First Report on an Infestation of *Phytophthora cinnamomi* in Natural Oak Woodlands of California and its Differential Impact on Two Native Oak Species. M. Garbelotto and D. Hüberli, Department of ESPM-ES, University of California, Berkeley; and D. Shaw, University of California Cooperative Extension, San Diego. Plant Dis. 90:685, 2006; published on-line as DOI: 10.1094/PD-90-0685C. Accepted for publication 9 February 2006.

During an intense survey of natural woodlands around Lake Hodges (33°N, 117°W) in June 2001, symptoms typical of root and collar rot caused by *Phytophthora* spp. were observed on 27% of 474 coast live oaks (*Quercus agrifolia* Nee.) and on none of 86 Engelmann oaks (*Q. engelmannii* Greene), in spite of complete spatial intermixing of the two species. Symptoms on coast live oaks included viscous exudates emerging through intact bark matched by underbark dark lesions with irregular margins. Lesions were delineated by a dark line and present on the root collar or the buttress of symptomatic trees. Crowns of trees with lesions ranged from completely healthy to declining or dead. All symptomatic trees were in proximity of the lake or streams. *Phytophthora cinnamomi* Rands was isolated from four trees in three distinct sites by plating tissues from lesion margins on PARP selective medium and from four soil samples by using standard pear baiting and plating lesions from pear tissue onto PARP. Identification of the isolates was obtained from microscopic observations and direct sequencing of the internal transcribed spacer region of the rDNA (Genbank Accession Nos. AY302148, MC2 and AY302149, MC3). *P. citricola* Sawada was also isolated once. Pathogenicity tests were completed to compare the susceptibility of the two species of oaks growing in the Lake Hodges region with *P. cinnamomi*. Two *P. cinnamomi* isolates from Lake Hodges (MC2, ATCC MYA-3711; MC3) and one isolate from an avocado orchard in San Diego County (MC6) were used to inoculate separately 10 5-year-old trees each of *Q. agrifolia* and *Q. engelmannii* grown in 5-gallon containers. Inoculations were performed in two lath-house experiments during February and September 2002 by placing an 8-mm diameter V8-agar plug from the margin of a *P. cinnamomi* colony underbark and sealing the wound with Parafilm and grafting wax. Lesion lengths were measured 2 months after inoculation, and the presence of the pathogen confirmed by reisolation on PARP. Mean average, maximum, and minimum temperatures were 14, 19, and 9°C and 21, 24, and 18°C for the February and September inoculations, respectively. The February inoculation resulted in small lesions only on *Q. agrifolia* (26 ± 15 mm, SD). The September inoculation resulted in 135 ± 68 mm (SD) lesions on *Q. agrifolia* and 49 ± 35 mm (SD) lesions on *Q. engelmannii*. Controls did not show any lesions. The length of lesions was significantly different between the two hosts ($P < 0.0001$) and significant differences were observed among the three isolates ($P = 0.0018$). Although *Q. agrifolia* is a known host for *P. cinnamomi* in California (2,3), to our knowledge, this is the first report of widespread infestation of *P. cinnamomi* in natural oak woodlands in the western United States. Survey and inoculation results indicated *Q. engelmannii* to be less susceptible to infection. Inoculation results confirm previous research that cold temperatures are unfavorable to this pathogen and isolates differed in pathogenicity toward *Q. agrifolia*. Decline of oaks infected by *P. cinnamomi* was observed only in conjunction with other factors, in particular with the presence of the oak twig girdler, *Agrilus angelicus* Horn., an insect favored by stress conditions such as drought. Similar effects have been reported for Mediterranean oaks infected by the same pathogen (1).

References: (1) C. M. Brasier. Nature 360:539, 1992. (2) P. A. Miller. Western Shade Tree Conf. Proc. 8:39, 1941. (3) S. M. Mircetich et al. Plant Dis. Rep. 61:66, 1977.