# PRO HORT

*Center for Urban Horticulture*
*University of Washington*
Vol. 7, No. 4

*Cooperative Extension*
*Washington State University*
Fall 1989


## LANDSCAPE MAINTENANCE SEMINARS

## Controlling Wild Animals in the Landscape

Birds and mammals can be serious pests in urban and suburban landscape gardens. This program will discuss the habits, damage to plants, and control measures for the following animals: birds, voles, moles, squirrels, racoons, rabbits, beavers, mountain beavers, coyotes, and deer.

WSDA pesticide license recertification credit has been applied for.

Date : Wednesday, October 4
Time : 9:00 a.m.-12:00 noon
Location : Center for Urban Horticulture
Registration Fees: $13.00 Early registration (at least one week in advance)
$15.00 Late registration
Instructors: Bob Overly, wildlife control agent, and Steve Penland, urban biologist, Washington State Department of Wildlife

The events published in this newsletter are non-inclusive and subject to change.

November and December Pro Hort Seminars will be announced at a later date.

## Van Transplanted

Van Bobbitt has accepted a position as the Coordinator of Master Garden Programs with Washington State University. Mr. Eric Nelson will temporarily fill his position until a replacement is named. We thank Van for his leadership in the establishment of the ProHort Newsletter and Seminars.

## Parking

The Parking Division, University of Washington, has issued a series of new prices and policies which will affect all University parking lots this fall. Please heed all signs. All persons involved in activities in the Center are required to park in University parking lots.

Prepaid parking is available in the University parking lot for ProHort Seminars. The University of Washington requires participants to park there.

## Horticultural Classes Available in the Area

Lake Washington Vocational Technical Institute is offering the following courses this fall:

Interior Plant Maintenance
Native N.W. Plants
Plant Photography
Pruning Large Trees
Beginning Pruning Techniques
Residential Landscaping
Rural Landscaping
Turf Grass for Professionals

Please call 828-5612 for details.

Edmonds Community College
—Please call 745-2967 for details.

South Seattle Community College
—Please call for details.

## WSNLA / CUH

The following programs are presented in co-operation with the Washington State Nursery and Landscape Association:

## Proper Use of Pesticides

Laws, Safety, Calibration, and Application

This program qualifies for 3 hours of WSDA pesticide license recertification credit.

Date : Wednesday, October 11
Time : 6:30 p.m.–9:30 p.m.

## Plant Disease Problems in the Greenhouse

Disease Identification
Basic Control
Preventive Maintenance

This program qualifies for 3 hours of WSDA pesticide license recertification credit.

Date : Tuesday, October 24
Time : 9:00 a.m.–12:00 Noon
Registration Fee: $20.00 per seminar
Remit to: WSNLA
PO Box 670
Sumner, WA 98390
For further information, call
1–800–672–7711

# Plant Palette: Franklinia alatamaha

Timothy Hohn
Center for Urban Horticulture
University of Washington

One of the best ways to help insure the survival of an endangered plant species is to successfully introduce it into cultivation. This strategy is particularly useful if many different clones of the species, representing a varied gene pool, make up the cultivated population. A poignant example of the fruits of this strategy is *Franklinia alatamaha.*

"This day we found several very curious shrubs . . .". So goes a fragment of the October 1, 1765 entry from the diary of John Bartram of Philadelphia, one of America's great self-taught botanists and plant collectors. John and his son William were travelling by horseback through the coastal plain of Georgia heading for the ferry at Fort Barrington on the Altamaha River. The "curious shrubs" were encountered just down river from the Fort on only a few acres of land along the northeast bank of the Altamaha. In 1773, William Bartram found the trees again and described them as "of the first order for beauty and fragrance of blossoms," he adds, "of a snow white colour, and ornamented with a crown or tassel of gold . . ." William first assessed their identity as a species of *Gordonia,* in the Theaceae, but later, in 1777, decided the trees were not *Gordonia* at all, but a new "tribe," which he named for Benjamin Franklin.

No trees of *Franklinia alatamaha* (where the extra "a" came from in the specific name is conjecture) have been found in the wild since the last verified time in 1803, by John Lyon, a Scotsman. All the Franklin Trees currently in cultivation are descended from the Bartram's collections. It is speculated that flooding caused the disappearance of *Franklinia.* It is also speculated that the trees must have arrived at their last known wild location from up stream and others may still survive undiscovered. If nothing else, the Franklinia can be considered an aristocrat of the garden simply due to its historical significance and educational value—but there is more!

William Bartram describes *Franklinia alatamaha* thoroughly in his collecting account *Travels* (1791): "It is a flowering tree . . . fifteen or twenty feet high, branching alternately; the leaves are oblong, . . . and terminate with an acute point . . . ; they are placed in alternate order, and towards the extremities of the twigs are crowded together . . . ; the flowers are very large, . . . of a snow white colour, and ornamented with a crown or tassel of gold colored staminae in their centre . . . ". William does neglect to say that the leaves are deciduous, 5 to 6 in. long, and the flowers are up to 3 in. across and appear in late summer and early autumn. The pearly white color of the camellia-like flowers literally glows against the rich orange/red fall color—a striking and unusually-timed combination of features occasionally seen in *Oxydendrum arboreum.*

*Franklinia* is often a slightly fluted, multiple-trunked small tree with an open, airy habit. The bark becomes dark grey and striated with irregular, vertical fissures. They prefer a moist, acid, and well-drained soil in full sun or light shade—summer irrigation in our area is recommended. Their root system is sparsely fibrous, which can pose transplanting problems. Mike Dirr recommends early transplanting of container-grown stock. *Franklinia* is suseptable to wilt caused by *Phytophthora cinnamoni* and appropriate precautions regarding planting sites, soil drainage, and irrigation regimes should be employed to avoid problems. Collected seeds, sown immediately, should produce good germination. Semi-hardwood cuttings taken in June and July root readily and overwinter well as long as the rooting media is not excessively moist.

*Franklinia* makes a good small specimen or patio tree. For the larger landscape they make good lake or pond side trees along with the Sour Gum (*Nyssa sylvatica*), Sparkleberry Holly (*Ilex* 'Sparkleberry'), Asiatic Sweetleaf (*Symplocos paniculata*), and various ornamental grasses. What an autumn combination! On a smaller scale, consider Oakleaf Hydrangea (*Hydrangea quercifolia*) and *Liriope* as handsome companions for the Franklin Tree.

A large specimen of *Franklinia alatamaha* can be seen at the Washington Park Arboretum in the camellia section next to Arboretum Drive. Inquire at the Donald G. Graham Visitors Center for specific directions and information concerning the performance of this tree in the Arboretum.

## Yellow Pages Direct Dial

Don't forget to use the Yellow Pages Direct Dial to find out about the latest CUH/WPA activities. Dial 624-4500, and use access code 2481. It's free!

# Disturbing Established Trees, or Learning to Leave Well Enough Alone

Dr. James Clark
Center for Urban Horticulture
University of Washington

Established trees are those which have grown for long periods of time under a given set of environmental and management conditions. In becoming established, they have developed a pattern of growth and development appropriate for existing site conditions; they grow in balance with their environment. This is true whether the site is intensively or minimally managed.

Altering these site conditions upsets the established balance. In nature, disturbance might be wind-throw or loss to root rot of overstory trees. How well the understory and co-dominant plants respond to such a change will define their future growth and survival.

We should not ignore the importance of change and disturbance in landscape settings as well, as it has two major impacts. One concerns a tree's response to change in its environment; it must adjust its growth and development in synchrony with change. A second concern involves the response of other organisms, such as mycorrhizal and root rot fungi, to the disturbance.

The direct impacts of a disturbance such as construction, regrading, and drainage change, on tree growth are fairly obvious. But disturbance may also be as subtle as the sun-scald/sun-burn resulting from exposing shade-acclimated foliage and bark to direct sun. In both cases, recognizing the impact of site change to the plant before the change occurs may permit mitigating measures. Pruning in early spring as new growth emerges and acclimates to full sun, or protecting trees during construction, are reasonable responses.

Another example of a subtle, but significant, type of disturbance involves a change in precipitation patterns around mature trees, especially native species. The Puget Sound region normally experiences winter rain and summer drought. Only 18% of Seattle's annual precipitation falls from May to September. This annual summer drought is one of the reasons coniferous trees are dominant in our region.

When we develop landscapes around existing native trees, we frequently alter this winter/summer pattern by supplementing natural rainfall with irrigation. While such a change might be viewed as positive at first glance, there is reason to consider otherwise. Most of the regions soils are fine-textured and retain moisture. Established trees must respond to this increase in soil water.

If trees were the only component of the landscape responding to this sudden increase in soil moisture, the problem might be insignificant. But other organisms in the soil respond as well. Indeed, increased summer soil water may allow disease organisms, such as *Phytophthora,* to proliferate (as if *Phytophthora* needs any help). To quote Dr. Olaf Ribeiro of Microbiotica International, "Excessive water is the single most important factor in *Phytophthora* disease development."

Retaining native trees during either landscape development or renovation is more than a matter of preventing injury during construction. It also involves being sensitive to the long-term consequences of both site disturbance and a new management program. We cannot ignore the fact that standard practices like irrigation, fertilization, pH management, and pest management represent disturbance to an existing site. Nor can we ignore the reality that change involves more organisms than simply large trees. Since a number of small impacts may have a large cumulative effect, both design and management components play an integral role in developing (or renovating) landscapes where large, established trees are an integral part.

## Pines: Reviewing Insect Problems

George J. Pinyuh
Area Extension Agent
Washington State University

Pines are certainly a serviceable group of trees and are normally trouble free when grown in well-drained western Washington soils. They also generally perform best when planted in full sun exposures. However, they may come under attack from various insect and mite pests as well as diseases.

*Pine needle scale* is a small, white elongate to pear-shaped armored insect that infests the foliage of a number of pine species. Mugho and Austrian pines are quite commonly attacked by it, but it can get on others too. Heavy infestations cause the needles to become quite pale and can seriously weaken the health of any plant attacked. Whenever the needles of a pine, or even occasionally a spruce or cedar, begin to look white, when they didn't before, it's likely to be this insect at work.

According to Washington State University entomologists, an oil plus lime-sulfur combination (1-10 ratio) should give control, if applied in early spring before new growth starts. Other insecticides registered for use are malathion, diazinon, sevin and dursban. Follow label directions on these.

*The European pine shoot moth* damages the new growth of two- and three-needled pines like Mugho, Red, Scotch, Austrian, Ponderosa, Shore and Japanese black pine. The larvae of this moth feed inside the candles in late spring and early summer causing them to die or at least to flop over and become deformed. Growth of heavily infested plants becomes stunted and bushy-looking. The insects can also damage and kill bud set for next spring's growth.

To control this beast, spray applications of Cygon, applied at 2 week intervals, starting about June 1 and ending in mid-July. Spray thoroughly to get the insecticide to the bases of the needles on the new growth. On Mugho pine or other species where the new shoots can be reached, it may be possible to contain this moth by removing and destroying infested terminals in May. This method is also more feasible on plants that are not under heavy attack.

The *pine bark aphid,* or more properly, the *pine bark adelgid,* causes white, cottony masses on the bark of trunks, branches or twigs. A light infestation will probably cause little harm, but when the trunks and branches are noticeably white, then slow growth and dying branches usually result.

Although mostly five-needled pines (white pines) are favored by this pest, one occasionally sees Scotch and Austrian pines under attack. The aphids can build up to quite large numbers quickly because several generations are produced in a season.

As soon as this insect is noticed an application of thiodan should be carried out. Lindane is another registered insecticide which is applied in late April or early May when buds begin to swell; cover tree thoroughly.

*Mites* which turn needles yellow or a stippled gray are often encountered. They usually produce webbing on the needles too. *Aphids* can do the same thing, but without the webbing. Insecticidal soaps or spray oil should control both these pests. Applications should be forceful, thorough and carried out as soon as the pests are noticed; they may need to be repeated for control.

The *sequoia pitch moth* is a clear winged moth, looking somewhat like a yellow jacket, that lays its eggs on the limbs and trunks of pines. The larvae (caterpillars) are borers, and eat their way into the cambium layer. A mass of pinkish pitch at the feeding site is evidence of infestation.

There are no chemical controls registered for this borer. Digging them out with a wire or knife will get rid of them. Moisture stress, either too much or too little, construction damage, poor pruning and a lack of enough nitrogen are all possible environmental stress factors which may lay a pine tree open to attack by this moth; it often selects weakened trees.

# Research Digest

Van M. Bobbitt
Washington State University

• Nitrates, Water Pollution, and Nursery Practices

There is growing concern about nitrate contamination of ground water from nitrogen fertilizers. Recent tests at the Connecticut Agricultural Experiment Station suggest that nitrate pollution from container nurseries could be reduced through the following cultural practices: (1) drip irrigation, which applies the water and soluble fertilizer directly to the container; (2) slow release fertilizers, which prevent the sudden loss of nitrogen; and (3) split applications of slow release fertilizers to prevent the loss of large amounts of nitrogen during the first 30 days after application.

Rathier, T.M., and C.R. Frink. 1989. Nitrate in runoff water from container grown juniper and alberta spruce under different irrigation and N fertilization regimes. *J. Environ. Hort.* 7(1):32-32.

• Phytotoxicity of Preemergent Herbicides on Hosta and Daylily

Chemical weed-control in herbaceous perennial plantings is limited because of the lack of labeled herbicides. According to a report by horticulturists at Clemson University, the only herbicides labeled for use in daylily are Ornamental Weeder, Eptam, and Fusilade; only Devrinol and Fusilade are labeled for use in hosta. Therefore, they evaluated 13 treatments for phytotoxicity to container-grown hastas and daylilies. Ronstar and Goal caused severe injury to both species. No injury occurred from the other treatments: Treflan, Surflan, Prowl, XL, Endurance, Premier, Cinch, Eptam, Pennant, Devrinol, and the control.

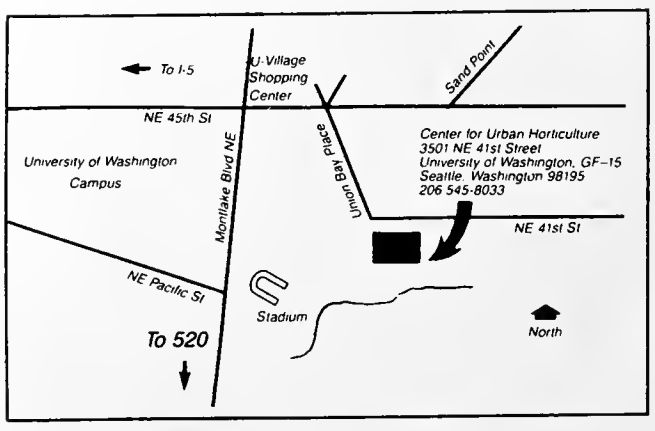
Three herbicides, Surflan, Endurance, and Pennant, were evaluated on field plantings of hosta and daylily. No injury or decrease in growth was observed from these treatments.

These are research results only and do not imply that the above-mentioned herbicides are labeled for such use. According to federal law, pesticides must be used according to label instructions.

Whitwell, T., and J. Kelly. 1989. Effects of preemergence herbicides on hosta and daylily. *J. Environ. Hort.* 7(1):29–31.

**CENTER FOR URBAN HORTICULTURE**
University of Washington, GF–15
Seattle, WA 98195








**FALL 1989**