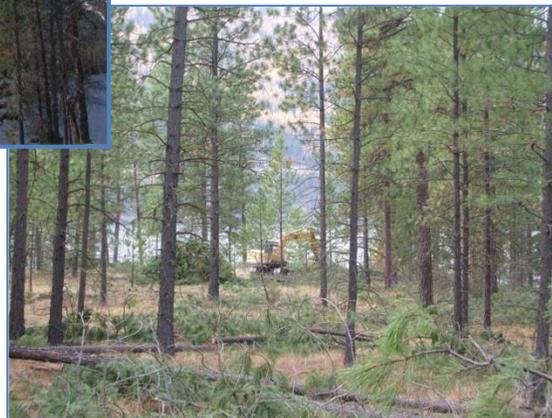




Forest Health Protection



Strategic Plan 2015-2019



**USDA Forest Service
Northern and Intermountain Regions**

January 2015

Introduction

Forest Health Protection Program

Nationwide, the Forest Health Protection (FHP) program includes more than 250 specialists in the areas of entomology, plant pathology, weed biological control, pesticide use, survey and monitoring, technology development, and other forest health-related services. FHP personnel cooperate with a network of forest health specialists from other Federal agencies, as well as agencies in all 50 states and several U.S. territories, tribal governments, NGOs, universities, and other countries.

FHP personnel conduct surveys for forest insects and pathogens and provide technical and financial assistance for management of these disturbance agents on all forested lands, including national forests, other federal forest lands, state and private lands, and tribal ownerships. Financial and technical assistance is also provided through state agencies to private forest landowners and the public in all 50 states, the District of Columbia, and current or former U.S. Trust territories.

Region 1/4 FHP Team

The Region 1/4 FHP team provides services to all lands within the Northern (R1) and Intermountain (R4) Forest Service Regions. Field offices comprised of entomologists, plant pathologists, biological scientists and biological & forestry technicians are located in Boise and Coeur d'Alene, ID, Missoula, MT and Ogden, UT. Although each field office serves as a point of contact for their respective geographic area (**Figure 1**), they share skills and resources across all lands to accomplish mission objectives at both local and regional levels. Furthermore, field offices collaborate on regional and national programmatic areas such as aerial detection survey, technology development, and prevention/suppression/restoration programs. Regional Forest Health Monitoring, Pesticide Use, and Weed Biological Control/Invasive Plants coordinators assist field offices to implement additional programmatic activities (**Figure 2**). Organizationally, FHP shares a Director (currently located at R4 Regional Office) and Deputy Director (currently located at R1 Regional Office) with other State & Private Forestry staff. The FHP team receives budget and grants & agreements support from State & Private Forestry staff.

Purpose of this Strategic Document

This strategic document clarifies our mission, articulates our vision, and identifies realistic strategies on which to focus our staff efforts. The goals and objectives outlined under each strategic area are designed to help our team focus on actions that will meet changing and emerging priorities. It will help us standardize our service capabilities and increase efficiency across the two regions, guide field offices in making tactical decisions during annual work planning, and increase safety for employees and the public. Furthermore, it communicates FHP's roles and direction to our partners.

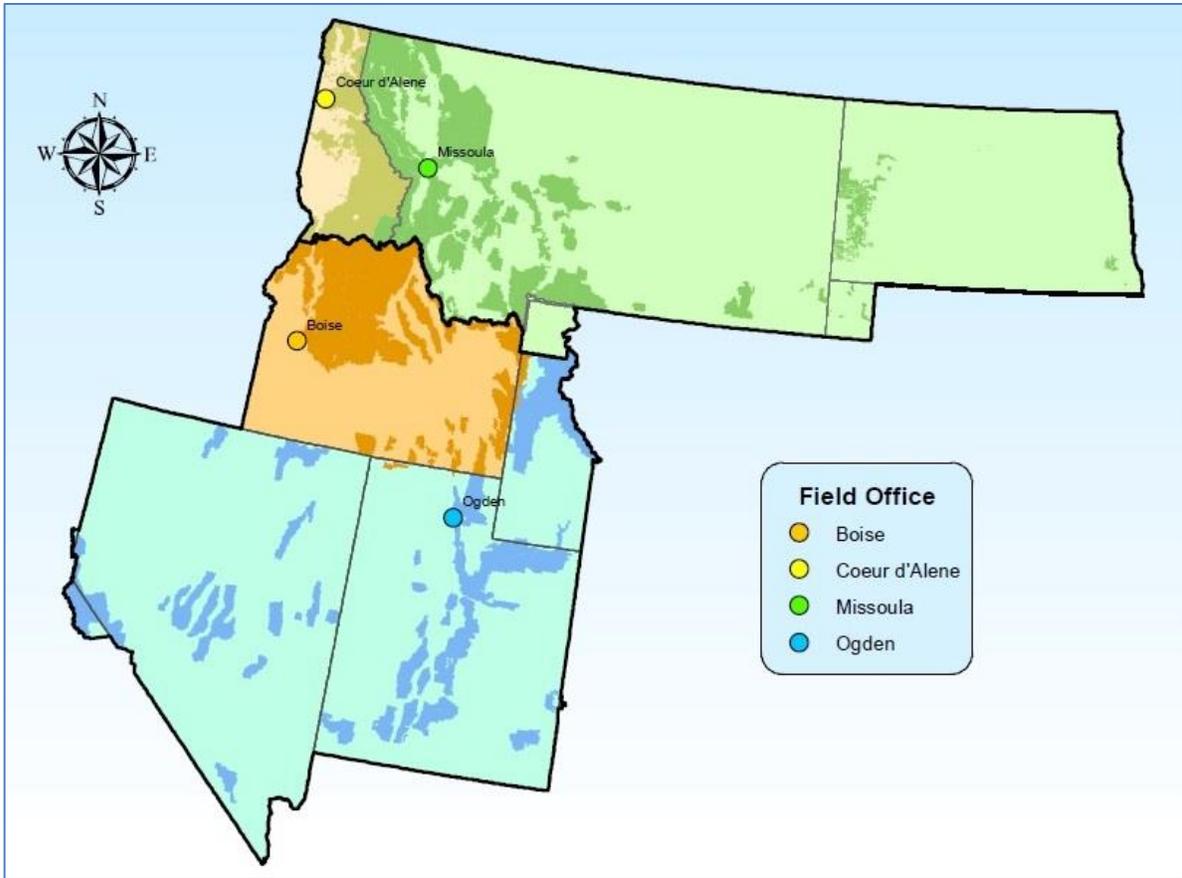


Figure 1. Location of Forest Health Protection field offices in Regions 1 and 4. Shaded areas portray National Forest and Grasslands within each field office’s primary area of responsibility.

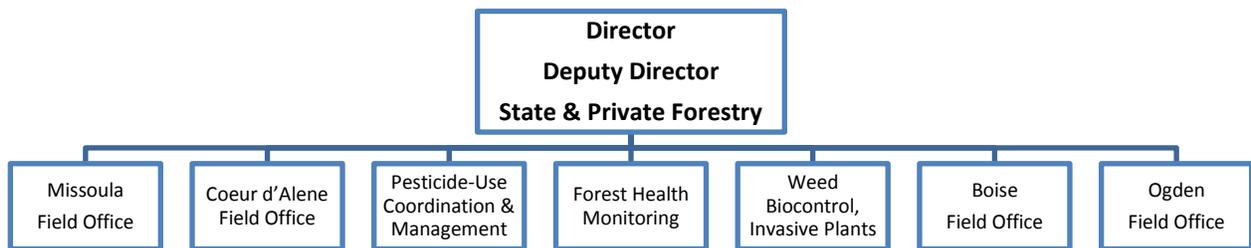


Figure 2. Current organization of Regions 1 and 4 Forest Health Protection Team.

MISSION

The National FHP Mission is to protect and improve the health of America's forests.

Our Region 1/4 FHP Mission is to facilitate stewardship, protection, and management of forested ecosystems by promoting forest health to federal, tribal, state, local, and private resource partners and customers in Idaho, Montana, Nevada, North Dakota, Utah, and portions of California, South Dakota, Washington and Wyoming.

VISION

The national FHP Vision is to work with partners to bring together all stakeholders to protect and improve the health of the Nation's forested lands. FHP is committed to maintaining a diverse workforce and finding innovative ways to rapidly respond to forest health threats to avoid unacceptable loss of forest resources.

Our Region 1/4 FHP Vision is to work with partners to protect and restore forested lands of all ownerships from the effects of various damaging agents. Based on this vision, people will understand influences that damaging agents have on their forests and treatments that can be integrated to meet multiple resource objectives.

STRATEGIC FOCUS AREAS

Our efforts will be focused into the four following strategic areas and described in subsequent sections:

1. Forest Insect and Disease Services
2. Forest Health Education & Information Management
3. Invasive Species Management
4. Forest Health Monitoring and Assessment

Although annual allocations of resources to each strategic area will be dependent upon budgets, national and regional priorities, and emerging issues, approximately 40 percent of resources will be used for providing Forest Insect and Disease Services and remaining resources divided among the other strategic areas as direction requires.

As outlined in the following table, our four regional strategic areas are aligned with seven strategies identified in the national FHP 2003–2007 strategic plan. Pesticide use coordination & management occurs across each of the four strategic focal areas.

Region 1/4 Strategies	Corresponding National Strategies
Forest Insect and Disease Services	Risk Reduction, Technology Development, Forest Health Expertise, Suppression
Forest Health Education & Information Management	Subset of Information Management and Dissemination, Technology Development
Invasive Species Management	Invasive Species, Technology Development
Forest Health Monitoring & Assessment	Risk Reduction, Technology Development

Justification for updating the Region 1/4 Strategic Plan

The last Region 1/4 FHP strategic plan was drafted in 2001. Changing national priorities and land management policies, increased incidence and scale of disturbance processes, decreased federal and state budgets, and loss of organizational capacity and capability have brought about additional needs and requests for FHP services. More specifically, moving forward the FHP team will focus on:

- Addressing the needs of our increased client base comprised of foresters, ecologists, weed specialists, recreation managers, hydrologists, botanists, biologists, engineers and other specialists, either with existing staff or through referrals to other agencies (e.g., state agencies, universities, county extension).
- Addressing insect and disease requests that require higher levels of planning involvement due to increasing incidence, size and intensity of disturbance processes (e.g., bark beetle outbreaks, wildfires) and expanded interface with adjacent/affected landowners and users.
- Ensuring forest insect and disease concerns are fully integrated in efforts focused on making wildland and community forests more resilient and healthy.
- Improving work force and public safety in forested environments impacted by insect or disease-related conditions.
- Providing the public with current and relevant information on forest health topics, including forest conditions, significant forest insect and disease-caused trends, and treatment alternatives, which may help managers to sustain expected values.
- Developing and implementing new technologies for monitoring and managing non-native species/invasive plants, pathogens and insects.
- Integrating existing insect and disease survey and assessment activities into a more comprehensive forest health monitoring program, making reporting more efficient and data more accessible to land managers and the public.
- Expanding opportunities for virtual/web-based trainings to access broader groups of resource specialists due to decreased organizational capacity and capability.

Forest Insect and Disease Services

Forest insect and disease-related information and technical services for land managers and various specialists will continue to be our core program. With state, local, and research partners, we will provide current science-based information, technology and technical assistance required to manage insect and disease influences on various forest ecological and resource values.

Current Status

- Forest Service Manual 3400 was published in 2009. It provides the authority, objectives, policy and responsibility for FHP activities.
- Forested lands are increasing in susceptibility to insects and diseases because of changing climate, increasing wildfire incidence and severity, and changing tree species composition and stand structure.
- Large-scale disturbance events are occurring across most forest types.
- The focus of silvicultural management on federal lands continues to evolve, including the use of fire as a management tool.
- There is an increasing management emphasis on the wildland-urban interface.
- There is increasing need and demand for assistance in recreation sites regarding hazard tree management and development of sound vegetation management plans.
- Information is needed on how insects and diseases influence forest resources, including their positive and negative effects on various values in a broad ecological and social context.
- Land management planning efforts require expertise in forest health issues.
- Additional testing, development, documentation, and transfer of technological tools are needed to meet the demands and needs of our customers.

FHP Response

Technical and Land Management Assistance – We provide management advice and treatment options to assist managers in reducing insect and disease impacts and meeting objectives. In the past, technical assistance was provided mainly to foresters and silviculturists to meet resource management objectives. Increasingly we also assist ecologists, biologists, weed specialists, recreation, seed orchard and tree improvement managers, and others to meet broader forest health and sustainability goals. This highlights the need for increased scientifically-based and well-documented information on vegetation management strategies.

FHP Funded Projects – We administer the Western Bark Beetle grants program by providing project standards and priorities for funding, evaluating project proposals

submitted from federal and state partners, determining which proposals to fund, ensuring projects are completed, and documenting accomplishments. Over the past decade, more than \$2 million has been provided annually to Region 1/4 National Forests, other federal agencies, tribes and states for insect and disease prevention, suppression and restoration projects.

FHP also coordinates and provides funds for whitebark pine restoration. An average of over \$300,000 has been provided annually to USDA-FS, other federal agencies, tribes, states, educational institutions, NGOs and private parties for whitebark pine restoration since 2007.

Technology and Science – Insect and disease risk rating and stand simulation models are regularly updated to predict current and changing resource impacts from individual insect & disease disturbance agents. Work has focused on the combined effects of various agents on vegetation change across the landscape. Where appropriate, FHP staff use their knowledge and experience to serve as science experts on insect and disease subject matter and to provide insight to researchers. Field observations by our cooperators can spark the development of novel management techniques.

Forest Insect and Disease Services Goal: Forest resource managers and the public understand the significant role insects and diseases play in forest ecosystems and implement appropriate management strategies to meet established objectives.

Objective: Provide current, science-based information on impacts of insects and diseases for both programmatic and project planning efforts that equip land managers with the best information on which to base decisions.

Actions:

- Assist agencies in planning efforts (e.g., Forest Plan revisions) by providing information on past influences of insects and diseases on forest conditions, their predicted effects under different management alternatives, and treatments that can be used to modify those effects. This includes interactions among important insects and diseases, their hosts, effects of various silvicultural techniques and a changing climate.
- Provide information on interactions of insects, diseases, and other disturbance



processes (fire, storm events, changing climate), so that effective tactics can be implemented at the project level to enhance varied forest values including ecosystem services, reduced fire threats, and more resilient and sustainable forests.

- Assist land managers with managing forest insects and diseases, and provide oversight on insect and disease prevention, suppression and restoration projects.
- Provide consistent, legally compliant and standardized information on hazard tree policy and vegetation management plans.

Objective: Develop efficient and effective tools for assessment, prediction, and management of forest insect and disease effects to help resource managers better assess and modify forest health conditions.

Actions:

- In collaboration with research partners identify and implement new technologies and techniques for managing forest insect and disease. Inform and train land managers on the use of these technologies.
- Validate and refine techniques for forest insect and disease risk rating and forest growth simulation modeling at different scales to simulate long-term effects on forest conditions and ecological functioning. Inform and train land managers and planners on the use of these tools.



Objective: Ensure that pesticide use management is coordinated across Region 1/4 and follows state and national policies.

Actions:

- Coordinate with other regional office staffs (Botany, Silviculture, Range, Recreation, Wildlife, Fisheries, Hydrology, Invasive Species, NEPA-Administrative Review-Litigation, NRM, etc.) to ensure pesticide-use activities are captured in all appropriate Forest Service databases (NRM-FACTS, NRM-TESP-IS, WFRP-WIT).

- Coordinate with Regional Foresters, US Environmental Protection Agency (EPA) and state agencies to ensure National Pollutant Discharge Elimination System (NPDES) permits are approved prior to proposed pesticide applications.
- Coordinate with state agencies to ensure Forest Service practices are consistent with state pesticide regulations and to collaborate on training opportunities.
 - Ensure that National Forest and Grassland personnel involved with pesticide use are kept current on latest technologies and requirements related to pesticides.



**Implementation of Vegetation
Management Plans improve long-term
resiliency of developed recreation sites**



Forest Health Education & Information Management

We will increase the effectiveness of our education and information activities by using a broader array of technologies. We will work with a large number of cooperators and media to reach land managers, public, students, policy makers, and groups with specific needs.

Current Status

- Past land use practices, changing climate, and introduction of non-native invasive species have changed forest conditions and increased forest susceptibility to many disturbance agents.
- Diseases, insects, and invasive plants are major influences on forests in the Forest Service's Intermountain and Northern Regions.
- Management of the nation's forests is of great public interest and yet the general public is often uninformed or misinformed on forest health issues.
- People increasingly live in urban areas or in the wildland urban interface, and are not always aware of the complexity of forest resource issues, or how those issues may affect them personally.
- It is important for all who participate in forest project planning and management to understand effects diseases and insects have on forest health, and ways that forest management practices can influence forest health.
- More contemporary media can provide efficient ways to reach a broader audience.

FHP Response

Quality Information - Our previous emphasis was to provide information on forest insects and diseases for primarily technical clients and partners. FHP has increasingly been providing broader information on forest health-related topics to elected officials and policy makers, the general public, and to students at all levels. Credible and well-documented information is crucial to the development of public policy and increasing public awareness.

Training - Our insect and disease training program has evolved to include increased emphasis on managing insects, diseases and biological control of invasive plants to meet more diverse management objectives for a broader range of clients. In cooperation with our



state partners and the Cooperative Extension Service, several hundred individuals are trained each year in insect and disease identification and management, biological control of invasive plants, fire effects, Forest Vegetation Simulator, National Insect and Disease Risk Map, vegetation management plans and hazard tree recognition and management. As travel budgets have become more constrained, FHP-provided trainings have evolved accordingly. Webinars, video conferences and web-based services will likely play a more important role in FHP's delivery of training in the future, although providing hands-on training should continue to be a high priority.



Products and Services - Our forest health products and services include: information for leadership, agency staff and interdisciplinary teams; presentations at schools and universities; educational tools for land managers, master foresters/stewards, master gardeners, the general public and others; information for congressional staffs; and various reports on forest health.

Information Management - Regional website

(<http://www.fs.usda.gov/main/r4/forest-grasslandhealth>) provides information on Forest Insect and Disease Services, Forest Health Education, Non-native/Invasive Species Management, and Forest Health Monitoring and Assessment. There is an ongoing need to update and improve information that is accessible to everyone (i.e., compliance with section 508 amendment of the Rehabilitation Act).

Forest Health Education and Information Management Goal: Agency personnel and the public, including youth, understand the roles insects and diseases play in healthy forest ecosystems and the influence of various management alternatives on forest health.

Objective: Redesign our forest health education activities to reach a broader audience and to encourage forest health as a management goal.

Actions:

- Identify information needs and target audiences and plan how to efficiently provide that information.

- Assist agency leaders and interdisciplinary teams in making forest health a goal of management by describing changes in forest conditions and functioning, and the implications of changes to management strategies.
- Work closely with cooperators, media outlets and technology to deliver the message in a more cost efficient, accessible, and effective manner. Develop educational products and services for current social media outlets such as Twitter, Facebook, and YouTube that will offer additional outlets to reach the public.
- Work with partners to provide forest health information, training, and training aids for instruction at all educational levels, including environmental awareness, insect and disease identification, management and their effects on ecological processes.
- Provide consistent, legally compliant and standardized training sessions on hazard tree recognition and vegetation management plans.
- Develop an accessible database for archiving and accessing FHP information including gray literature.

Objective: Provide scientifically-based information on forest health issues to the public to allow informed participation in forest resource management decisions.

Actions:

- Generate products on forest health topics that target non-technical clientele.
 - Provide media with news releases to facilitate accurate dissemination of forest health topics.
- Participate with forest personnel in local public meetings to inform the public of local forest health issues and management.
- Look for opportunities to foster discussion between groups with diverse interests regarding forest health issues.



Invasive Species Management

We will continue to monitor and manage impacts of established invasive species and work with state and local agencies and other partners to prevent new introductions. We will also continue to develop and transfer technology for the biological control of invasive plants.

Current Status

- Forest Service Manual 2900 was published in 2011. It provides Forest Service policy, responsibilities, and direction for the prevention, detection, control, and restoration of invasive species effects.
- Invasive plants, insects, and pathogens cause severe damage to native plants and ecosystems in the Intermountain and Northern regions. New introductions will continue to occur.
- White pine blister rust became established during the early 1900's in the western US, but is still invading, or has the potential to invade, currently uninfected areas in the Intermountain Region. There is an ongoing need to develop and use rust resistant 5-needle pines as part of efforts to restore white pine ecosystems to naturally functioning conditions.
- Gypsy moth, long established in the eastern U.S., continues to be introduced to the western U.S., and only vigilant monitoring and eradication will prevent its establishment in Region 1/4.
- Other introduced insects and diseases, such as balsam woolly adelgid, green alder sawfly, walnut twig beetle/thousand cankers disease and larch casebearer, have become established and additional non-natives threaten to impact forest ecosystems from surrounding areas. We lack monitoring and management guidelines for many of these non-natives.
- Many invasive plants have become established and continue to colonize forest and rangeland habitat, replacing native vegetation and causing serious economic and ecological damage. Recent landscape-level disturbance events will contribute to the spread and intensification of invasive plants in areas without management actions.
- The 2012-2017 Invasive Plants Biological Control Strategic Plan provides goals and action items for using biological control agents to manage invasive plants.

FHP Response

Detection and Management - FHP has long been involved with detection, evaluation and suppression of introduced insects and diseases. Eradication of several introductions of gypsy moth in Utah and Idaho has prevented successful establishment of this potentially damaging insect in the Intermountain West. In recent decades, rust

resistant 5-needle pines and integrated management techniques have been developed, which provide the tools for restoration of these species.

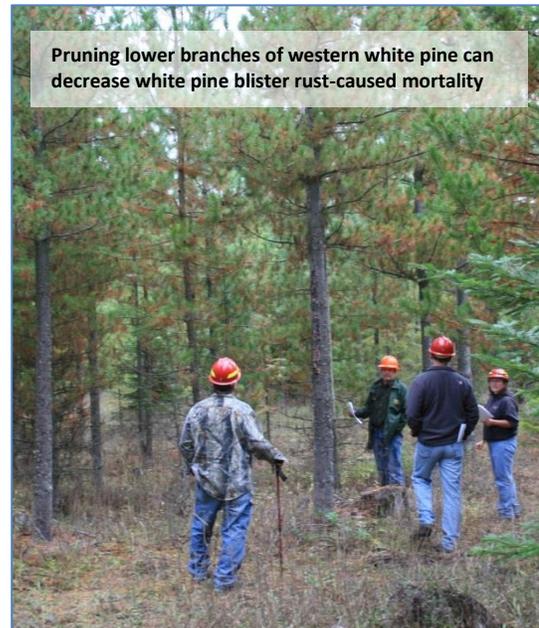
Other threats are being monitored and management guidelines developed. Emerald ash borer is a significant threat to the ash resource in North Dakota, eastern Montana, and many intermountain municipalities. Detection, monitoring and education on common pathways of introduction are critical to protect these resources.

Pesticide Use - FHP provides land managers and landowners with information and assistance on pesticide use. Needs for pesticide-related services continue to grow because of threats from invasions of undesirable plants following recent large-scale wildfires. The potential risk of insect introductions such as emerald ash borer will also likely require expanded pesticide services.

Weed Biological Control - FHP staff are now involved in biological control of invasive plants using insects and diseases that feed on them. The economic and ecological impacts of these invasive plants, and the potential for population reductions from insects and pathogens, make biological control a priority. FHP has developed a multifaceted program to help land managers address concerns and questions regarding the utilization of insect and pathogen classical biological control agents as a component of integrated invasive plant management programs (see Regions 1/4 completed the 2012-2017 Invasive Plants Biological Control Strategic Plan, https://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5203396.pdf).

The FHP Biological Control Strategies include:

1. Partnership and Collaboration
2. Scientific Basis (technology development, research support, and monitoring)
3. Communication and Education (functional assistance, education & technology transfer)
4. Organizing for Success (improving capacity and procedural streamlining)



Invasive Species Management Goal: Forest managers are effective in dealing with adverse effects of established invasive insects, pathogens and plants, and new introductions are prevented or detected early and rapidly treated (EDRR- Early Detection and Rapid Response).

Objective: Provide forest managers with scientific information, expertise and technology for management of established non-native insects and pathogens.

Actions:

- Provide technical information and financial support needed to maintain and restore 5-needle pine species, including maintaining the health of young western white pine plantations.
- Develop additional rust resistance and additional technology for integrated management of 5-needled pines, and train foresters and others in their use.
- Assist with efforts to manage existing non-natives, such as the balsam woolly adelgid and walnut twig beetle/thousand cankers disease.
- Perform delimitation surveys to document current distributions of established non-native insects and pathogens.

Objective: Prevent the introduction and establishment of non-native insects and pathogen species that might threaten native trees, shrubs and other plants.

Actions:

- Work with partners to identify, monitor and, where feasible, eradicate or slow the spread of new infestations of non-native insects and pathogens, such as gypsy moth and emerald ash borer.
- Minimize the potential for establishment of other non-native species through the development of surveillance protocols, management guidelines and education materials.
- Work with state and private partners to monitor for non-native insects and pathogens that are not yet in Region 1/4.



Objective: Provide information and technology for evaluating impacts, monitoring, and dispersal of biological control agents primarily for invasive plants, but also for forest insects and diseases as needed, and cooperate with state, county, research, and federal partners to develop integrated weed management technologies that incorporate weed biological control. For guidance see the 2012-2017 Invasive Plants Biological Control Strategic Plan.

Actions:

- For weeds of most concern, work with research cooperators to advance biological control agents, associated technology, and provide information on appropriate biological control use as it becomes available.
- Promote biological control technology as part of an integrated weed management strategy.
- Provide information and assistance on pesticides and biological controls used to control weed invasion in and near areas burned by wildfires.



Release of biological control agent to reduce leafy spurge infestation



Forest Health Monitoring and Assessment

Quality data are the foundation of our program. Collection of monitoring data supports all of our other goals including reporting on the status of insects, diseases, and invasive plants to agency personnel, vested stakeholders, and the general public. We will strive for more efficient and safer methods to survey for and evaluate insect and disease conditions, and monitor forest health. We will make forest health information more accessible and reporting more efficient through a better integration of FHP, Forest Health Monitoring (FHM), and Forest Inventory and Analysis (FIA) activities and through a better use of current and future technologies.

Current Status

- Forest health has become a major issue, heightening the need for valid information on how forests change, how insects and diseases influence that change, and what changes can be expected in the future.
- Widespread outbreaks of both native and non-native insects and diseases have recently occurred across both regions. Outbreaks are largely a result of changes in forest composition, structure and age due in part to fire exclusion for most of the 20th century and certain past practices.
- Changing climate patterns are interacting with shifts in forest vegetation to increase stand susceptibility to insects and pathogens and other disturbance agents such as fire.
- Recent disturbance events have affected the ability of National Forests to provide ecosystem services and many of the other values people expect.
- Information needs include: the extent, severity, and population trends for all significant insects and diseases; the effects of management activities on insects and diseases; and the relationship of insect and disease outbreaks to forest ecosystem function.
- Aerial Detection Surveys (ADS) are transitioning to safer, more efficient methods including grid vs. contour flying, digital vs. manual mapping systems, and prioritizing designated core areas.
- FHM ties to FIA data collection are becoming more tenuous as FIA budgets decline and certain FHM variables are no longer collected.

FHP Response

Insect and Disease Surveys - FHP performs aerial and ground surveys for insect and disease damage in cooperation with federal and state agencies to provide current and long-term trend information on important insect or disease conditions. Alternative safer and more efficient survey methods including remote sensing will continue to be explored and implemented as appropriate.

Risk Maps – FHP 1/4 continues to provide information used to develop models and produce a national insect and disease risk map (NIDRM). The NIDRM’s primary purpose is as a strategic, broad-scale planning tool that can be used for administrative activities and work planning. In certain landscapes and at appropriate scales, NIDRM maps may be helpful for on-the-ground tactical management. More local hazard and risk rating systems and maps for significant disturbance agents in R1/4 have been produced and can be useful for project-level planning.

Forest Health Monitoring – The FHM program has broad inventory responsibilities that include many aspects of forest health. FHM plots have been established through the Intermountain and Northern Regions. FHM is an integrated program that provides a balanced assessment of health changes and issues.

State-wide Reports - FHP and FHM collaborates with state cooperators to develop annual state Forest Health Highlights and conditions reports.

Forest Health Monitoring and Assessment Goal: A comprehensive, integrated monitoring system contributes to a balanced assessment of the effects of insects, pathogens, invasive plants, pollutants, and other factors on forest health.

Objective: Integrate FHP and FHM into one well-coordinated and efficient forest health monitoring and reporting program to enhance the timeliness, quality and quantity of information and to provide a more complete picture of forest health.

Actions:

- Utilize the Forest Health Portal (foresthealth.fs.usda.gov/portal) for integrating FHM and FHP programs.
- Work with FHP Forest Health Technology Enterprise Team to display pertinent results from monitoring programs.
- Increase communication and possible collaboration with Forest Inventory and Analysis (FIA).
- Look for opportunities to integrate forest health data into existing broader federal inventory and monitoring efforts.



Objectives: Monitor and assess insect and disease conditions and effects, forest susceptibility to insects and diseases, and project probable future effects of these agents.

Actions:

- Continue to validate and refine the NIRDM for use in making programmatic decisions at broad scales.
- Refine and expand regional risk rating models to inform land managers of potential damage from principal insects and diseases across both Intermountain and Northern Regions. Consider how these models will change under different climate scenarios.
- Monitor disturbance events (fire, wind, outbreaks) for subsequent forest health issues.
- Work with other resource specialists to provide regional and large-scale analysis and assessments on broad topics, such as climate change, and emerging issues.

Objectives: Provide science-based information on insect and disease conditions for forest health management and to the public in a timely manner.

Actions:

- Transfer results of aerial and ground surveys and other sources of data to national databases and Forest Health Portal in a timely manner.
- Maintain and update the Region 1/4 FHP website to provide FHP publications and current and emerging information on forest health conditions in a timely fashion.
- Input data into regional and national modeling systems (FSVEG, FVS).
- Increase public access to other forest health information produced by FHP.

