



## CALIFORNIA OAK MORTALITY TASK FORCE REPORT AUGUST 2004

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### REGULATIONS

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**Mississippi updated its emergency *P. ramorum* regulations on 7/9/04.** The newly expanded regulation prohibits the importation of California, Washington, and Oregon *P. ramorum* host and associated plants at the genus level. Go to [Mississippi emergency regulations](#) for the complete text.

**The California Association of Nurserymen (CAN) filed a federal suit against Kentucky on 7/12,** charging the state with violating federal law by banning the importation and sale of California's *Phytophthora ramorum* host and associated plants. The lawsuit was based on a provision in the federal Plant Protection Act that gives the USDA authority over interstate plant movement. CAN's hope for the lawsuit was that all states would have to comply with the federal *P. ramorum* regulation, instead of being allowed to adopt their own state-specific restrictions. While many states have chosen not to rely solely on the USDA to protect their forests and nurseries from the disease, and have adopted their own restrictions, CAN chose to challenge Kentucky's regulations as they were considered to be among the most restrictive, and therefore the most challenging to California's nursery industry. On 7/30, Judge Hood, a federal district judge for the Eastern District of Kentucky, signed an order permanently enjoining Kentucky from having *P. ramorum* regulations that are inconsistent with the federal standard.

**The states of DE, FL, KY, LA, MS, and WV requested a Special Needs Exemption** from the current *P. ramorum* federal regulations. USDA APHIS denied the requests. Some states plan to appeal the decision.

**Mexico is considering quarantining (NOM-013-SEMARNAT-2004) Douglas-fir** (*Pseudotsuga*) and fir (*Abies*) Christmas trees from areas with *Phytophthora ramorum* to prevent introduction of the pathogen into Mexico. For information in Spanish, go to [www.economia.gob.mx](http://www.economia.gob.mx), for information in English, go to: [Mexico quarantine](#).

**A two-day review of the USDA Animal and Plant Health Inspection Service** (APHIS), Plant Protection Quarantine (PPQ) *Phytophthora ramorum* program was held at the USDA APHIS PPQ headquarters in Riverdale, Maryland on July 27 - 28, 2004. The review objective was to provide a national overview and analysis of program activities, specifically those since March 8, 2004, when Monrovia Nursery in Los Angeles County was identified as having *P. ramorum*-infected plants. Invitees included USDA Forest Service, APHIS, and Agricultural Research Service staff and scientists; state cooperators; and representatives from the nursery industry. The first day of the review provided updates and information exchange on the current status of the USDA's and cooperators' responses to *P. ramorum*. The second day discussed future program options. For more information, contact Jonathan Jones, USDA APHIS, at [jmjones@aphis.usda.gov](mailto:jmjones@aphis.usda.gov).



**A *Phytophthora ramorum* forest greenery products meeting was held on 7/22/04 at Washington State University, Puyallup.** Representatives of the WA and OR forest greenery industry, Washington State Department of Agriculture, and APHIS, as well as members of the WA state legislature, met to discuss ways the forest greenery industry can deal with possible *P. ramorum*-related restrictions on the movement of boughs and other greenery products. Approximately 35 - 40 million pounds of boughs with an estimated value of \$35 million are harvested in WA each year. For more information, contact Gary Chastagner at [chastag@wsu.edu](mailto:chastag@wsu.edu).

## NURSERIES

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**Trace-forward and national surveys continue as PPQ determines the distribution of *P. ramorum*.** As of July 26<sup>th</sup>, there were 122 positive finds from trace-forward surveys, 3 from trace-back surveys, 18 from national surveys, and 4 other surveys (compliance surveys, public submissions, and the NY environs find). This includes two new positive nurseries, one in South Carolina and one in Washington. The total number of confirmed positive locales from the trace-forward, national, and other surveys is 148 in 21 states. The breakdown per state is: AL(3), AR(1), AZ(1), CA(53), CO(1), FL(6), GA(13), LA(5), MD(2), NC(9), NJ(1), NM(1), NY(1), OK(1), OR(10), PA(1), SC(3), TN(2), TX(10), VA(2) and WA (22).

PPQ *P. ramorum* National Survey sampling has been completed in 10 Western Region states (AK, AR, AZ, CA, IA, ID, LA, MO, OK, and SD); diagnostic results are pending. To date, participating states have surveyed 1,573 sites and have collected 31,230 samples; 18 sites have been confirmed positive.

**In July, the Canadian Food Inspection Agency (CFIA) reported three positive nurseries in British Columbia:** one wholesale nursery was identified as having the A1 mating type (European) on *Rhododendron*, one retail garden/nursery was identified as having the A2 (North American) mating type on *Rhododendron*, and one production nursery was identified as having the A2 mating type on three genera - *Rhododendron*, *Arbutus*, and *Viburnum*. The production nursery with A2 infested plants does not receive stock from the US; however, the nursery did make 30 shipments to 19 facilities in OR, WA, and CA. These shipments are being investigated.

In an effort to find plants that had been sold from retail centers that had received trace forward material from Monrovia Nursery, British Columbia conducted a recall. An estimated 50% of the plants sold were returned from private residences. Of the 1,400 plants recovered and sampled, 9 *Camellias* were found to be positive. CFIA estimates that an additional 1,500 plants are still unaccounted for in the greater Vancouver area.

The CFIA also reported survey completion in 63 British Columbia nurseries, of which three (above) are positive, and the rest are negative. For the remainder of Canada, including Ontario, Quebec, and the Maritimes, surveys are ongoing, and all results to date have been negative.



**The first finding of *Phytophthora ramorum* in a Switzerland nursery has been documented.** U. Heiniger, F. Theile, and B. Stadler published a paper under the original non-English title: “Erstfund von *Phytophthora ramorum* in der Schweiz” in the journal Schweizerische-Zeitschrift-fur-Forstwesen, 2004, 155: 2, 53-54. The finding came in a Swiss Plateau nursery, where *Phytophthora ramorum* was found on a wilting viburnum plant. The paper describes arrangements and measures to hinder the spread of *P. ramorum*.

#### RESEARCH

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**The genotype of *P. ramorum* isolates linked to the Monrovia Nursery infestation has been verified as the North American population, A2 mating type.** Kelly Ivors, formerly of the Garbelotto lab at UC Berkeley, conducted two different molecular tests in June to identify and insure accuracy of the information.

**The 2004 American Phytopathological Society (APS) annual meeting is being held 7/31/04 – 8/4/04 in Anaheim, California.** About 1,500 plant pathologists are expected, with 11 presentations being made on various aspects of *P. ramorum* research, nursery surveys, wildland monitoring, treatments, and eradication efforts. To review the *P. ramorum* abstracts, go to [APS Abstracts 2004](#), or you can find them in the Science and Management section of the Publications and Resources page of [www.suddenoakdeath.org](http://www.suddenoakdeath.org).

#### MONITORING

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**In continued response to the PCR-positive red oak in Nassau County, NY, an APHIS PPQ Center for Plant Health Science and Technology (CPHST) team collected 61 bark samples from 2 lesions on the tree in Tiffany Creek Preserve.** Results are pending, as this investigation follows a multi-agency effort to delimit the area; samples have been sent to multiple labs to compare results. To date, no *P. ramorum* isolates have been recovered from the tree or the surrounding soil. Identified symptoms do not match *P. ramorum* symptoms in western forests or Europe. The symptoms on the red oak are bleeding associated with a crack. There are no leafspots or other symptoms on neighboring Viburnum and mountain laurel (*Kalmia*).

**A team of USDA Forest Service scientists will visit the Yunnan Province of China** in August to search for the origin of *Phytophthora ramorum*. Northern Yunnan Province has an abundance of Rhododendrons, Azaleas, and native Lithocarpus species, as well as climatic conditions that correlate well with those predicted to be favorable for *P. ramorum*. Gary Man, International Forestry; Ellen Goheen, Forest Health Protection; and Tom Kubisiak, Research, will take samples and work with Chinese colleagues to develop and apply laboratory procedures (culturing, PCR, etc.) to continue work on this organism and other *Phytophthora* sp. in China. For more information, contact Charles G. "Terry" Shaw, National Program Leader for Pathology Research, at [cgshaw@fs.fed.us](mailto:cgshaw@fs.fed.us).

**CALENDAR OF EVENTS**

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10/1/04 – Submission deadline for second Sudden Oak Death Science Symposium abstracts of proposed papers or posters. For more information, contact Joni Rippee, UC Berkeley Center for Forestry at [rippee@nature.berkeley.edu](mailto:rippee@nature.berkeley.edu) or <http://nature.berkeley.edu/forestry/sodsymposium>.

1/18 – 21/05 - Second Sudden Oak Death Science Symposium, Marriott Hotel, Monterey, CA. For Symposium program content, contact Rick Standiford, UC Berkeley Center for Forestry, at [standifo@nature.berkeley.edu](mailto:standifo@nature.berkeley.edu) or Pat Shea, USDA Forest Service Pacific Southwest Research Station, at [pjshea@davis.com](mailto:pjshea@davis.com). Updates on the meeting will be posted at <http://nature.berkeley.edu/forestry/sodsymposium>.

**PERSONNEL**

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**The California Oak Mortality Task Force (COMTF) Southern Regional**

Coordinator Karl Buermeyer left for Hawaii on July 30, 2004. As his position will not be filled, any inquiries should be directed to Janice Alexander, COMTF Outreach Coordinator, at (415) 499-3041, [JAlexander@co.marlin.ca.us](mailto:JAlexander@co.marlin.ca.us); or Katie Palmieri, COMTF Public Information Officer, at (510) 847-5482, [palmieri@nature.berkeley.edu](mailto:palmieri@nature.berkeley.edu).

**HOSTS OF THE MONTH**

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**Four recently identified *P. ramorum*-susceptible plants are featured this month:**

Pacific yew (Taxaceae, yew family), Andrew's clintonia bead lily and false Solomon's seal (both members of the Lily Family), and California wood fern (wood fern family). All these species are understory plants in the coastal forests of central and northern California, as well as Oregon.

***Clintonia andrewsiana*****(Andrew's clintonia bead lily/Andrew's clintonia/Red clintonia/blue-bead lily)**

Andrew's clintonia bead lily is closely associated with redwood forests, making their ranges very similar. While redwood forests with bead lily in the understory are found from San Luis Obispo County, along the Northern California coast, Andrew's clintonia bead lily is believed to have been extirpated from its former range in coastal southern Oregon. Andrew's clintonia bead lily grows in moist, shady forests at elevations less than 2,000 feet. The plant is one of the larger species in the genus *Clintonia*, with a rosette of 5 to 6, 10 inch-long leaves and a central flower stalk up to 20 inches tall. Attractive, deep red bell-shaped flowers, which bloom from May to July, are followed by light blue berries. (See a photo of [healthy \*Clintonia andrewsiana\*](#).)

*Phytophthora ramorum*-infected Andrew's clintonia bead lily was found at Muir Woods National Monument, Marin County, in March, 2004. The infected plants were under a canopy of redwoods and infected California bay laurel. Symptoms included lesions both at the tip and base of the leaves. Note that over time, the necrotic tissue develops a shot hole appearance. (See photos of [infected \*Clintonia andrewsiana\*](#).)



## Resources:

- Jepson Manual:  
[http://ucjeps.berkeley.edu/cgi-bin/get\\_JM\\_treatment.pl?Clintonia+andrewsiana](http://ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?Clintonia+andrewsiana)
- Bureau of Land Management sensitive species database:  
<http://www.or.blm.gov/surveyandmanage/SP/VascularPlants/clintoniaandrewsiana.htm>

***Dryopteris arguta* (California wood fern/coastal wood fern)**

California wood fern is a common understory species growing in moist, open wooded areas, especially along creeks and northern slopes. It ranges from Arizona to British Columbia, at elevations up to 6,000 feet. Fronds are 1-2 feet in length, and 5-7 inches wide. (See a photo of [healthy \*Dryopteris arguta\*](#).) CA wood fern root stocks were used by Native Americans as a starchy food source.

Infected coastal wood fern was found at Fairfield Osborne Preserve in Sonoma County, CA in a coast live oak/California bay laurel forest. Symptoms were necrotic frond tips. This host find is significant because previously identified *P. ramorum* hosts were limited to plants with seeds: Gymnosperms (Douglas-fir, redwood, yew, and grand fir) and a wide range of Angiosperms (broadleaf plants). This is the first known *P. ramorum*-susceptible species in the fern group (Division Pteridophyta). (Photo of infected *Dryopteris arguta* currently unavailable).

## Resources:

- Jepson Manual online:  
[http://ucjeps.berkeley.edu/cgi-bin/get\\_JM\\_treatment.pl?19,27,28](http://ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?19,27,28)

***Smilacina racemosa* (false Solomon's seal/Solomon's plume)**

False Solomon's seal is a very common understory herbaceous perennial. It grows from rhizomes, often in dense clusters, and the leafy, arching stems grow to about 3 feet tall. Small white flowers are densely clustered at the end of the stalks, and have a strong perfume-like fragrance. The berries are small (5-7 mm diameter), densely clustered, and start off green or brown with mottles or stripes, then ripen to bright red. (See photos of [healthy \*Smilacina racemosa\*](#).) This plant grows in rich woods, thickets, and moist clearings at low to sub-alpine elevations throughout the US and Canada, and is popular in native plant gardens.

Native Americans ate the young greens, fleshy rhizomes, and the ripe berries of this plant. The rhizomes were cooked after being soaked to get rid of their disagreeable taste. The rhizomes were also utilized as a poultice, and brewed to make a tea to treat rheumatism, sore back, and kidney ailments. The berries were eaten raw, though they are not especially palatable.

False Solomon's seal is so named because its leaf stalk resembles that of Solomon's seal (*Polygonatum multiflorum*). However, the latter has bell-shaped flowers hanging individually along the leaf stalk. Solomon's seal is thought to have gotten its name either



from markings on the rhizomes resembling a 6-pointed star, or from the hanging flowers resembling a seal on a document.

*P. ramorum*-infected false Solomon's seal was found in spring, 2004, at Jack London State Park, Sonoma Co., CA when necrotic leaf tip symptoms were identified. (See a photo of [infected \*Smilacina racemosa\*](#).)

Resources:

- Washington State Department of Transportation ethnobotany website: <http://www.wsdot.wa.gov/environment/culres/ethbot/q-s/Smilacina.htm>

### ***Taxus brevifolia* (Pacific yew)**

Pacific yew are usually found in the understory of late successional conifer forests, along with Douglas-fir or western hemlock. It ranges from southeastern Alaska to northern California, and east into Alberta, Montana, and Idaho. Pacific yew reaches its maximum size in the Washington Cascades, with the largest recorded specimen almost 60 inches in diameter and over 50 feet in height. Specimens over 20 inches in diameter can be found elsewhere, although it is typically less than 12 inches in diameter. Pacific yew is a gymnosperm. Its flat, dark green needles resemble those of redwood, but its seeds are born in an open berry-like red aril rather than a cone. (See photos of [healthy \*Taxus brevifolia\*](#).) These arils are poisonous to humans, although attractive to birds. Pacific yew is dioecious, having male and female plants. The wood is hard and heavy, and is prized for woodcarving.

Native peoples of the Pacific Northwest Coast considered yew wood very valuable, using it for weapons and implements that require strength and toughness. Most coastal peoples used it for harpoons, fish spears, fish clubs, and dip net frames. Nearly everyone who could collect, or trade for it, used it for bows (its Haida name means bow-plant) and almost any implement that could be made from wood. Yew had numerous medicinal uses, many of which were a magical nature, using the tree to impart strength. The leaves were ground or chewed and applied to wounds. Yew was also smoked alone or with other plants.

Yew bark is a source of the chemical taxol, used to fight several forms of cancer. When this discovery was first made in the late 1980s, it was feared that harvesting could endanger this slow-growing species, but since then, synthetic formulations have been developed that do not require the harvesting of trees.

Infected Pacific yew have been found at one location in Mendocino County, CA, by John Bienapfl, UC Davis, growing under a canopy of California bay laurel, tanoak, and madrone. *Phytophthora ramorum* symptoms include needle and twig dieback. (See photos of [infected \*Taxus brevifolia\*](#).)

References:

- Gymnosperm database: <http://www.botanik.uni-bonn.de/conifers/ta/ta/brevifolia.htm>



Reference used for all species:

- Pojar, Jim and Andy MacKinnon (eds.). 1994. Plants of the Pacific Northwest coast. Vancouver, BC: Lone Pine.