



IPM for Tree Pests

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http://oregonstate.edu/Dept/nurspest/IPM_Tree_Pest.htm

The practice of IPM can differ dramatically site by site, individual by individual. That is one of the benefits to the concept of IPM which can be quite general. It is a strategy, and many would argue, a very important strategy for optimizing pest management practices. It holds promise for situations of all sizes and shapes of thinking because while the individual practices may vary, giving enormous flexibility and allowing for customization, the key concepts remain the same.

Some of the critical concepts are listed below:

- Identify the problem
- Understand pest biology
- Monitor your trees
- Action thresholds
- Consider multiple tactics

Any one of these steps may range from simple to complex. Woodlot owners must often be an all-around expert. That can present a challenge but technology has greatly facilitated access to a wealth of information that used to be available mostly to experts. That same technology can also help individuals, faced with a pest problem, strategically tackle the dilemma in an informed manner. Accessing currently available resources on the internet, many of which are free, can greatly enhance one's success with tree pest management.

The following resources may be helpful to woodland owners with particular emphasis on the following concepts:

Identify the problem and begin to understand the pest's biology.

For many, the starting place for diagnosis of any problem is the identification of the host trees. From there one can look for the most likely problems on that host. Some resources will help define the problem based on the part of the tree affected (i.e. root damage, stem damage, foliage damage, etc.). Additionally the type of symptom (die back) or signs (mushrooms, bark beetles) present can help diagnose the problem.

The ODF website has a very helpful Forest Health section. This section lists the most likely pests and abiotic problems one might encounter. USDA Forest Service's Forest

Health website is another great resource in which to find pest information. In particular, FIA-PNW Forest Research Station Guide to common insects & diseases of Oregon, Washington, & California --

Good places to look are the online versions of the PNW Insect and Weed Management Handbooks and the On-line Guide to Plant Disease Control.

OSU Plant Clinic - This is a great place to start when you need an expert! This webpage gives information on how and where to send a sample and the fees, if any, for various services through the clinic. Another key feature that can be helpful to aid ID is the diagnoses by county feature. This feature, particularly the disease database, gives a very strong indication of what pests are being found in particular locations and plant species. The list generated also has links to images for many of the samples.

Digital diagnostics are gaining momentum. There is now an organized way to submit and track images (which can be combined with physical samples) sent for identification. As part of the Distance Diagnosis by Digital Imaging project, OSU, WSU and Univ. of Idaho all have an on-line submission websites. This database allows users to actually build an archive of images associated with their samples and diagnoses. This is extremely important for designing pest programs, retaining a history of on-site problems, and training others.

PNW Nursery IPM and Pest Alert System. This website is focused on pest management resources for ornamental plant production. The page combines targeted internet links, and original material and images to convey useful pest management information. The pest alerts can be found at the website and also received as emails directly with a free subscription. The alerts contain information on pest activity, pest management information, and the alerts usually link to more information or images.

Tree IPM Resources:

Hard cover:

Byther, R.S. 1996. *Landscape Plant Problems: A Pictorial Diagnostic Manual*. Washington State University Puyallup, 7612 Pioneer Way E., Puyallup, WA 98371. 144 pp. <http://cru84.cahe.wsu.edu/cgi-bin/pubs/MISC0194.html>

Chastagner, G.A. (editor). 1997. *Christmas Tree Diseases, Insects, & Disorders in the Pacific Northwest: Identification and Management*. Washington State University Cooperative Extension MISC0186. pp. 154. <http://cru84.cahe.wsu.edu/cgi-bin/pubs/MISC0186.html>

Costello et al. 2003. *Abiotic Disorders of Landscape Plants: A Diagnostic Guide*. University of California ANR Publication 3420. 243 pp. <http://anrcatalog.ucdavis.edu/LawnGarden/3420.aspx>

Dreistadt, S. H. 2004. *Pests of Landscape Trees and Shrubs: An Integrated Pest Management Guide*. Publication #3359, ANR Publications, University of California, 6701 San Pablo Avenue, Oakland, CA 94608-1239. 501 pp.

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3359>

Hansen, E.M. and K.J. Lewis. 1997. *Compendium of Conifer Diseases*. APS Press. St. Paul. 101 pp. <http://shopapspress.stores.yahoo.net/41833.html>

Flint, M.L. and S. H. Driestadt. 1998. *Natural Enemies Handbook: The Illustrated Guide to Biological Pest Control*. # 3386. ANR Publications, University of California, 6701 San Pablo Avenue, Oakland, CA 94608-1239. 154 pp.

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3386H>

Johnson, W.T. and Lyon, H.H. 1988. *Insects that Feed on Trees & Shrubs*. Cornell University Press. Ithaca, New York. 556 pp.

Sinclair, et al. 2005. *Diseases of Trees & Shrubs*. Cornell University Press. Ithaca, New York. 660 pp.

Solomon, J. D. 1995. *Guide to Insect Borers of North American Broadleaf Trees and Shrubs*. Agric. Hanbk. 706. Washington, DC. USDA Forest Service. 735 pp.

Wood et al. 2003. *Pests of the Native California Conifers*. U of CA Press, Berkeley. 233 pp. <http://www.ucpress.edu/books/pages/9670.php>

Whitson, et al. 2004. *Weeds of the West*. Western Society of Weed Science and University of Wyoming. Jackson, Wyoming. 630 pp.

<http://extension.oregonstate.edu/catalog/abstract.php?seriesno=WEST>

Web:

Cordell et al. 2004. Forest Pests

<http://www.forestpests.org/nursery/index.html>

Distance Diagnosis by Digital Imaging

<http://www.dddi.org/index.cfm>

Furnis, R.L. and V.M. Carolin. 1977. *Western Forest Insects*. USDA Forest Service Misc. Publication 1339. Download of original available at following site:

<http://www.fs.fed.us/r6/nr/fid/wfi/index.shtml>

Oregon Department of Forestry, Forest Health Management:

http://egov.oregon.gov/ODF/PRIVATE_FORESTS/fh.shtml

ODF Forest Chemical Use Information

http://egov.oregon.gov/ODF/PRIVATE_FORESTS/chemuse.shtml

Oregon State University, Forestry Extension Service:
<http://www.cof.orst.edu/cof/extended/extserv/>

OSU Plant Clinic
http://web.science.oregonstate.edu/bpp/Plant_Clinic/index.htm

OSU Online Guide to Disease Control
<http://plant-disease.ippc.orst.edu/index.cfm>

Pesticide Information Center On-Line
<http://picol.cahe.wsu.edu/LabelTolerance.html>

PNW Insect Management Handbook
<http://insects.ippc.orst.edu/pnw/insects>

PNW Weed Management Handbook
<http://ag.ippc.orst.edu/pnw/weeds>

PNW Nursery IPM
<http://oregonstate.edu/dept/nurspest/>

USFS Forest Health Protection
<http://www.fs.fed.us/r6/nr/fid/index.shtml>

USDA Forest Service FIA-PNW Forest Research Station [Guide to common insects & diseases of Oregon, Washington, & California --](http://www.fs.fed.us/r6/nr/fid/pubsweb/fia-id-cards.pdf)
<http://www.fs.fed.us/r6/nr/fid/pubsweb/fia-id-cards.pdf>