Conservancy, Arlington, VA, and the University of Tennessee, Knoxville, TN.

Who is this playbook for and who can implement it?

The State of Washington Urban Forest Pest Readiness Playbook provides a set of actions that towns, cities, counties, tribes and urban forestry programs should take to address the threat of forest pests. You will be best served to bring together a collaborative team that includes multiple organizations, expertise, and authorities dependent on the size and structure of your jurisdiction. Almost anyone in the community can act as a convener to bring together partners to implement the actions in this playbook.

There are multiple roles a playbook user or their network may play in detecting, managing, or responding to forest pests. Users of this playbook should consider involving a broad range of stakeholders and partners who will ultimately determine the success of planning efforts, pest detection, response, and future management/restoration of the area. For example, certain actions may be suitable to implement through a partnership with a local college, a nonprofit, or a regional commission while others will be most suitable to complete in partnership with a municipality's legal or policy staff.

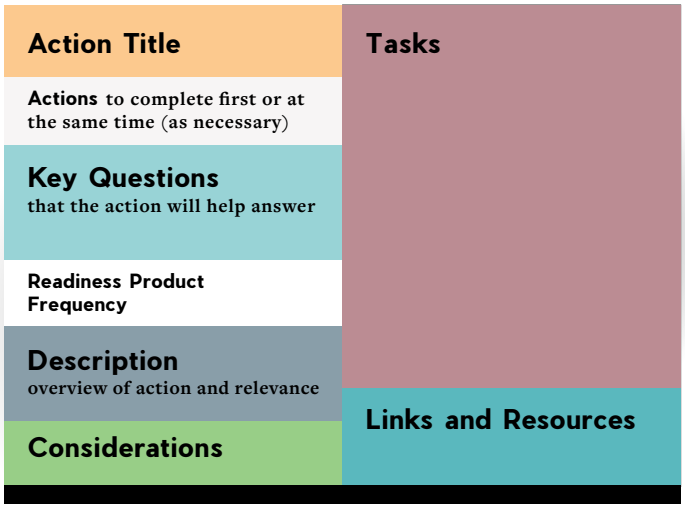
How to use this playbook

A playbook is a set of actions with associated tasks to achieve a goal. The playbook format was chosen to be an adaptable framework model for users who are at different stages of *Urban Forest Pest Readiness* and to address the various pests of concern to a community.

Successful use of this playbook will depend on a flexible approach, where actions and tasks are implemented strategically and opportunistically. Users can prioritize actions based on gaps identified in the assessment, political/stakeholder interests, and available resources.

Each action includes the following:

- Action Title
- Key Question(s) that the action will help answer
- Readiness Product: what you can expect to prepare as part of this action
- Frequency: how often to anticipate revisiting this action to stay prepared
- Actions to complete first or at the same time (as necessary)
- Description: overview of action and relevance
- Tasks
- Considerations
- Links & Resources



Example Layout for Actions

Where to start

Step 1. Identify one or more local playbook leads to coordinate the planning process. These people should understand the issues and risks of urban forest pests.

The playbook lead should be sure to consider the characteristics of high-risk pests. This will impact how you need to implement the actions in this playbook and who you will need to include in your approach.

Consider the following pest characteristics:

- **Biology** and life history including the pest's life cycle, how it reproduces, and what it eats will impact modes of detection, environmental impacts, economic impacts, how it moves, and approaches to eradication and management.
- Most pests have **known pathways and vectors of movement.** How they arrive and how they are moved impacts outreach, prevention, and detection efforts. Containment of the pest may require the restriction of movement and trade from your area once a pest has been detected.
- Understanding pest **damage** to plants is necessary for detection as well as for determining which parts of the urban canopy are most at risk as well as what industries/ environments could be impacted.
- Finally, certain pests of potential economic importance that are not yet in the country, or state, are often officially managed by USDA-APHIS-PPQ and WSDA and are **regulated** in different ways. The regulatory designation affects how/if the USDA or WSDA is involved in a response and the availability of funding or resources.

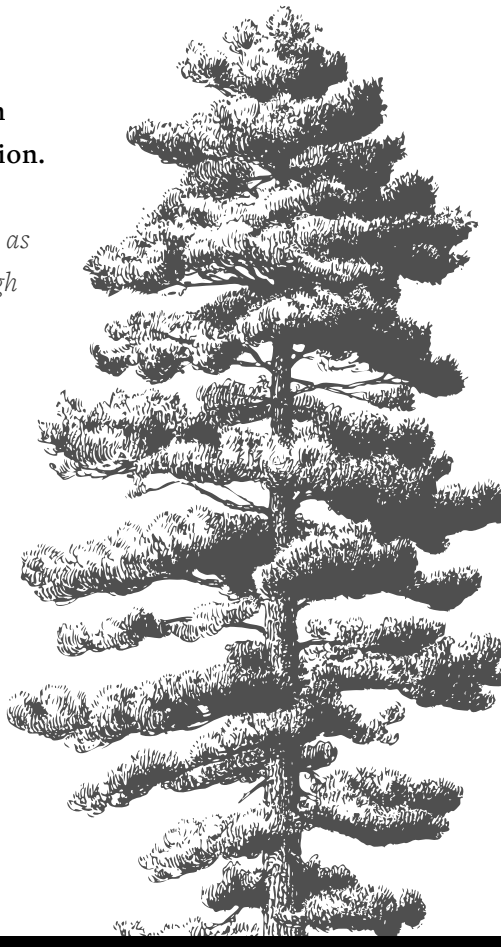
Step 2. Review the playbook overview section and primary references and download appropriate templates from the online playbook resources.

Step 3. Run through the self-assessment to answer the question: "Are you Urban Forest Pest Ready?" and to identify what actions to take on first and score your readiness. You can then share your score with decision-makers to support your planning.

Step 4. Send contact information for your local playbook lead(s) to the State Invasive Species Coordinator to enhance statewide coordination and learn about incentives and opportunities for additional planning and implementation support. Visit https://invasivespecies.wa.gov/projects/pest-ready/ to submit your information.

Step 5. Work through the tasks identified in the playbook, prioritizing tasks based upon your self-assessment score, and document information identified for each action.

Don't wait! Start as soon as you can and move through new actions and tasks at your own pace and as resources, capacity, and support become available.



Glossary & Common Abbreviations

DNR | Washington State Department of Natural Resources

Incident Command System (ICS) | (*As defined by United States Department of Homeland Security*) An important element in ensuring interoperability across multi-jurisdictional or multi-agency incident management activities. Unified command, a central tenet of ICS, enables organizations with jurisdictional authority or functional responsibility for an incident to support each other through the use of mutually developed incident objectives.

Pathway | A pathway is the way in which a pest enters into or moves about within Washington. Example pathways include human activity (e.g., trade, industry, recreation), transport (e.g., boats traveling on a trailer, vehicle tires, hiking boots), and varying environmental systems (e.g., wind, water movement, erosion).

Regulated pest | (*Definition adapted from the Food and Agriculture Organization of the United Nations*) A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated by the United States Department of Agriculture or State of Washington.

Urban | (*Definition adapted from U.S. Census definitions for urban areas and communities*) Description for something involving or lying within a densely populated area or a city or town's jurisdictional boundaries. Communities of all sizes, however, can benefit from working through this playbook.

Urban forest pest (UFP) | An urban forest pest is defined for the purposes of this playbook as an insect or pathogen, non-native to Washington that uses trees as a host in urbanized areas whose invasive characteristics cause substantial economic and ecological harm and are capable of spreading to new areas of the state. These pests can also impact economically and ecologically valuable non-tree plants and be transported on non-forestry products.

USDA-APHIS-PPQ | United States Department of Agriculture - Animal and Plant Health Inspection Service - Plant Protection and Quarantine

USDA Forest Service | United States Department of Agriculture - Forest Service

WISC | Washington Invasive Species Council

WSDA | Washington State Department of Agriculture

II.

Federal & State Regulatory Authority

USDA Forest Service

AUTHORITY

Cooperative Forestry Assistance Act of 1978, Forest Health Protection (Section 8).

OFFICERS

National Forest System Deputy Chief
Establish a national policy for the management of invasive species threatening National Forest Systems

Deputy Chief for State and Private Forestry
Lead coordinating state agency for regulated pest response

State and Private Forestry Director
Approve funding requests
Promote coordination

USDA APHIS PPQ

Animal and Plant Health Inspection Service – Plant Protection Quarantine

AUTHORITY

Agricultural Bioterrorism Protection Act of 2002 (Public Law 107-188)
Plant Protection Act of 2000 (Public Law 106-224; June 20, 2000)
Federal Plant Protection Regulations (Title 7 Code of Federal Regulations 300–399)

OFFICER

USDA-APHIS-PPQ State Plant Health Director (SPHD)
Primary agency for regulated pest response
Quarantine Authority

The Office of the Governor

WASHINGTON GOVERNOR
RCW 43.06.010 Proclamation of State Emergency

Washington State Department of Natural Resources

AUTHORITY

RCW 76.06.130 – Forest Health Emergency declaration authority; authority to assist WSDA with control or eradication
RCW 76.06.150 – Lands Commissioner general forest health authority
RCW 76.06.180—Forest health hazard warning—Forest health hazard order—Notice—Appeal

OFFICERS

Commissioner of Public Lands
Designated as the lead for all of Washington's forest health issues

State Forester
Leads coordination with other state and federal forest health agencies; Oversees the agency's Forest Health & Resiliency division

Forest Health & Resiliency Division Manager
Oversees forest health monitoring and evaluation as well as technical assistance to jurisdictions and landowners

Washington State Department of Agriculture

AUTHORITY

RCW 17.24.041 Quarantine authority
RCW 17.24.091 Impound authority
RCW 17.24.101 Survey and control authority
RCW 17.24.141 Civil and criminal penalty authority
RCW 17.24.151 Violations - Costs of control
RCW 17.24.171 Determination of imminent danger of infestation of plant pests or plant diseases—Emergency measures—Conditions—Procedures

OFFICER

Plant Division Assistant Director
State Plant Regulatory Official (SPRO); Lead coordinating state agency for regulated pest response

III.

Supporting Organizations & Programs

	ORGANIZATION	PROGRAMS	SERVICES
FEDERAL	**USDA APHIS PPQ** *Animal and Plant Health Inspection Service – Plant Protection and Quarantine*	National Identification Services	Diagnostics
		Plant Pest and Disease Program	Pest Regulation Phytosanitary certification Monitoring
	USDA Forest Service	R6 Forest Health Protection Regional Office, Westside Service Center	Aerial surveying and detection Diagnostics Public Lands Manager
STATE	**Washington State Department of Agriculture**	Pesticide Management, Plant Protection	Detection surveying Noxious weed control Diagnostics - Public GIS Quarantines Pest Eradication
	Washington State Department of Natural Resources	Forest Health and Resiliency Division	Aerial surveying and detection Pest monitoring Private landowner technical assistance Strategic planning and monitoring
		Urban and Community Forestry Program *Housed within the Forest Health and Resiliency Division* **Playbook Point of Contact: State Urban Forestry Coordinator**	Outreach & Education Financial assistance
		Washington Community Forestry Council *Supports the Urban and Community Forestry Program*	Coordination & Leadership

There are numerous entities that have invasive species functions and responsibilities in managing urban trees and responding to invasive pests. There is programming across the state that provides the structure and resources for users to become Urban Forest Pest Ready.

	ORGANIZATION	PROGRAMS	SERVICES
STATE	**Washington State Recreation and Conservation Office**	Washington Invasive Species Council **Playbook Point of contact: State Invasive Species Coordinator**	Outreach & Education Coordination & Leadership
STATE	**Washington State University Extension**	Diagnostics Labs	Applied research Diagnostics
STATE		Urban IPM & Pesticide Safety	Outreach & Education
STATE		Master Gardeners	Outreach & Education
STATE		Small Forest Landowner Program	Outreach & Education Private landowner technical assistance
REGIONAL	**Conservation Districts**		Private landowner technical assistance Outreach & Education
REGIONAL	**ISA Certified Arborists**		Private landowner technical assistance
REGIONAL	**Local Counties, Cities & Towns**	Departments with responsibility for trees and forests	Regional Coordination Outreach & Education

See the Readiness Contact List for these supporting organizations at:
https://invasivespecies.wa.gov/projects/pest-ready/

IV.

Washington Pest Detection & Reporting

What do you do when you find a pest? Report it!

Anyone can report a pest or symptoms of a possible infection or infestation of trees.
Pest detection trainings to enhance detections are offered regularly across the state; see Action 14 for details.

Anyone submitting a report should be prepared to

1) provide a detailed description of the sighting, including the signs/symptoms observed
2) provide the exact location of detection
3) provide a photo of the pest or damage

If available, a specimen can be helpful for identification and required for pest confirmation

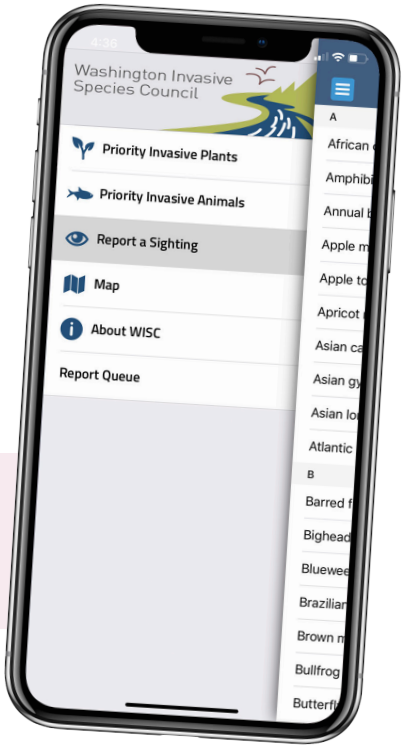
Invasive pest reports can be submitted through any of the following FREE publicly available state services:

ONLINE

Washington Invasive Species Council Online Reporting Forms
https://invasivespecies.wa.gov/report-a-sighting/

SMARTPHONE APP

Washington Invasives App - Search for "WA Invasives" in your device's app store



Your report will be directed to the appropriate agency/agencies that have the authority and resources to respond. All reports will improve invasive species experts' understanding of species distribution. All reports of potential high-risk pests will require on-site expert collection and confirmation.

Find the Insect and Plant Specimen Collection Guide in online playbook resources at https://invasivespecies.wa.gov/projects/pest-ready/

ADDITIONAL CONTACTS TO CALL

SEE THE **Readiness Contact List** *in online playbook resources WITH UP-TO-DATE CONTACT INFORMATION*

USDA-APHIS-PPQ – State Plant Health Director
Office location: Federal Way, WA
(253) 944-2040

USDA Forest Service – Regional Forest Entomologist & Forest Pathologist
Office location: Portland, OR
Regional Forest Entomologist: (503) 808-2915
Regional Forest Pathologist: (503) 808-2997

Washington State Department of Agriculture – Assistant Director, Plant Protection Division
Office location: Olympia, WA
(360) 902-1907

Washington State Department of Natural Resources – Forest Health & Resiliency Division
Office location: Olympia, WA
(360) 902-1300

Washington State University – Plant Diagnostician
Office locations: Pullman, WA
Plant Diagnostician: (509) 335-3292

Office location: Puyallup, WA
Diagnostic Plant Pathologist: (253) 445-4582

V.

Primary References

The playbook accompanies a wealth of references available on urban forest pest topics. Each playbook action refers to resources that you can use to implement the action. Review these primary references to better understand the tools and frameworks relevant to Washington State which the playbook builds on.

Urban Forestry Toolkit
Vibrant Cities Lab

INTERACTIVE WEBSITE

Developed by USDA Forest Service, American Forests, and National Association of Regional Councils, the Vibrant Cities Lab is designed with research syntheses, case studies, and toolkits to help city managers, policymakers, and advocates build thriving urban forest programs.

The above symbol notes where tasks in the playbook share overlapping steps with the Vibrant Cities Lab Urban Forestry Toolkit.

Tree City USA
Recognition Standards
Arbor Day Foundation

WEBSITE

Tree City USA is a member-based national program that provides recognition to communities who support community forestry. USDA Forest Service and National Association of State Foresters cooperate on this program.

The above symbol notes where tasks in the playbook have overlapping objectives with Tree City USA standards.

Evergreen Communities Recognition
A Guide to Community and Urban
Forestry Programming

40 PAGE GUIDE

The Evergreen Communities Act directory was developed by the Evergreen Communities Act Task Force under the guidance of the Department of Commerce to provide local communities a resource to create or enhance community and urban forestry programming (RCW 35.105.030). Many of the steps outlined in the guide build upon the existing Tree City USA program.

The above symbol notes where tasks in the playbook share overlapping steps outlined in the Evergreen Communities Act.

Washington State Plant Health
Response Plan

6 PAGE PLAN

An appendix to Washington State Comprehensive Emergency Management Plan, specific to pests impacting agriculture, provides direction on roles of various State Agencies in supporting response efforts.

Washington Invasive Species Council Priority Species

WEBSITE

Of the 700 known species, the Washington Invasive Species Council has selected 50 priority species for action by the council using science and professional judgment. These species represent the gravest threats to Washington's plants, animals, and businesses that depend on the rich biodiversity of our state.

Eradication Playbook
Oregon Department of Agriculture

122 PAGE PLAYBOOK

This playbook is an invitation to explore the depth of complexity inherent in a large-scale eradication project. It provides questions, how to's, and a myriad of ideas to consider when planning an insect pest eradication.

Resource Key

These symbols can be found throughout the document and indicate tasks that dually meet the steps or standards of urban forestry programs that provide recognition to municipalities that complete them.

Vibrant Cities Lab

Tree City USA

ECA

Evergreen Communities Act

VI.

Urban Forest Pest Ready Assessment

This short self-assessment answers the question: *"Are you Urban Forest Pest Ready?"* Once the assessment is completed, you will have an *Urban Forest Pest Ready* score and a list of actions to prioritize.

Instructions

1. **Review the assessment metrics to understand the urban forestry and risk management experts you would like to convene. Assessment metrics include Understanding Risk, Capacity to Support a Response, Ability to Expedite Informed Decision-Making and Community Support to Expand Your Impact.**
2. **Complete the assessment with urban forestry experts that have the institutional knowledge of your jurisdiction. If your community does not employ an urban forestry expert, include other staff with tree-related responsibilities or community members with relevant knowledge of trees and the local environment.**
3. **If you can definitively answer 'yes' to the question, check the box and move to the next question. If you answer 'not sure', see the related action for more information before answering. If you answer 'no' do not check the box and move to the next question.**
4. **Tally your score.**
5. **Rank your priority assessment metrics based on where you have the greatest point gap from meeting the benchmarks and start with those actions first.**
6. **Share the results with decision makers and leadership as needed for launching your planning efforts.**

Disclaimer: The following benchmarks provide guidance towards prioritizing the action you can take and understanding general risk. It is not intended to grade compliance with local, state or federal laws or rate otherwise enforceable regulations.

UNDERSTANDING RISK

	QUESTION	YES	POINTS	NO/NOT SURE?
Tree Resources				
1a.	Has your community ever conducted a tree canopy analysis?	☐	+1	See Action 6
1b.	Has your city ever performed or does your city currently have a tree-by-tree inventory containing data on individual trees' species, sizes, conditions, and locations?	☐	+3	
1c.	Is the inventory less than 10 years old?	☐	+1	
1d.	Is the inventory less than 5 years old?	☐	+1	
1e.	Does your inventory data include all or a significant majority of all managed street and park trees?	☐	+2	
1f.	Is your inventory held in a geospatial database with location data?	☐	+2	
1g.	Is your data able to be shared with others outside your organization?	☐	+2	
Pests of concern				
2.	Have you identified priority pest species that are a concern for your community based on an understanding of common tree species in your urban canopy?	☐	+1	See Action 3
Risk analysis				
3.	Have you considered neighboring jurisdictions and/or nearby natural resource economies like agriculture and forestry as part of your assessment of priority pests?	☐	+1	See Action 7

Urban Forest Pest Ready Assessment

Pest Pathways

	QUESTION	YES	POINTS	NO/NOT SURE?
4a.	*Do you have an understanding of local hot spots for pest introduction to your community including (check yes if no hot spots exist):*			
	Locations where there is an influx of new residents or popular destinations for out-of-state visitors	☐	+1	
	Transportation corridors and storage facilities for commercial movement of forest and agriculture products	☐	+1	
	Commercial ports (check yes if there are no commercial posts)	☐	+1	See Action 4
4b.	Have you documented the locations and supplementary information about size of these pest introduction hot spots?	☐	+1	
4c.	Has your community identified trees or locations that are particularly pest vulnerable?	☐	+1	

Pest Prevention

5a.	Does your city staff use Best Management Practices to prevent the spread and introduction of pests?	☐	+1	
5b.	Do you or partners provide training for local contractors on tree care or Best Management Practices to prevent the spread and introductions of pests?	☐	+1	See Action 13

Actions 3, 4, 6, 7, 13
Understanding risk subtotal _____ **of 21**

Continue to the next section to calculate your "Capacity to Support a Response"

CAPACITY TO SUPPORT A RESPONSE

	QUESTION	YES	POINTS	NO/NOT SURE?
Emergency Preparedness				
1.	Do you have one or more staff that have been trained in Incident Command Systems (ICS)?	☐	+1	See Action 18
Response Experience				
2a.	Have you participated in an invasive forest pest response in the last ~20 years?	☐	+1	See Action 17 & 20
2b.	Do you know the basic components of a pest response that a lead action entity would run in the event of a pest confirmation?	☐	+2	
Know Who to call				
3.	Have you integrated the contact information for USDA-APHIS-PPQ, USDA Forest Service, Washington Invasive Species Council, Washington Department of Natural Resources, Washington Department of Agriculture and/or Washington State University into your own systems so that a team member can easily know who to call if a pest is detected in your area?	☐	+2	See Detection & Reporting Section
Supporting Organizations				
4a.	Have you worked with Washington Invasive Species Council, Washington State Department of Agriculture, or Washington State Department of Natural Resources state agency staff in the past to support your program (could include training, consultation, workshops, grants, one-on-one discussions)?	☐	+1	See Playbook overview
4b.	Do you know which partners and stakeholders to engage in order to garner support for a response?	☐	+1	See Action 9
Sufficient Funding				
5.	Do you know what funding options, both internal and external, are available to you to respond to a pest?	☐	+1	See Action 5

	QUESTION	YES	POINTS	NO/NOT SURE?
Tree Management				
6.	*Are you actively enhancing your managed street trees, parks, and natural areas:*			
	To prevent invasive species establishment	☐	+1	See Action 16 and 19
	To diversify tree plantings	☐	+1	
	To restore areas after significant tree removal (for example removal of damaged trees, invasive trees, hazard trees, or a forest pest response)	☐	+1	

Actions 5, 9, 16, 17, 18, 19, 20
Capacity to Support a Response subtotal _____ **of 12**

ABILITY TO EXPEDITE INFORMED DECISION-MAKING

Urban Forestry Staff				
1a.	Do you have a staff person(s) or department(s) responsible for urban tree management?	☐	+1	See Action 1
1b	Would you consider most of your non-urban forestry-related departments to be informed on how their work impacts your urban forests?	☐	+1	
Local Authority				
2a.	*Do you have any urban forestry management:*			
	Plan(s)	☐	+1	See Action 2
	Policies	☐	+1	
	City Code	☐	+2	
2b.	Does your urban forestry management plan, policy, or codes include information on pest management?	☐	+3	See Action 12

Continue to the next section to calculate your "Community Support to Expand Your Impact"

	QUESTION	YES	POINTS	NO/NOT SURE?
	Permitting Processes			
3.	Are you familiar with permitting processes regarding (+1 for at least 4 of 7): • Public involvement/notices • Environmental and water quality • Endangered species • Property access requirements • Pesticide registrations and applicator licenses • Plant quarantine compliance • Waste management practices • Historical site/archaeological permitting	☐	+1	See Action 8 and 15
	Leadership			
4.	Do you have elected officials currently serving that have demonstrated concern for urban forest pests or invested in urban forest pest-related initiatives?	☐	+3	See Action 11

Actions 1, 2, 8, 11, 12, 15
Ability to expedite informed decision-making subtotal _____ **of 13**

COMMUNITY SUPPORT TO EXPAND YOUR IMPACT

	Diverse Team			
1a.	Do you have experience bringing together diverse groups of stakeholders across departments and topics?	☐	+1	See Action 9
1b.	*Do you have access to people with the following expertise or role involved in this assessment* (+1 *for each category filled*):			
	Tree or urban forest expert	☐	+1	
	City planner	☐	+1	
	Tree care professional or other community stakeholders	☐	+1	

Urban Forest Pest Ready Assessment

Messaging

2.	Do you know the appropriate messaging and languages/ channels/forums to use when communicating with the populations and neighborhoods most likely to be impacted by a pest detection?	☐	+1	See Action 10

Public Awareness

3.	Do you have information in public outreach materials that you distribute that covers the issues and risk of urban forest pests?	☐	+1	See Action 10

Early Detection

4.	Do you promote the implementation of and recruitment to early pest detection network (such as Master Gardeners, Washington Pest Watch)?	☐	+2	See Action 14

Actions 9, 10, 14
Community Support subtotal _____ of 8

Continue to the next section to see where your scores fall on the Urban Forest Pest Ready benchmarks and determine which actions to take next!

URBAN FOREST PEST READY SCORECARD

Understanding Risk	_____ of 21
Capacity to Support a Response	_____ of 12
Ability to Expedite Informed Decision-Making	_____ of 13
Community Support to Expand Your Impact	_____ of 8

Continue to the next section to see where your scores fall on the readiness benchmarks and determine which actions to take next!

How do your scores compare to the Urban Forest Pest Ready benchmarks?

Rank your priority assessment metrics based on where you have the greatest point gap from meeting the benchmarks on the next page and start with those actions first. You can track your priority actions using the Readiness Items Tracking Table in online playbook resources.

The benchmarks are based on a hypothetical assessment of a community engaged in a mid-range planning effort who has demonstrated institutional buy-in to pest readiness. The benchmarks were developed with input from Urban Forest Pest Readiness Steering Committee, which consists of representatives from experienced federal and state agencies, universities, and municipalities.

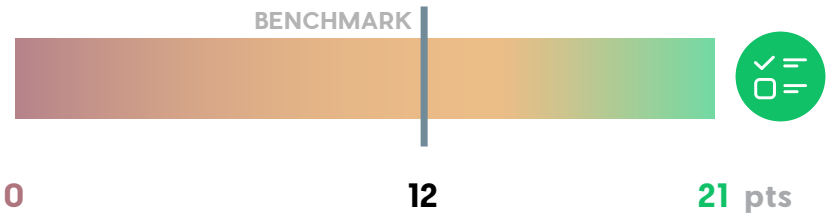
Disclaimer: The following benchmarks provide guidance towards prioritizing the action you can take and understanding general risk. It is not intended to grade compliance with local, state or federal laws or rate otherwise enforceable regulations.

Urban Forest Pest Ready Benchmarks

Understanding Risk

Risk of falling below benchmarks: Not knowing the natural resources you are trying to protect and the risks to those resources increases vulnerability to tree loss and pest introductions.

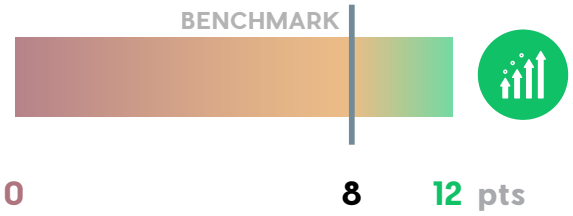
Actions addressed: 3, 4, 6, 7, 13



Capacity to Support a Response

Risk of falling below benchmarks: Disorganized planning processes drain local resources and decrease your ability to effectively respond to pests and protect natural resources.

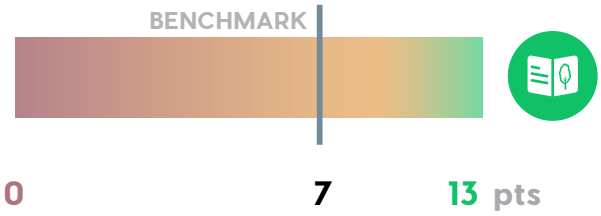
Actions addressed: 5, 9, 16, 17, 18, 19, 20



Ability to Expedite Informed Decision-Making

Risk of falling below benchmarks: Misinformed or slow-paced decision-making diminishes your ability to effectively respond to pests and protect natural resources.

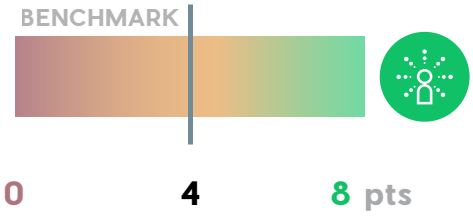
Actions addressed: 1, 2, 8, 11, 12, 15



Community support to Expand your Impact

Risk of falling below benchmarks: Poor communication, adversarial relationships with community members, and/or inexperienced team members makes it increasingly difficult to detect and respond to pest threats.

Actions addressed: 9, 10, 14



Urban Forest Pest Ready!

Scoring above the Urban Forest Pest Ready benchmarks?

Great! Review the actions which you have not yet completed and review the Checklist of Readiness Actions to create a schedule for when and how often to revisit your actions.

VII.

Checklist of Readiness Actions

Each action is associated with the key questions that will be answered as you complete an action, the readiness product that would be prepared as part of answering the question and guidelines on how often to revisit the action to stay prepared.

- **ACTION 1. Evaluating Existing Management Structures and Identifying Roles** Page 40
  What is the defined management structure for entities that are responsible for the urban tree canopy? Who are the entities or potential partners who will play a role in readiness, prevention, detection, and response to urban forest pests?
  Readiness Product: Readiness Contact List; template job descriptions
  Frequency: Annually

- **ACTION 2. Reviewing Existing Urban Forestry Code, Plans, and Policies** Page 42
  Are existing urban tree canopy management city codes, plans, and policies relevant to urban forest pest prevention, detection and/or response?
  Readiness Product: City adopted tree ordinances
  Frequency: 5 years

- **ACTION 3. Identifying Priority Pest Species** Page 44
  Which pest species are the highest concern?
  Readiness Product: Urban forest pest species list relevant to your community
  Frequency: Annually

- **ACTION 4. Identifying Invasion Pathways and Vectors** Page 46
  How are urban forest pests most likely to be transported and introduced to our area?
  Readiness Product: Invasion corridors/locations map; Readiness Contact List
  Frequency: 3 years

- **ACTION 5. Identifying Available Resources** Page 48
  What resources are available if we need to respond to a pest sighting?
  Readiness Product: Documentation of funding strategy
  Frequency: 2 years

ACTION 6. Tree Inventory and Canopy Map Page 50

What are the available tree and canopy data resources and where are they stored? What additional information do we need to collect to prevent, detect or respond to urban forest pests and how will this information be collected and stored?

Readiness Product: Tree inventory; canopy map

Frequency: 5 years

ACTION 7. Performing a Risk Analysis Page 52

What threats and high risk areas will inform priority urban forest pest readiness and response efforts?

Readiness Product: Community-specific risk assessment for priority species

Frequency: As often as pest species list is updated

ACTION 8. Understanding the Legal Environment Page 54

How well do we understand legal obligations that will impact response projects in high risk areas? What can be done ahead of time to be ready?

*Readiness Product: **Readiness Contact List**; Documentation of permitting and notification requirements*

Frequency: 5 years

ACTION 9. Building Stakeholder Coalitions Page 56

Who are the people or groups of people who will be most impacted by urban forest pests and how do we involve them in readiness, prevention, detection or response efforts?

Readiness Product: Contact tracking system in place; Communication strategies; Memorandum of Understanding

Frequency: Ongoing

ACTION 10. Audience Outreach and Messaging Page 58

How do we best reach the people and groups who can support education, prevention, detection, or response?

Readiness Product: Resource library for educational materials; documentation of communication strategies

Frequency: 3 years

ACTION 11. Proactive Support from Decision Makers and Leadership Page 62

Do we have support from decision makers and leadership for urban forest pest readiness and response?

Readiness Product: Key messages and outreach material

Frequency: 3 years

ACTION 12. Addressing Gaps in Management Structure, Plans, and Policies Page 64

What are the essential gaps in our management structure, plans and policies that we need to fill to successfully prepare for, prevent, detect, or respond to urban forest pests?

Readiness Product: Urban forestry plan; designated urban forestry staff member

Frequency: 5 years

ACTION 13. Implementing Robust Prevention Efforts Page 66

How can we integrate best urban forest pest prevention practices into our programs?

Readiness Product: Revised cross-department Best Management Practices

Frequency: 3 years

ACTION 14. Enhancing Early Detection Page 68

How can we expand our detection and reporting efforts within the capacity of the people, programs, and partnerships in our community?

*Readiness Product: Documentation of strategies for awareness building and education; **Readiness Contact List***

Frequency: 3 years

ACTION 15. Conservation Goals Page 70

What are the important restoration or conservation goals that will inform urban forest pest management strategies following a detection?

Readiness Product: Documentation of conservation priority areas and species

Frequency: 5 years

ACTION 16. Building Tree Canopy Resilience Page 72

How can we integrate proactive opportunities to build canopy resilience in our community before an introduction of an urban forest pest?

Readiness Product: Diversified planting lists; best management practices for all relevant tree care program documentation (including contracts, programs, goals, and strategies)

Frequency: 5 years

ACTION 17. Determining Future Pest Management Strategies Page 74

What (if any) local considerations will inform management strategies for an urban forest pest?

*Readiness Product: **Readiness Contact List***

Frequency: 3 years

ACTION 18. Understanding how ICS Works in a Pest Response Scenario Page 78

What are the key components of an Incident Command System approach to Response Planning that will serve operational and safety concerns?

*Readiness Product: **Readiness Contact List**; resource library of ICS materials and trained staff*

Frequency: 5 years

ACTION 19. Monitoring, Maintenance, and Recovery Page 80

Are the monitoring and maintenance systems in place to support recovery following a detection or response to an urban forest pest?

Readiness Product: Native plant vendor list; appropriate work plan for playbook lead to support actions

Frequency: 5 years

ACTION 20. Building a General Response Framework Page 82

Which components of a generalized response framework can a municipality identify and anticipate supporting ahead of an urban forest pest detection?

- **Confirmation**
- **Delineation of Geographic Scope/Extent of the Incident**
- **Communication**
- **Identification of a Lead Action Entity**
- **Building a Team/Task Force**
- **Establishing a Scientific Review Panel**
- **Convening/Engaging Urban Forest Pest Partners**
- **Response Determination**
- **Emergency Declaration**
- **Activation of Initial Response**
- **Disposal and Mitigation of Spread**

Readiness Product: Generalized Response Framework

Frequency: 3 years

URBAN FOREST PEST *READINESS*

ACTIONS

ACTION 1

Evaluating Existing Management Structures and Identifying Roles

Complete action first or at the same time:

14, 20

Key Questions

- What is the defined management structure for entities that are responsible for the urban tree canopy?
- Who are the entities or potential partners who will play a role in readiness, prevention, detection, and response to urban forest pests?

Readiness Product → Readiness Contact List; template job descriptions

Frequency → Annually

Defining the available/existing management structure is crucial to determining the roles and responsibilities of entities that are responsible for the implementation of and compliance with state and local urban forestry management priorities, responding to invasive pests, and communicating with the public. A centralized tree management structure or authority can be crucial to promoting urban forest pest awareness, readiness, and response within the context of existing frameworks.

Considerations

In communities with smaller operations consider the role that a nonprofit, county staff member, or state coordinator could play in supporting your work.

An important role of local authorities during a response is the treatment, removal, and/or disposal of trees that are vulnerable to pests and may act as potential vectors. It will be necessary to communicate across departments/jurisdictions to determine who is responsible in instances where authorities may overlap or be unclear.

Refer to Action 20 – Generalized Response Framework for information regarding Disposal and Mitigation of Spread.

Tasks

1. Establish playbook lead and coordinating organization.
2. Identify current departments, tree commission or boards, or designated staff with the authority to manage urban forestry program components relevant to urban forest pests of concern.
3. Establish preferred list of response specialists specific to your pests of concern which could include pesticide applicators, tree removal professionals, yard debris recycling services, and wood waste disposal and treatment sites including small portable mill operators to fully utilize wood waste for its highest value use. Consider recruiting these contacts to your early detection network (see Action 14).
4. Prepare relevant job description language to add to existing positions. If contracting services, prepare template contract language to use to secure contracting work when needed.

Links and Resources

Find **Readiness Contact List** template in online playbook resources

Emerald Ash Borer Readiness and Response Plan for Oregon - Section III
(Oregon Department of Forestry, 2018)
https://www.oregoninvasivespeciescouncil.org/eab-1

ACTION 2

Reviewing Existing Urban Forestry Code, Plans, and Policies

Key Questions

Are existing urban tree canopy management city codes, plans, and policies relevant to urban forest pest prevention, detection and/or response?

Readiness Product → City adopted tree ordinances

Frequency → 5 years

Evaluate all of the plans and policies that exist in your community that may include or influence urban forestry goals. Community and urban forestry principles and practices may be integrated into a wide variety of plans and policies (and associated city code or ordinances) including: transportation, health, land use, parks, and emergency management. Urban forest pest readiness and response planning will need to be integrated into all management of the urban canopy.

Considerations

In smaller and unincorporated communities consider referencing example ordinances and planning documents that are prepared by the county seat.

For effective response, ordinances will need to apply to trees on both public and privately-owned land.

Tasks

1. Review city code, plans, permits, and policies for City's right to tree care on public and private lands and identify opportunities to improve or set legal precedent to be able to take action.
2. Adopt ordinances to address standard response and eradication procedures (i.e. hazard tree removal and property access) prior to eradication.

Links and Resources

Section 6 "Elements of a Community and Urban Forestry Ordinance" - A Guide to Community and Urban Forestry Programming (Washington State Department of Commerce, 2009)
https://www.dnr.wa.gov/publications/rp_urban_guide_to_urban_forestry_programming.pdf

Urban Forestry Example Local Programs & Plans (Municipal Research and Services Center)
http://mrsc.org/Home/Explore-Topics/Environment/Natural-Resources-Topics/Urban-Forestry.aspx

Tree City USA Sample City Tree Ordinance (Arbor Day Foundation)
https://www.arborday.org/programs/treecityusa/documents/sample-tree-ordinance.pdf

Step 12 "Promote Trees in all Policies" (Vibrant Cities Lab)
http://www.vibrantcitieslab.com/toolkit/promote-trees-in-all-policies/

ACTION 3

Identifying Priority Pest Species

Complete action first or at the same time:

4

Key Questions

Which pest species are the highest concern?

Readiness Product → Urban forest pest species list relevant to your community

Frequency → Annually

No species list can be totally inclusive due to the often unpredictable and sometimes rapid changes that can occur in the world of invasive species risks. However, developing and working from a custom or curated "watch list" or list of high priority species can have many benefits. Benefits include optimized outreach, focused early detection training and materials, targeted early detection and tracking of encroaching pests, efficiencies in vector monitoring, and identification of both host plants and at-risk trees.

Considerations

A shorter list of priority pest types may be tailored from a more complete list of pests without needing to overwhelm a first detector audience (e.g. while many types of *Phytophthora* are a concern, *Phytophthora ramorum*–the pathogen responsible for Sudden Oak Death–may be chosen as a representative urban forest pest).

Priority species lists will likely change from community to community.

Tasks

1. Review pest species to understand pressing state concerns by reviewing WISC priority species list and USDA-APHIS-PPQ regulated pest lists and by calling the State Urban Community Forestry Coordinator.
2. Work with State Invasive Species Coordinator to develop a regional urban forest pest priority species list that is meaningful for your community.
    - Pick 3 species for each pathway category: shipping & international trade, movement of firewood, movement of plants/potting soil.
    - Pest lists should include information on pest identification, symptoms, vectors, impacts and hosts/at-risk trees.
    - Pests priorities can be ranked by the 1) ease of identification, 2) the value of the resource or consequences of the infestation, and 3) familiarity and available information about the pest.
    - Species lists need not be limited to a single taxa and may include insects and fungal/bacterial pathogens or be associated with larger invasive species prioritization efforts (that include non-forestry pests).
    - Include both regulated (USDA-APHIS-PPQ & Washington State) pests and other pests of state and local concern.

Links and Resources

Washington Invasive Species Council Priority Species (Washington Invasive Species Council, 2009)
https://invasivespecies.wa.gov/find-a-priority-species/

U.S. Regulated Plant Pest Table/Lists (USDA-APHIS-PPQ, 2017)
https://www.aphis.usda.gov/aphis/ourfocus/planthealth/import-information/rppl/rppl-table

Plant Protection Act (U.S. Code, 2000)
https://www.law.cornell.edu/uscode/text/7/chapter-104

ACTION 4

Identifying Invasion Pathways and Vectors

Complete action first or at the same time:

3

Key Questions

How could urban forest pests be introduced to our area?

Readiness Product → Invasion corridors/locations map; Readiness Contact List

Frequency → 3 years

Knowing the risk of introduction for urban forest pests requires an evaluation of the primary pathways and vectors by which they are transported long-distance and subsequently introduced. By facilitating trade and the movement of goods, urban areas often serve as hubs of human-mediated forest pest invasions. While global trade is a high risk pathway for the introduction of urban forest pests, interstate transport of goods and materials also plays an important role in the movement of urban forest pests. Assessing and understanding the particular pathways of concern for urban pest introductions into a community provides a starting point for risk assessment.

Considerations

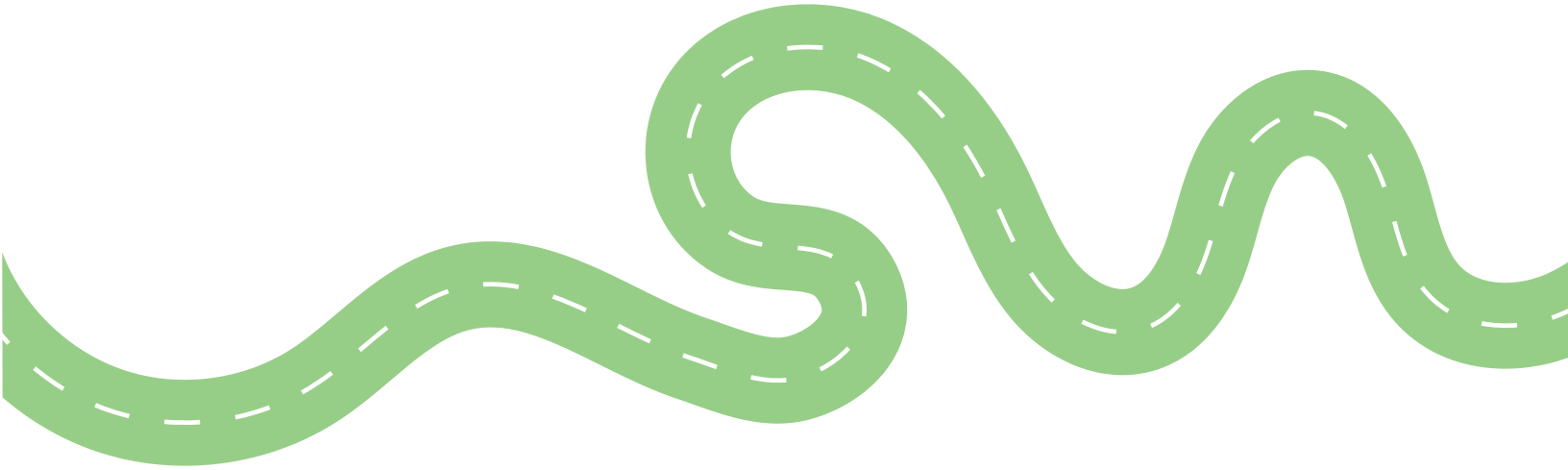
Common urban forest pest vectors to consider include forest products (e.g. firewood), agricultural products, imported nursery stock, new resident's outdoor furniture and potted plants, and exotic pets.

Sources of new residents to the region can include military bases and companies with significant recruiting budget and external hiring power. Consider outreach opportunities and your ability to promote awareness with these audiences.

Work collaboratively with other communities to think about pest pathways into and out of your region as well as taking into consideration neighboring invasion corridors and pathways.

Tasks

1. Map or locate primary invasion corridors: railways, inter-state highways, ports (marine, air), as well as shipping and distribution hubs for vectors such as forest products, agricultural goods, nursery stock, etc., particularly those with multi-national stops.
2. Identify pathway locations where there is an influx of new residents or popular destinations for out-of-state visitors.
3. Identify pathway locations where urban forest pest vectors are warehoused and distributed to the general public.
4. Identify owners and organizations responsible for maintaining invasion corridors and pathways to understand relevant stakeholders for detection efforts and communications.



Links and Resources

Invasive Pest Risk Maps (USDA Forest Service)
https://www.fs.fed.us/foresthealth/applied-sciences/mapping-reporting/invasive-species-risk/invasives-riskmaps-agrilusplanipennis.shtml

ACTION 5

Identifying Available Resources

Complete action first or at the same time:

9

Key Questions

What resources are available if we need to respond to a pest sighting?

Readiness Product → Documentation of funding strategy

Frequency → 2 years

Prior to any response effort it will be important to determine what resources (staff capacity, financial resources, educational tools, protocols, etc.) are available to fill gaps in needed resources. Rapid response efforts can be hampered by gaps in resource identification when time is at a premium. Planning efforts should work to remedy (prioritize) missing or limited critical resources.

Considerations

Finding funding when the time comes to implement a project will be difficult, having the right leaders and support lined up within your own organization can help even if resources are not available in the planning phase.

High-quality data can help justify budgets and expenses.

Tasks

1. Understand potential public funding options, working with the State Urban Forestry Coordinator as necessary. Consider the following sources
    - City budget
    - Public utility assistance
    - State emergency funds
    - DNR Community Forestry Assistance Grant Resources
    - Washington State Nursery and Landscape Association
2. Consider the feasibility of establishing a local emergency response fund and work with State Urban Forestry Coordinator to determine anticipated costs at the local level.

Links and Resources

Urban and Community Forestry Grants (Washington State Department of Natural Resources, 2017)
https://www.dnr.wa.gov/urban-and-community-forestry-grants

ACTION 6

Tree Inventory and Canopy Map

Key Questions

What are the available tree and canopy data resources and where are they stored?

What additional information do we need to collect to prevent, detect or respond to urban forest pests and how will this information be collected and stored?

Readiness Product → Tree inventory; canopy map

Frequency → 5 years

Maps and inventories are valuable tools to inform management and maintenance of existing and future trees. These tools can help identify at-risk areas, pinpoint outreach and stakeholder engagement. Urban tree inventories quantify and identify species in the canopy, which allows managers to identify those areas within the urban canopy that are more vulnerable to invasion and subsequent tree loss. Tree inventories should be updated and/or refined as appropriate to maintain current inventory data. Urban canopy maps show the distribution of trees and are derived from satellite imagery and aerial imagery.

Considerations

A comprehensive survey would include trees in the urban canopy located on both publicly and privately owned property including school districts, homeowner associations, parks, cemeteries, land trusts, public utilities, commercial properties, undeveloped parcels, and residential properties.

High-quality data combined with an understanding of the risks is essential for action and can provide the foundation for accurate budgeting and fundraising.

Identify both high-value urban trees (such as designated heritage trees) and neighborhoods with insufficient canopy that may merit additional protection.

Tasks

1. Undertake tree inventories and monitoring. A tree inventory should include age, species, size and condition of the trees as well as special designations (e.g. heritage tree) where appropriate. Monitoring and updating tree inventory is vital to effective canopy assessment as well as hazard tree tracking.
2. Create your urban forest canopy map through:
    - Partnering with public entities that may have their own internal records of tree assets such as school districts, university campuses, and publicly owned utilities.
    - Engaging a wide variety of stakeholders in data collection and monitoring by conducting trainings and inventories with staff, volunteers, or tree care professionals.
    - Implement remote sensing technology such as aerial photography or satellite imagery and work with GIS experts to capture all trees within a community.
3. Share your inventory and maps with State Urban Forestry Coordinator.

Links and Resources

Community Forestry Assistance Grants (Washington State Department of Natural Resources, 2018)
https://www.dnr.wa.gov/community-forestry-assistance-grant-resources

USDA Forest Service Aerial Detection Surveys maps (USDA Forest Service, 2018)
https://www.fs.usda.gov/detail/r6/forest-grasslandhealth/insects-diseases/?cid=stelprdb5286951

A Guide to Community and Urban Forestry Programming (Washington State Department of Commerce, 2009)
https://www.dnr.wa.gov/publications/rp_urban_guide_to_urban_forestry_programming.pdf

Urban Forestry Toolkit - Step #1 & #2 (Vibrant Cities Lab)
https://www.vibrantcitieslab.com/toolkit/street-tree-inventory/

ACTION 7

Performing a Risk Assessment

Complete action first or at the same time:

3, 4, 5, 6

Key Questions

What threats and high risk areas will inform priority urban forest pest readiness and response efforts?

Readiness Product → Community-specific risk assessment for priority species

Frequency → As often as pest species list is updated

Performing an urban forest pest risk assessment for your community will involve evaluating and overlaying information collected in previous actions 3–6. Performing a risk assessment involves both an understanding of urban forest vulnerabilities as well as existing prevention, detection and response capabilities in the context of the pests that are most likely to be introduced and which pose the greatest environmental and economic threats. Risk assessments provide information that can be used to identify opportunities to maximize efforts and diminish threats posed by pests of concern. By identifying geographic areas of high risk for a particular pest, prevention, early detection monitoring efforts, and awareness campaigns can be targeted around these areas.

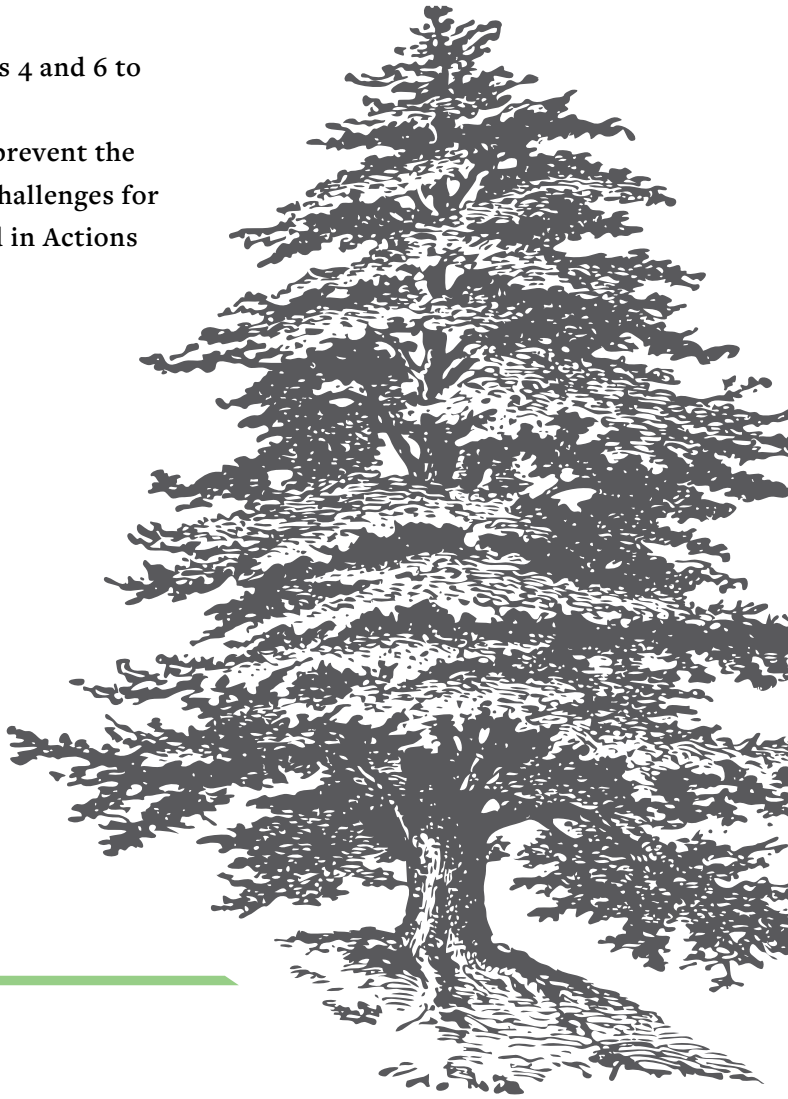
Considerations

Pest risk analysis must take into consideration a broader area beyond designated boundaries/jurisdictions when identifying both invasion pathways/corridors and at-risk tree resources.

Risk assessments need not be performed in detail for every species of concern. Consider grouping pests of concern by taxonomic group, vector or pathway to develop the assessment.

Tasks

1. For priority pests identified in Action 3, further prioritize list based on risk, considering risk of pest introduction (ease of entering the state), distribution (proximity to Washington), pest mobility (how far/quickly can the pest spread on its own), and the location/abundance of susceptible trees/resources.
2. Evaluate combined spatial data resources from actions 4 and 6 to identify high risk areas in your community.
3. Determine appropriate activities or best practices to prevent the introduction of the priority pests and opportunities/challenges for implementation in context with information collected in Actions 4 and 5.



Links and Resources

Urban Tree Risk Management: A Community Guide to Program Design and Implementation (USDA Forest Service, 2003)
https://www.fs.usda.gov/naspf/index.php?q=publications/urban-tree-risk-management-community-guide-program-design-and-implementation

Forest Landscape Assessment Tool (USDA Forest Service, 2016)
https://www.fs.fed.us/pnw/pubs/pnw_gtr941.pdf

Invasive Species Risk Assessment (USDA Forest Service)
https://www.fs.fed.us/foresthealth/applied-sciences/mapping-reporting/invasive-species-risk/index.shtml

ACTION 8

Understanding the Legal Environment

Complete action first or at the same time:

7

Key Questions

- How well do we understand legal obligations that will impact response projects in high risk areas?
- What can be done ahead of time to be ready?

Readiness Product → Readiness Contact List; Documentation of permitting and notification requirements

Frequency → 5 years

Many actions detailed in the playbook encourage voluntary preventative, cost-reducing planning efforts. Cities, counties, or relevant jurisdictions may also have legal obligations for pest management depending on the pest, the landscape in the area, property ownership and/or permitting authority.

Considerations

Remember the easiest way to stop a project too soon is by not following the law.

Tasks

1. Review your role, laws, and permitting processes related to common and potential response-related requirements such as:
    - Environmental and water quality permits
    - Endangered and threatened species listings
    - Property access requirements
    - Pesticide registrations and applicator licenses
    - Quarantine compliance, and/or changes to waste management practices
    - Archeological and historic preservation permitting
    - Hunting and fishing rights
2. Identify legal experts, agency partners, environmental specialists, waste manager, risk manager, and permitting staff who would be necessary in a response and add to the **Readiness Contact List**
3. Understand public notification and involvement requirements that will be involved in response-related activities.

Links and Resources

Find template in online playbook resources

Regulations and Permits (Washington State Department of Ecology)
https://ecology.wa.gov/Regulations-Permits

Endangered Species Webpage (U.S. Fish and Wildlife Service)
https://www.fws.gov/endangered/

NOAA Fisheries Webpage
https://www.fisheries.noaa.gov/species-directory

Endangered Species Webpage (U.S. Fish and Wildlife Service)
https://www.fws.gov/endangered/

ACTION 9

Building Stakeholder Coalitions

Key Questions

Who are the people or groups of people who will be most impacted by urban forest pests and how do we involve them in readiness, prevention, detection or response efforts?

Readiness Product → Contact tracking system in place; Communication Strategies; Memorandum of Understanding

Frequency → Ongoing

Stakeholders could be impacted by a pest introduction (i.e. agricultural quarantines and loss of forest resources) or the pest response (i.e. removal of urban trees and pesticide application). A community of agencies and stakeholders that is provided a single coordinated message of urban forest pest priorities is more likely to invest their energy and resources to help achieve that vision, successfully. These coalitions would involve staff across tribes, government agencies/departments, nonprofits, and educational institutions as well as neighborhood groups and community organizations that represent impacted residents. With an open and inclusive process, you may find that champions within your coalitions will act as advocates or ambassadors for this work even when you are not able to do so.

Considerations

Think broadly across disciplines and topics when developing your stakeholder lists considering neighborhood groups/HOAs, small forest landowners, arborists, landscapers, businesses, health advocates, environmental advocates, garden clubs, park and forest "friends" groups, recreation groups such as running and mountain biking clubs, and houseless communities.

Recognize the stakeholders and partners who have been marginalized in the past and bring an equity, diversity, and inclusion lens to your stakeholder engagement.

Tasks

1. Invest time in building partnerships and relationships outside of your organization.
2. Identify active organizations and leaders in their field who have been involved or would need to be involved and then create a stakeholder map and/or contact list categorized by their area of expertise and the best strategy to communicate with them.
3. Prepare for contact tracking. At minimum identify your organization's capacity to maintain an email distribution list and a shared spreadsheet of contacts.
4. Create a working agreement between key partners on topics of pest prevention such as a Declaration of Cooperation or Memorandum of Understanding.

Links and Resources

Eradication Playbook - Play 14 & 15 (Oregon Department of Agriculture, 2018)
https://www.oregon.gov/ODA/shared/Documents/Publications/IPPM/EradicationPlaybook.pdf

Eradication Playbook - Play 14 & 15 (Oregon Department of Agriculture, 2018)
https://www.oregon.gov/ODA/shared/Documents/Publications/IPPM/EradicationPlaybook.pdf

Washington Environmental Health Disparities map
https://fortress.wa.gov/doh/wtn/WTNIBL/

Vibrant Cities Lab - Equity Case Studies & Research
http://www.vibrantcitieslab.com/equity/

A CASE STUDY

BROAD OUTREACH TO ENGAGE, INFORM, AND RESPOND TO PUBLIC FOR SUCCESSFUL INVASIVE INSECT TREATMENT

Related playbook actions

10, 11

Pest: **Asian and European Gypsy moths**
Location: **Western Washington**
Host trees: **Over 500 different species of trees and shrubs**
How it got here: **Likely come from people moving to Washington from states with permanent infestations–gypsy moths often lay eggs on outdoor items (such as bikes, campers, deck chairs, etc.) International shipping is also a known vector for transporting gypsy moths.**

Lead Response Organization:
Washington State Department of Agriculture

Response phase addressed in case study:
Treatment (as of 2019 there is an ongoing treatment for gypsy moths in parts of Western Washington)

Asian and European gypsy moths are some of the worst American forest pests. The caterpillars eat the leaves of over 500 different species of trees and shrubs, causing enormous environmental and economic damage. Well established on the east coast, the Washington State Department of Agriculture (WSDA) has been successful in preventing the establishment of gypsy moths in Washington.

In 2015, both forms of gypsy moth were found in Washington in relatively large numbers. After conferring with a national advisory community, WSDA, the United States Department of Agriculture—Animal and Plant Health Inspection Service, and other organizations decided to treat the infestations with an organic insecticide, *Bacillus thuringiensis kurstaki* (Btk), a type of soil bacterium that specifically harms caterpillars. WSDA was given authority to mass spray Btk through an emergency declaration from the governor. A total of 10,500 acres were treated with three waves of the insecticide using aerial spraying.

The project received no protests, lawsuits, or public record requests. This success is attributed to the transparent, wide-reaching, and engaging quality of the outreach of the project. The overarching goals of the outreach program were to demonstrate that WSDA had the public's best interests in mind and to enable the public to make informed decisions about how to respond to the treatments in their everyday lives. Outreach coordinators used multiple resources to make sure that the public was well informed. Direct mailings were sent out to residences that were in or near the treatment sites and open houses were organized in those areas. Informative hotlines and listservs were set up, as well as the very popular text message updates. Both major and local news broadcasters and newspapers reported on the treatment and many held interviews with outreach coordinators. Social media, such a Facebook and Twitter, were utilized as was a blog. Infographics and paid advertisement were also used. Furthermore, special steps were taken to inform homeless and transient communities, veterans suffering from post-traumatic stress disorder, and schools, despite not being required for this insecticide.

Final aspects of the outreach program involved directly responding to members of the public on social media to answer questions, provide information, and rectify misunderstandings. Overall, people were very responsive to this tactic and appreciated the direct engagement. At one point an inaccurate article was posted on Facebook about the nature of the insecticide used. Initially the post was ignored, but once the post started gaining popularity, the outreach program responded to the post on Facebook and increased information about Btk on their blog and website. The article lost traction once the outreach program started addressing the article directly.

Since 2015, WSDA has grown their outreach program by using: Facebook groups, where "play-by-play" updates are posted, signs placed in parks, mailings sent out to a greater number of residences around the treatment area, and direct targeting and correction of inaccurate information and posts.

Photo by WSDA

References:

Interview with WSDA Pest Program (WISC, August 2019)

Salp, K. Gypsy Moth Outreach Report & Recommendations (WSDA, 2016)

Gypsy Moth in Washington State "Primer" (WSDA - Pest Program, 2018)

ACTION 10

Audience Outreach and Messaging

Complete action first or at the same time:

9

Key Questions

How do we best reach the people and groups who can support education, prevention, detection, or response?

Readiness Product → Resource library for educational materials; documentation of communication strategies

Frequency → 3 years

The most impactful outreach will personalize the issue, making it clear to the audience why this is an issue for them. Audiences are groups of people you can think about to narrow the focus of messaging, outreach, and engagement.

Considerations

Outreach to the general public may be most effective coming from partners (which may or may not be associated with urban forestry conservation/promotion, such as community-based organizations).

When possible, build outreach materials that are simple, straightforward, and that integrate imagery and visual elements.

Consider accessibility of materials inclusive to all residents, particularly those that may not typically be engaged in an organization's stakeholder groups, and where translation may be beneficial.

Tasks

1. Identify your public communications specialist who would be responsible for interfacing with the public in the event of a response and add to the **Readiness Contact List**.
2. Identify your organization's commitment to transparency and your ability to inform a community about actions your organization is taking (for planning and responding) and the impacts.
3. Assess audience needs and compile key messages, statistics, and imagery that resonate with these audiences.
4. Develop or find outreach materials for species of greatest concern and the efforts you are undertaking to prevent them. Materials that could be developed include presentation slides, brochures, fact sheets, maps, etc. Provide biological on pest identification, vectors, and both host plants and at-risk trees.
5. Identify potential communication channels to reach your audience such as the distribution of materials through email lists, meetings, newsletters, or social media, one-on-one conversations, mailers, door hangers, community presentations, community open houses and advertising.

Links and Resources

Find **Readiness Contact List** template in online playbook resources

Eradication Playbook - Play 19 (Oregon Department of Agriculture, 2018)
https://www.oregon.gov/ODA/shared/Documents/Publications/IPPM/EradicationPlaybook.pdf

ACTION 11

Proactive Support from Decision Makers and Leadership

Complete action first or at the same time:

6, 10

Key Questions

Do we have support from decision makers and leadership for urban forest pest readiness and response?

Readiness Product → Key messages and outreach material

Frequency → 3 years

For Example: Asian Longhorned Beetle Response in 1998 Propelled by Support from Mayor

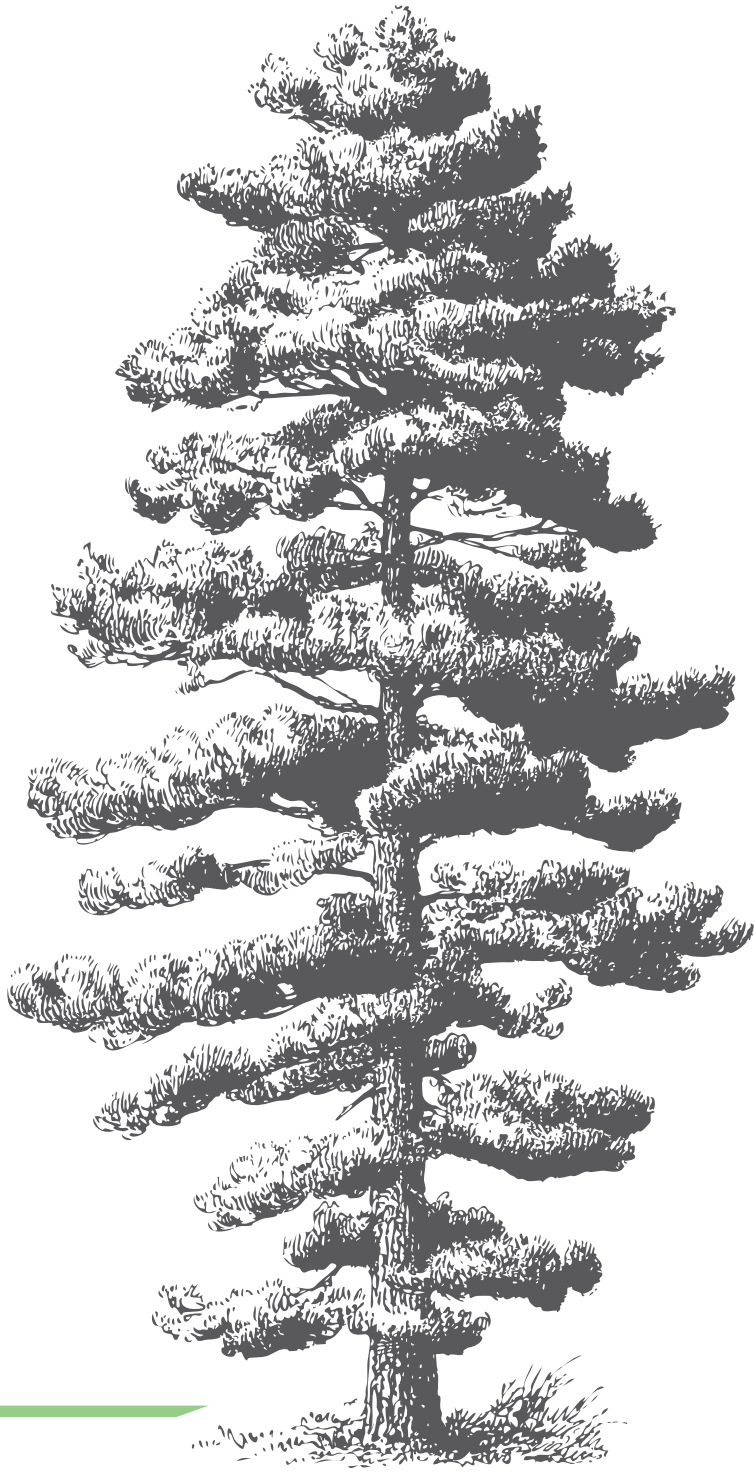
"When the Asian longhorned beetle first appeared in Chicago in 1998, the certified arborists in our Department of Streets and Sanitation's Bureau of Forestry were only too well aware of the devastation this insidious pest had wrought on the urban forests in New York. They knew that immediate response was necessary and they knew they would need to work with sister agencies on both the State and Federal level to combat and neutralize the infestation. And, they knew they could expect my total support." —Mayor Richard M. Daley, City of Chicago

The mayor [Richard M. Daley, City of Chicago] from day one came out and in a press conference pointed to all the experts behind him saying, "we're looking to them and we're willing to provide whatever we can provide to help eradicate this pest at no cost to citizens." That meant that when we had to take trees down on private property or public property, we would do that and then later on we would get restoration [for property owners]. . . we were going to get the problem solved first and then deal with whatever the cost was going to be later.... It assured the public that the mayor was behind it and was willing to do whatever it took to solve the problem at minimal cost to the homeowners. —Joe McCarthy, City of Chicago

Reference: Chicago vs. the Asian Longhorned Beetle: A Portrait of Success (USDA Forest Service, 2005)

Tasks

1. Calculate anticipated capacity required to implement playbook actions in order to be able to advocate for resources to lead coordination of readiness planning.
2. Document accomplishments, data driven talking points for cost of lost ecosystem services and return on investment, and compelling testimonials that are relevant to your organization's and elected official's service districts that can be shared with elected officials.
3. Create a short, concise outreach document for elected officials and internal leadership that focuses on the community's Urban Forest Pest Ready score, high-risk pests, and opportunities and gaps to address threats.



Links and Resources

Chicago vs. the Asian Longhorned Beetle: A Portrait of Success (USDA Forest Service, 2005)
https://www.uvm.edu/albeetle/news/ChicagovsALBrevised2005.pdf

Reference for benefits and costs in Green Cities: Good Health
http://depts.washington.edu/hhwb/

ACTION 12

Addressing Gaps in Management Structure, Plans, and Policies

Complete action first or at the same time:

2, 7

Key Questions

What are the essential gaps in our management structure, plans and policies that we need to fill to successfully prepare for, prevent, detect, or respond to urban forest pests?

Readiness Product → Urban forestry plan; designated urban forestry staff member

Frequency → 5 years

A department, tree commission/board, or designated staff with the authority to manage an urban forestry program may be necessary to enhance urban forest pest readiness within the confines of existing policies.

Considerations

Many urban community forestry programs are initiated through the efforts of local community groups. These groups can serve as a catalyst to encourage active urban forestry resource management for the long-term.

Tasks

1. Develop an Urban Forestry Plan or other comprehensive municipal plan that includes urban forestry policies
    - Clear, measurable goals and objectives must be set, with reasonable timelines for implementation.
    - Management plans must have the flexibility to adapt to new information as a result of monitoring outcomes, or changes in Best Management Practices based on best currently available research.
    - Contact the State Urban Forestry Coordinator for assistance in developing an urban forestry plan.
2. If not yet present, establish an entity or designated staff person responsible for centralized tree management.

Links and Resources

Washington Community Forestry Council Website (Washington State Department of Natural Resources, 2019)
https://www.dnr.wa.gov/about/boards-and-councils/washington-community-forestry-council

Forming Municipal Tree Commissions (Penn State Extension, 1998)
https://extension.psu.edu/municipal-tree-commissions

ACTION 13

Implementing Robust Prevention Efforts

Complete action first or at the same time:

7, 12

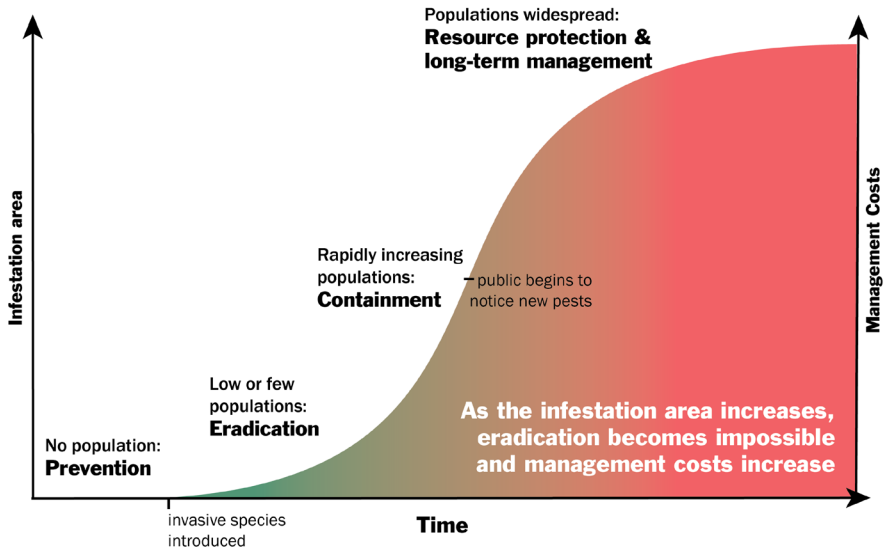
Key Questions

How can we integrate best urban forest pest prevention practices into our programs?

Readiness Product → Revised cross-department Best Management Practices

Frequency → 3 years

Prevention is a key strategy used by many invasive species managers who recognize that it saves time and money to keep pests out of the state rather than trying to manage them once they arrive.



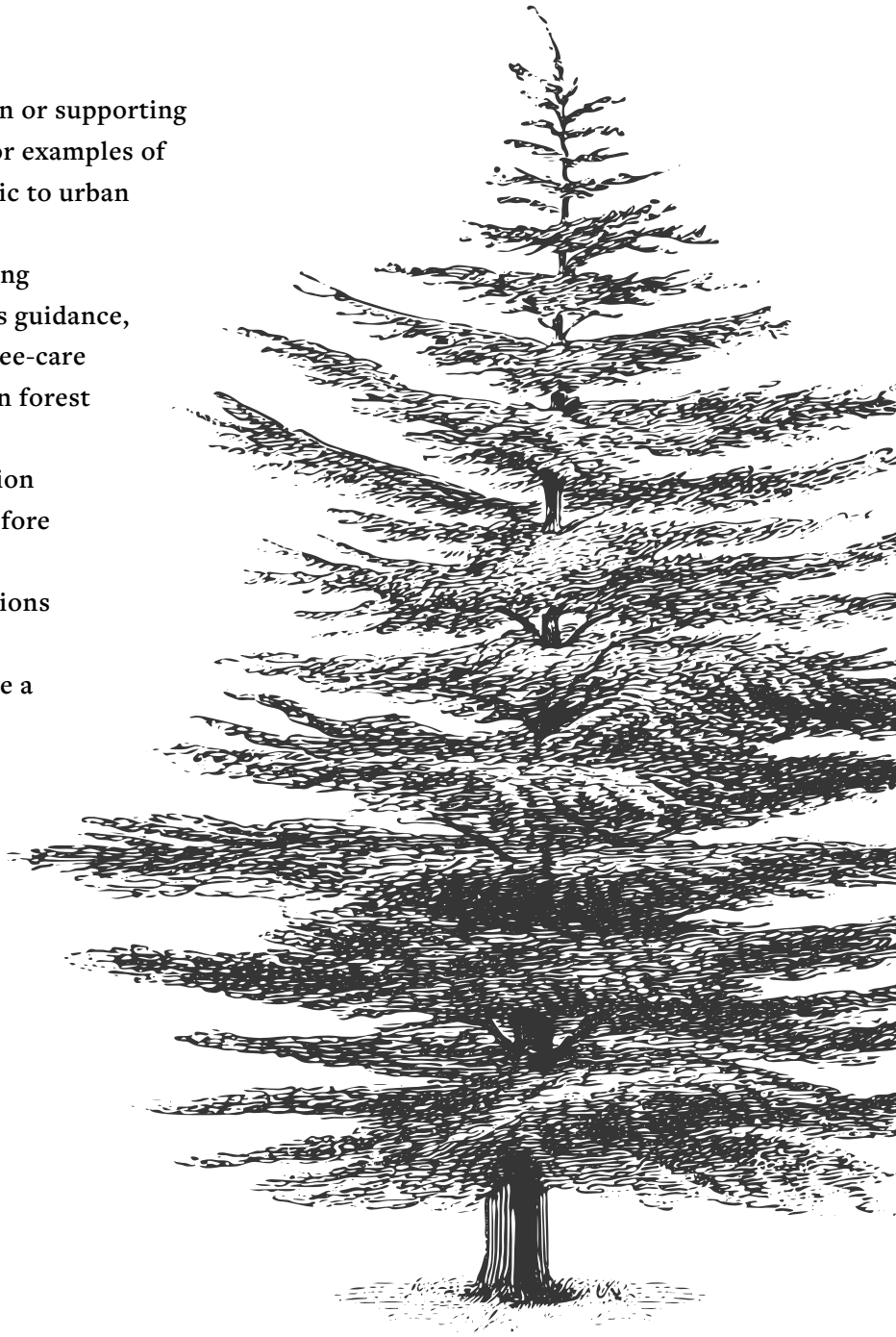
INVASION CURVE
(Adapted from LeRoy Rodgers, South Florida Water Management District)

Considerations

Proactive rather than reactive programs lead to community forests more resilient to challenges from pests and changing climate.

Tasks

1. Contact other municipalities in your region or supporting organizations who have dealt with pests for examples of Best Management Practices (BMPs) specific to urban forest pests.
2. Review and revise existing BMPs (e.g. zoning requirements, maintenance and operations guidance, hazard tree disposal, etc) to ensure that tree-care practices do not contribute to risk of urban forest pest introduction and spread.
3. Consider native plant sources for restoration activities ensuring stock is free of pests before planting.
4. Host meetings, trainings, or recommendations for how all departments (transportation, emergency preparedness, housing etc) have a role in tree care and management and the impacts of forest pests and pathogens in day-to-day programming.



Links and Resources

Colorado Emerald Ash Borer Management Plan - Decision Guide & Municipal Readiness Checklist (Colorado EAB Response Team, 2015)
https://www.colorado.gov/pacific/agplants/emerald-ash-borer

ACTION 14

Enhancing Early Detection

Complete action first or at the same time:

3

Key Questions

How can we expand our detection and reporting efforts within the capacity of the people, programs, and partnerships in our community?

Readiness Product → Documentation of strategies for awareness building and education; Readiness Contact List

Frequency → 3 years

Early detection, coupled with rapid response, can stop the spread of new and emerging urban forest pests before they become established, making it one of the most cost-effective methods for controlling invaders. Proactive programs lead to resilient, sustainable community forests. Early detection of urban forest pests is critical to the success of efforts to eradicate the invaders, isolate the infestation, and minimize its impacts to both urban and natural areas. Unfortunately, many urban forest pests are notoriously difficult to detect and infested trees may not develop signs for years after the initial infestation. While targeted trapping efforts conducted by state agencies are a crucial component of urban forest pest detection and monitoring, members of the general public or tree care professionals are often the first to encounter signs of an urban forest pest infestation. With adequate awareness of urban forest pests and clear guidance on reporting, early detection is possible.

Considerations

Arborists, pesticide applicators, and landscapers are required to obtain continuing education credits as part of maintaining professional certifications–this is one opportunity to encourage additional pest readiness training.

Tasks

1. Support and expand community-based detector network encouraging staff and public participation in:
    - Washington Pest Watch First Detector Network
    - Washington State University Forest Health Seminars
    - Washington State University Extension Master Gardener Program
    - Washington Master Naturalists
2. Build public awareness for Washington Invasive Species Council's online and smartphone invasive species reporting options.
3. Develop strategic detection surveys through various methods appropriate for the urban forest pest of concern including traps, visual surveys, and professional assessments.
4. Identify person responsible to authorize Washington State Department of Agriculture to set-up and monitor invasive insect detection survey traps on public property and add to the **Readiness Contact List**

> "In Washington State between 1990–2014, 'twenty-five [exotic invertebrate pest] species (36%) were first found by private citizens' "
> —Looney c. et al. Shadow Surveys: How Non-Target Identifications and Citizen Outreach Enhance Exotic Pest Detection. 2016. American Entomologist 62:4.

Links and Resources

Find **Readiness Contact List** template in online playbook resources

State of Washington Invasive Species Reporting: Online and "WA Invasives" Smartphone Apps (Washington Invasive Species Council, 2009)
https://invasivespecies.wa.gov/report.shtml

Washington Pest Watch First Detectors (Washington Invasive Species Council, 2009)
https://invasivespecies.wa.gov/report-a-sighting/

WSDA Invasive Insect Detection Booklet (Washington State Department of Agriculture)
https://agr.wa.gov/PlantsInsects/InsectPests/GypsyMoth/Media/docs/InvasiveBooklet.pdf

Washington State University Master Gardener Program (Washington State University Extension, 2019)
http://mastergardener.wsu.edu/program/overview/

ACTION 15

Conservation Goals

Key Question

What are the important restoration or conservation goals that will inform urban forest pest management strategies following a detection?

Readiness Product → Documentation of conservation priority areas and species

Frequency → 5 years

Undertake this action to understand how response actions might need to be adapted for sensitive species or how you are meeting conservation goals through pest management (and possibly access funding and tools to support your work).

Considerations

Evaluate conservation priorities with a climate readiness lens including mitigating impacts of heat islands and supporting sustainable, connected ecosystem processes.

Conservation priorities should incorporate the value of wildlife habitat connectivity and landscape connectivity.

Tasks

1. **Review the Washington Biodiversity Conservation Strategy and State Trust Lands Habitat Conservation Plans relevant to your geographic region for threatened or endangered animal and plant species and preserved habitats.**
2. **Identify areas of local high conservation as determined by conservation partners.**

Links and Resources

Washington Biodiversity Conservation Strategy (Washington Biodiversity Council, 2007)
https://invasivespecies.wa.gov/wp-content/uploads/2019/07/BiodiversityConservationStrategy.pdf

Habitat Conservation Plan (Washington State Department of Natural Resources, 1997)
https://www.dnr.wa.gov/publications/lm_hcp_plan_1997.pdf?nrzcc

Washington Connected Landscapes Project: Statewide Analysis (Washington Wildlife Habitat Connectivity Working Group, 2010) https://wdfw.wa.gov/publications/01324

Climate Change Impacts and Adaptation in Washington State (Climate Impacts Group, University of Washington, 2013)
https://cig.uw.edu/news-and-events/publications/climate-change-impacts-and-adaptation-in-washington-state-technical-summaries-for-decision-makers/

ACTION 16

Building Tree Canopy Resilience

Complete action first or at the same time:

3, 6

Key Question

How can we integrate proactive opportunities to build canopy resilience in our community before an introduction of an urban forest pest?

Readiness Product → Diversified planting lists; best management practices for all relevant tree care program documentation (including contracts, programs, goals, and strategies)

Frequency → 5 years

The capacity of an ecological system to buffer itself against disturbance is known as resilience. The more biodiversity in urban forests canopies, the more resilient it will be to harm incurred by pests, pathogens, and increasing climate stressors. If managed sensibly, biological diversity can act as an important buffer against catastrophic tree loss via invasive pests. Communities can prepare for the detrimental impacts of multiple potential invasive urban forest pests by preemptively diversifying species. For example, street tree inventories can be used to determine the distribution of ash and identify communities that would be most affected by an emerald ash borer introduction.

Considerations

Communities working to increase their urban tree canopy resilience can incorporate progressive 5-10-20 tree cover resilience metric (no more than 5% on one species, 10% of one genus, and 20% of one family) into their urban forest planning documents to promote biodiversity in their residential communities.

Environmental inequalities, i.e. a population's lack of access to a healthy environment, can be exacerbated by inconsistent investment in city trees and disproportionately affected by a pest if the tree canopy is not sufficiently diverse.

Tasks

1. Analyze urban forest tree species diversity to determine percent canopy of any one species, any one genus, and any one family (see tree cover resilience metric noted in Considerations). A robust analysis depends on the depth of complexity/accuracy of the available urban canopy map.
2. Discourage planting of trees that are vulnerable to pests and may act as a potential vector. Revise planting recommendations such as municipal street tree planting guides to preemptively encourage increased biodiversity in street tree planting based on a) priority urban forest pest species list and b) results of the urban forest tree species diversity analysis.
3. Establish priorities for tree removal and replacement, placing more rigorous standards on higher value trees and higher functioning forests and focusing on environmental equity prioritization.
4. Include urban forest pest planning in tree conservation and retention planning. Tree ordinance components and requirements must include urban forest pest resilience in tree conservation goals to ensure long-term benefits.
5. Diversify the private urban canopy by incentivized plantings in developer contracts, outreach, etc. Include urban forest pest goals in best practices for urban residential trees.
6. Create Best Management Practice guidance for appropriate tree care including pruning cycles.

Links and Resources

Environmental Equity Prioritization (Vibrant Cities Lab)
http://www.vibrantcitieslab.com/research/equity-planting-programs/

Street Tree Inventory Report, City of Portland (Portland Parks and Recreation, 2017)
https://www.portlandoregon.gov/parks/article/638773

ACTION 17

Determining Future Pest Management Strategies

Complete action first or at the same time:

1, 7

Key Question

What (if any) local considerations will inform management strategies for an urban forest pest?

Readiness Product → Readiness Contact List

Frequency → 3 years

Advanced planning is crucial to long-term success. If eradication is not possible or not successful, control and management of the pest, with the goal of limiting its impact and spread will be required.

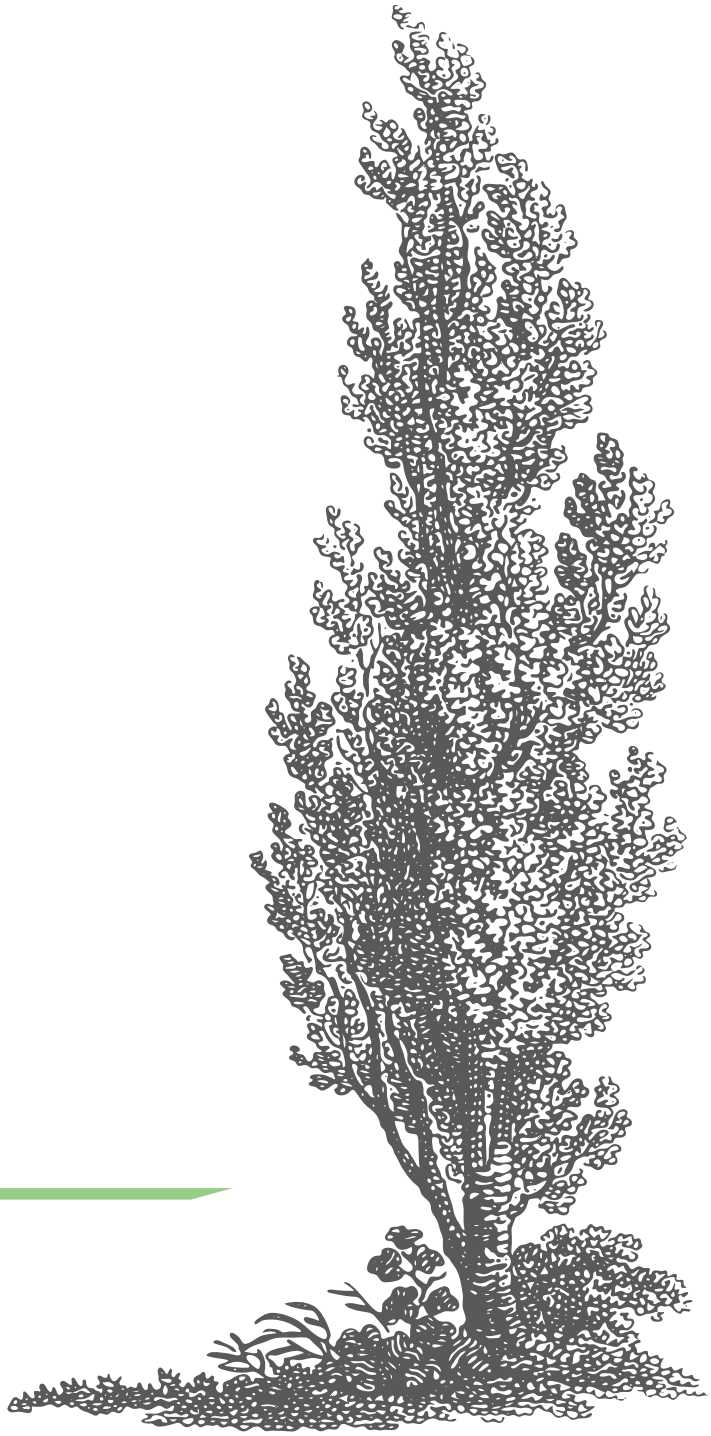
Considerations

An integrated pest management approach is essential to consider when making management decisions.

Make appropriate management and communication strategies considering public sentiment regarding use of pesticides by professionals and residents alike.

Tasks

1. Add contacts for managing hazard trees and waste to your **Readiness Contact List**
2. Identify potential education partners at Universities, local soil and water conservation districts, county Master Gardener program and other institutions that could support development and deployment of informational materials.
3. Research potential opportunities for utilization of downed wood by your organization or through partnerships with private entities.



Links and Resources

Find **Readiness Contact List** template in online playbook resources

Resources, Courses, Webinars, Exercises, and networking opportunity through the Extension Disaster Education Network (EDEN)
https://eden.lsu.edu/

Incident Command System Resource Center (FEMA)
https://training.fema.gov/EMIWeb/IS/ICSResource/index.htm

Incident Command System and Plant Protection Quarantine (USDA)
https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/sa_ics/ct_incident_command_system

A CASE STUDY

RAPID RESPONSE AND RECOVERY IN TUKWILA, WA

Pest: **Citrus longhorned beetle**
Location: **King County, WA**
Host trees: **Variety of citrus and non-citrus trees**
How it got here: **Imported plant material**

Related playbook actions

19, 20

Lead Response Organization:
Washington State Department of Agriculture

Response phase addressed in case study: **Detection, Treatment, and Recovery**

In August of 2001, an employee of a nursery in Tukwila, Washington discovered an unknown beetle in their shipment of bonsai trees from Korea, which were undergoing a standard federal post-entry quarantine for imported plant material. The United States Department of Agriculture Plant Inspection Station at the SeaTac Airport identified it as a citrus longhorned beetle (Anoplophora chinensis). Citrus longhorned beetles (CLB) bore into living trees, depositing up to 200 individual eggs annually. Once the larvae hatch, they burrow further into the tree to feed, often killing the tree. The CLB has over 40 host tree species.

Biologists acted immediately upon receiving the report. A quarantine perimeter was established half a mile around the source of infestation to prevent human aided movement of the beetle and included both public and private property. The state arranged for over a thousand host trees to be cut down within a 1/8 mile radius of the introduction location and about 1,500 more trees within a 1/4 mile radius of the introduction were injected with systemic pesticide. Most residents complied with the conditions of the quarantine, however a few residential trees were removed by Washington State Department of Agriculture (WSDA) under an administrative warrant issued by the county superior court.

WSDA held open house meetings and sent out newsletter mailings as part of their education campaign. To aid in compliance and re-vegetation, the WSDA made free wood chipping available to the

public. Residents received tree vouchers allowing them to replace CLB host trees with non-host trees. The USDA Forest Service funded the restoration of some of the more heavily impacted areas.

After five years of negative survey data, in December of 2006, the WSDA lifted the quarantine and declared the citrus longhorned beetle eradicated from Washington State. The successful eradication of the CLB is attributed to the early detection by a Washington nursery employee, the rapid and decisive actions of Washington scientists, the ability of the agencies involved to impress upon the public and elected officials the serious nature of the threat and necessity for action, and the cooperation between agencies and the public.

References:

Rose, R. "Asian Longhorned Beetle response guidelines" (USDA APHIS PPQ, 2014)
https://www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/downloads/response-guidelines.pdf

Interviews with USDA-APHIS-PPQ and WSDA employees (WISC, August 2019)

Photo by Art Wagner, USDA-APHIS-PPQ

ACTION 18

Understanding how ICS Works in a Pest Response Scenario

Complete action first or at the same time:

7, 8, 9, 11, 17

Key Question

What are the key components of an Incident Command System approach to Response Planning that will serve operational and safety concerns?

Readiness Product → Readiness Contact List; resource library of ICS materials

Frequency → 5 years

Incident Command System (ICS, but may also be referred to as National Incident Management System or NIMS), used nationally for emergencies, is a valuable framework for organizing people and systems for fast-acting responses to disaster events such as floods and wildfires. Responses for terrestrial pests often require a longer, more flexible timeline for response.

Most decisions about the use of ICS in a pest response will be made jointly by the state and federal plant pest agencies, however many pest response plans can benefit by considering formal structures for response planning. Not all pest responses require a full implementation of ICS but the use of an ICS organizational framework can help managers enhance situational awareness, track objectives and strategies, and control messaging as a pest response situation progresses.

Considerations

When identifying staff with ICS experience note that many agencies may have personnel familiar with ICS from more traditional emergency response situations.

At first ICS may seem too structured and cumbersome to be useful in a pest response situation but note that ICS can be modified to fit the situation and can be scaled up or down as needed.

Tasks

1. Identify staff with ICS training and research opportunities for staff to participate in training and add to the **Readiness Contact List**.
2. Review ICS resources to understand the framework and standard forms available.
3. Role-play a pest response by filling out Incident Briefing form (ICS 201) for a hypothetical high priority pest species detection.
4. Connect with county-level Emergency Managers to discuss their role and potential support in an ICS-informed response.

Links and Resources

Find **Readiness Contact List** template in online playbook resources

Resources, Courses, Webinars, Exercises, and networking opportunity through the Extension Disaster Education Network (EDEN)
https://eden.lsu.edu/

Incident Command System Resource Center (FEMA)
https://training.fema.gov/EMIWeb/IS/ICSResource/index.htm

Incident Command System and Plant Protection Quarantine (USDA)
https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/sa_ics/ct_incident_command_system

ACTION 19

Monitoring, Maintenance, and Recovery

Complete action first or at the same time:

14, 16

Key Question

Are the monitoring and maintenance systems in place to support recovery following a detection or response to an urban forest pest?

Readiness Product → Native plant vendor list; appropriate work plan for playbook lead

Frequency → 5 years

After an initial response, resources will still be needed to assess and enhance the effectiveness of a response treatment (if any) as well as ecological recovery steps to minimize the impacts of invasive plants on degraded landscapes following response.

Considerations

Monitoring, maintenance, and recover will likely require multi-year commitments and may require additional resources such as funding or personnel not considered in initial response cost estimates.

Tasks

1. Update tree inventories and geospatial data libraries following treatment (if conducted) and use canopy data for assessing ongoing health.
2. Incorporate restoration activities in budgets of response funding requests where appropriate.
3. Identify preferred native plant stock suppliers/nurseries who can provide quality, resilient species for recovery.
4. Have intentions to include local community members and residents in recovery planning for the area, including planting opportunities and informing decision-making.
5. Ensure pest detector network can be alerted of pest detections and increased need for regional monitoring with direction on who to report to.

ACTION 20

Building a General Reponse Framework

Complete action first or at the same time:

1, 7, 8, 9, 11, 17, 18

Key Question

Which components of a generalized response framework can a municipality identify and anticipate supporting ahead of an urban forest pest detection?

Readiness Product → Generalized response framework

Frequency → 3 years

In the event of an introduction (and successful establishment) of an urban forest pest, this action outlines a generalized response framework for interagency coordination in order to enhance information sharing, organize an effective rapid response, and maximize successful public involvement to limit the impacts to Washington's urban forest.

The response framework is generalized for use with both insect and pathogen species and notes where taxa specific guidance may be needed. The sample framework includes information prompts that are anticipated to guide actual planning and response efforts. Informed by elements of an ICS, the framework is not strictly chronological but provides some structure for planning a streamlined response where the roles of federal and state officials are already determined.

The response framework begins at the point after a suspected urban forest pest has been detected and reported.

Considerations

This generalized response framework will be useful to familiarize you with urban forest pest response plans and can help inform the development of a specific invasive species response plan but cannot anticipate all the logistics of an actual response plan.

If a pest is not a federally regulated quarantine species it may be appropriate to work with WSDA, DNR and the WISC to determine if response actions will be supported at the state level.

Tasks

1. Prepare contact lists based on roles filled in the generalized response framework.
2. Adapt the response framework below based on your organization's role in the process.
3. In the event of a detection, utilize response framework and adapt for the specific pest species of concern.
4. Build in a practice with your teams and partners to review what went well and what could be improved. Document lessons learned in a format that can be distributed or incorporated into standard reporting practices.

Links and Resources

Find **Readiness Contact List** template in online playbook resources

Find **Response Framework template** in online playbook resources

Montana Emerald Ash Borer Readiness and Response Plan (Montana Department of Natural Resources and Conservation, 2015)
http://dnrc.mt.gov/divisions/forestry/docs/assistance/urban/final_eab-response-and-readiness-plan-for-the-dnrc.pdf

National Response Framework for Sudden Oak Death
https://www.fs.fed.us/foresthealth/docs/SOD_National_Framework.pdf (USDA Forest Service 2011)

Idaho Response Plan for Invasive Insect and Disease Tree Pests (Idaho Invasive Species Council, 2014) - Appendix E. Guidance for
https://www.idl.idaho.gov/forestry/forest-health/2014-id-response-plan-invasive-insect-disease-tree-pests.pdf

ACTION 20 *(continued)*

Sample Response Framework for Insect & Pathogen Pests

Blue boxes indiciate components of the reponse framework.

Confirmation

If a reported pest is collected and results in a positive identification of a regulated pest or pest with unknown regulated status, the specimen will then be forwarded to Washington State Department of Agriculture (WSDA) for confirmation and then sent to USDA-APHIS-PPQ National Identification Services for verification.

Note: for pathogen pests this will require extensive sampling of suspect trees as well as known and presumed hosts.

Identification of a Lead Action Entity

Informed by playbook actions 1, 3 & 5

For regulated pests, WSDA will serve as the lead coordinating organization with response activities led by WSDA in unified command with USDA-APHIS-PPQ. Upon activation of the State Plant Health Response Plan, WSDA, as the coordinating agency, will notify all primary and support agencies needed for support.

For pests that are not actionable at the federal level, work with local and state partners such as WSDA, DNR and WISC, to determine appropriate lead entity

Building a Team/Task Force

Informed by playbook actions 12 and 18

Lead action entity will assemble an initial response team. Established points of contact are critical to this step. Participation will expand as the response evolves. Response team will play a crucial role in the development of state-led project teams, providing contact information, and local expertise as relevant.

Potential participants could include but are not limited to:

State Agency Leads, city leads, neighboring municipalities, Washington Invasive Species Council and stakeholder including American Public Gardens, conservation districts, county commissioner, extension agents and PNW Society of Arboriculture

Communication

Informed by playbook action 10

Initial notification will be made by USDA-APHIS-PPQ and WSDA to the task force members only upon verification of pest by USDA-APHIS-PPQ. Further formal notifications and announcements will be made jointly by USDA-APHIS-PPQ and WSDA. Refer public information officer and communications staff to State Plant Regulatory Office or Joint Information Command Officer (JIC) for key messages and official press release(s).

Delineation of Geographic Scope/Extent of the Incident

Informed by playbook actions 3, 6 & 16

Support state responders in delineating scope of incident, including extensive sampling of suspect trees and known/presumed hosts by furnishing data, including but not limited to pest risk analysis, assessment, and tree inventory/canopy map data.

Establishing a Management Review Panel

Informed by playbook actions 2 & 12

Lead action entity or Response Team will establish a review panel(s) as necessary. Panel(s) may be asked to provide scientific or policy support, review response logistics such as identifying a waste management lead for the area, work with stakeholder groups to determine pest prevention tree policies as determined by the pest response needs.

Convening/Engaging Urban Forest Pest Partners

Informed by playbook actions 9 & 11

Engage partners and landowners in assessing impacts and potential challenges with responses considering environmental and socioeconomic factors. Example groups could include neighborhood associations, local conservation groups, business associations, and community alliances.

Response Determination

Informed by playbook actions 6, 7, & 18

Lead action entity will determine the level of response and any elements of the Incident Command
System to be incorporated and scaled according to the situation.
Examples of the organizations that would support a local response function include Department of Transportation, Office of the Attorney General, and the Emergency Management Division.

Emergency Declaration

Informed by playbook action 11

Lead action entity works with mayor or governor's offices as necessary to make emergency declarations potentially making additional resources and materials available for a response. The governor's office and federal entities' may choose not to declare a pest emergency based on their evaluation of the situation.
Working through action 11 and conferring with your task force prior and management review panel should help you prepare the case you make to key decision makers

Activation of Initial Response

As informed by playbook actions 8 & 15

Lead action entity coordinates team to identify timeline and prepare response plan.
Response plan should consider permitting requirements, quarantine needs, and conservation goals.

Disposal and/or Mitigate Risk of Spread

As informed by playbook actions 1 & 17

Evaluate impact to homeowners in the treatment area and identify incentives to encourage proper disposal and tree replacement.
Identify potential large areas or "marshalling facilities" to serve as dump sites for quarantined wood waste. These may include parking lots, athletic fields or other open areas.

Recovery

As informed by playbook action 19

Work with stakeholders to plan revegetation of areas impacted by response efforts. Use this opportunity to prioritize native species and choose trees that will increase biodiversity and pest resistance.