

FOREST PEST CONDITIONS IN CALIFORNIA - 2003

FOREST INSECT CONDITIONS - 2003

BARK and ENGRAVER BEETLES, and BORERS

A SPRUCE ENGRAVER, *Ips tridens*

A windthrown Engelmann spruce was found heavily infested with engraver beetles in the Duck Lake Botanical Area in the Russian Wilderness on the Klamath National Forest (M261A). This *Ips* is seldom reported in California, probably because Engelmann spruce is found in only a few remote areas in the state.

CALIFORNIA FLATHEADED BORER, *Melanophila californica*

In southern California, California flatheaded borers were especially common in Jeffrey pines that were not attacked and killed by Jeffrey pine beetle. Such pines were found between Wrightwood and the Grassy Hollow Visitor Center at 6,800 to 6,900 ft elevation. Other areas with extensive mortality caused by the California flatheaded borer include Laguna Mountain, where the Jeffrey pines are infected with western dwarf mistletoe and have annosus root disease, and the San Jacinto and Santa Rosa Mountains. In the vicinity of Burro Flats (north of Barton Flats in the Santa Ana River drainage), examination of a recently killed mature Jeffrey pine revealed an active infestation of Jeffrey pine beetle larvae and recently dead, young California flathead larvae in small cambial patches at the end of the thread-like larval galleries. One hypothesis is that something associated with the bark beetle infestation—such as a yeast, fungus or other microbe introduced into the sapwood—was responsible for the flathead larval mortality. *Melanophila californica* also killed Jeffrey pines in Mil Potrero Park, Los Padres National Forest at 5,600 to 5,800 ft. Annosus root disease has previously been found in this area, and some of the affected Jeffrey pines appeared to be in root disease centers. Some of these trees were also heavily infected with dwarf mistletoe. California flathead borer was also involved in Jeffrey pine mortality at the Crystal Lake Recreation Area on the south face of the San Gabriel Mountains at 5,600 to 5,800 feet.

CEDAR BARK BEETLES, *Phloeosinus* sp.

Cedar bark beetles were found in small diameter (<4 inches dbh) incense-cedars in early summer causing branch dieback and tree mortality. Most observations were in the Moonlight Valley and Hamilton Mountain areas of the Eagle Lake Ranger District, Lassen National Forest (M261D). Cedar bark beetles were also observed in green slash this spring in the Headquarters area of Lassen Volcanic National Park (M261D).

DOUGLAS-FIR ENGRAVER, *Scolytus unispinosus*

This engraver commonly attacked and killed pole-size Douglas-firs or top-killed larger trees in Lake County and inland areas of Mendocino and Humboldt Counties. Attacks were mostly associated with trees having branch and stem cankers from *Dermea pseudotsugae* and/or *Phomopsis lokoyae*.

FIR ENGRAVER, *Scolytus ventralis*

Top-kill and whole-tree mortality of white fir were observed extensively throughout most of northeastern California. Several areas of red fir mortality were also detected. The amount of both red and white fir mortality increased from 2002 levels.

Elevated levels of white fir mortality were detected throughout the range of white fir on the Modoc National Forest with mortality being most common in areas of lower annual precipitation (M261G). Elevated white fir mortality was also detected across the Lassen National Forest. Areas of moderate to high mortality include Cone Lake to Lost Springs (off the northeast corner of Lassen Volcanic National Park) and between Philbrook Lake and Poison Springs (far south end of the Forest).

Scattered individual and small groups of white and red fir were killed by the fir engraver in Latour State Forest, Shasta County (M261D) in 2002. The amount dropped to an occasional tree killed in 2003. There was ample evidence that many trees had successfully pitched-out attacks this year. Most 2003 activity was in the pole-to-intermediate size classes. Fir engraver activity declined in the Shingletown area, Shasta County (M261D).

Elevated levels of red fir and white fir mortality were detected in several areas on the Tahoe National Forest (M261E). White fir mortality on the Truckee Ranger District was noted near Ladybug Peak (east of Stampede Reservoir) and near the Fir Crags Foot Bridge on the boundary with the Lake Tahoe Basin Management Unit. Areas of red fir mortality and top-kill were noted along Soda Springs Road (T16N, R14E, Sec 28) and along the Interstate 80 corridor between Donner Lake and Big Bend Campground on the Truckee Ranger District – also reported as Donner Summit east to the Sierra Front. White fir mortality on the Sierraville Ranger District increased substantially around Treasure Mountain and in red fir, mortality was detected on private land in Maiden Valley (T20N, R14E, S29). Areas of red fir mortality on the Downieville Ranger District include Craycroft Ridge, Gold Valley, and Saddleback Mountain.

Increasing true fir mortality and top-kill associated with the fir engraver were found in several locations in the southern part of ecoregion M261E. White fir top-kill and mortality continued to be scattered throughout the Tule River/Hot Springs and Greenhorn Districts and in the Piute Mountains, Greenhorn District, Sequoia National Forest.

Populations of the fir engraver were high in southern California. It was usually found in trees infected with true mistletoe, annosus root disease, and other insect species such as the roundheaded fir borer. Annosus root disease was found in white fir that had been attacked by the fir engraver in and around the ski areas on the north slope of Snow Summit in the San Bernardino Mountains. In other areas, mortality in white fir seemed more associated with severe sites, such as the high numbers of dead trees on the very steep south-facing slopes above the Arctic Circle, a portion of Hwy 18 just west of the Big Bear Dam. Despite these examples, white fir survived well in many areas, including the mixed conifer forests near Lake Arrowhead. Mortality was high in white fir in overstocked stands on Palomar Mountain and Hot Springs Mountain (both in San Diego County), presumably associated with the usual suite of pests that include the fir engraver.

FLATHEADED FIR BORER, *Melanophila drummondi*

The flatheaded fir borer and the Douglas-fir engraver caused mortality and top-killing of numerous Douglas-firs in the Trinity and Klamath River drainages. Mortality was most apparent from Big Flat to Willow Creek on the Trinity River and from Horse Creek to Weitchpec on the Klamath River (M261A). Most of the mortality was on shallow soils or talus slopes.

JEFFREY PINE BEETLE, *Dendroctonus jeffreyi*

Jeffrey pine beetle activity and related mortality continued near 2002 levels. Scattered large tree mortality could be found throughout northeastern California as well as a few groups of smaller diameter trees.

Jeffrey pine mortality was detected in a few areas on the Lassen National Forest (M216G). Mortality ranging from low to high was detected throughout the northeast portion of the Forest. Areas of note include east of Ashurst Lake, north of Mosquito Flat, west of Lava Peak and the area around Signal Mountain Reservoir.

Two areas of Jeffrey pine mortality on the Sierraville Ranger District, Tahoe National Forest include: 1) along Davies Creek (County Road 450) — about 4 miles east of the Upper Little Truckee Ski area off of State Hwy 89 between Sierraville and Truckee and 2) about 2 miles north of Calpine on the east side of State Hwy 89 (M261E). Jeffrey pine mortality was also detected in an area adjacent to the Calpine site, but on the Beckwourth Ranger District, Plumas National Forest, just west of McNair Meadow on the west side of State Hwy 89 (M261E).

Mortality associated with the Jeffrey pine beetle was generally down throughout the M261E region in 2003. Scattered mortality to older Jeffrey pine occurred in the vicinity of Clarks Fork east to Kennedy Meadows, Summit Ranger District, Stanislaus National Forest.

Populations of Jeffrey pine beetle were high in the San Bernardino Mountains. Of some interest was the presence of mature Jeffrey pines killed by Ips and/or California flatheaded borer in areas where Jeffrey pine beetle populations were high, suggesting that populations of this beetle were not adequate to respond to the available habitat.

Mortality in Jeffrey pine was associated with other agents in limited observations around Wrightwood in May. The nearest pine killed by the Jeffrey pine beetle was found at the Grassy Hollow Visitor Center (7,200 ft), approx 3.5 miles from Wrightwood (6,000 ft). Jeffrey pine beetles were also found killing Jeffrey pines in the Crystal Lake Recreation Area (5,700 ft).

MONTEREY PINE IPS, *Ips mexicanus*

About a dozen Bishop pines were killed on the bluffs north of the Navarro River in Mendocino County. This pine engraver was also found with red turpentine beetle attacking older knobcone pine near Mount Shasta Ski Park at McCloud.

MOUNTAIN PINE BEETLE, *Dendroctonus ponderosae*

Current as well as older lodgepole pine mortality was apparent near Martins Dairy on the Goosenest Ranger District in Siskiyou County (M261D) and an infestation of mountain pine beetle in whitebark pine continued on Goosenest Mountain (261D). Scattered groups of western white and sugar pines were killed by the mountain pine beetle in Latour State Forest, Shasta County (M261D). However, the amount was down from 2002. Most of the trees were in the pole and intermediate size classes.

Mountain pine beetle activity was elevated this year compared with several past years in northeastern California. Most mortality associated with mountain pine beetle attacks was found in sugar pine although high levels of lodgepole pine mortality were also detected in some areas. In many areas the attacked sugar pine trees are under additional stress due to white pine blister rust infection and moisture stress.

A few areas of high mortality in ponderosa pine were detected on the Modoc National Forest, mainly on the Warner Mountain Ranger District. Areas include along Highrack Creek just west of Eagleville, in Badger Canyon (T47N, R15E, Sec 4,5) and from the Buck Creek Forest Service Facility south to Blue Springs (M261G). Moderate levels of pine mortality were also detected throughout most of the Big

Valley Ranger District and within the north and southwest portions of the Devils Garden Ranger District (M261G).

Several areas of concentrated sugar pine mortality were detected on the Downieville Ranger District, Tahoe National Forest (M261E). Areas to note include Palmer Ridge (between America Hill and the Middle Yuba River); the area known as The Cups, just north of Loganville Campground along State Highway 49, east of Downieville; and between Red Oak Canyon and Craycroft Ridge (T21N, R11E, Sec 30). High levels of mortality occurred just southwest of Saddleback Mountain (T20N, R10E, Sec 5,6).

On the Nevada City Ranger District (M261E), Tahoe National Forest, two areas of low to moderate sugar pine mortality were detected between Monumental Ridge and Quartz Mountain (T16N, R12E, Sec 1,11,12,14). Low levels of sugar mortality were also noted in the Sugar Pine Point Research Natural Area. Further south on the Foresthill Ranger District, sugar pine mortality occurred around French Meadows Reservoir and along the Mumford Bar Trail between Foresthill Road and Mumford Bar (M261E).

There are several areas on the Tahoe National Forest where some level of lodgepole pine mortality is always detected. These are typically monoculture stands that are characterized by trees over 80 years of age and >8" dbh. Scattered individual lodgepole pine mortality was noted along the Little Truckee River between Sierraville and Truckee (M261E). Mortality of lodgepole pine was also detected along Interstate 80 between Donner Lake and Cisco Grove. Although abundant, most of this mortality occurs as individual trees as opposed to group kills. Many of the trees along this stretch of highway have very unhealthy looking crowns so additional mortality is expected in the future (M261E). One notable area of lodgepole pine mortality was also detected on the Lassen National Forest at the Crater Lake campground (M261D).

Mortality associated with the mountain pine beetle increased somewhat in areas of the central and southern M261E ecoregion. Increased mountain pine beetle mortality occurred in sugar pine in the following: Blue Canyon area, High Sierra District and on the South Fork Bluffs southeast of Bass Lake, Bass Lake District, Sierra National Forest; along the west shore of Lake Tahoe between Sugar Pine Point and Emerald Bay, Lake Tahoe Basin Management Unit; and scattered throughout the Greenhorn Mountains north to Ponderosa, Tule River and Hot Springs Districts, Sequoia National Forest. Mountain pine beetle activity in lodgepole pine occurred in various developed sites in the Rock Creek Drainage, White Mountain District, Inyo National Forest.

Populations were high in the San Bernardino and San Jacinto Mountains, where this species was observed attacking ponderosa, sugar, and even singleleaf pinyon pines. Fresh attacks were seen at the end of May at the Forest Service Ranger Station at Skyforest. In 2003 this insect was second only to the western pine beetle in the numbers of trees attacked and killed. The mountain pine beetle also killed sugar pine at the Crystal Lake Recreation Area in the San Gabriel Mountains.

Fire damage and mountain pine beetle

Mountain pine beetle attacks were commonly found in sugar pine located in recent wildfire areas. The 2001 Star Fire on Foresthill Ranger District, Tahoe National Forest (M261E), had a large number of dead and dying sugar pine from fire injuries and bark beetle attacks. Continued sugar pine mortality was also noted from an older fire area just west of Granite Mountain, Downieville Ranger District, Tahoe National Forest.

PINE ENGRAVER BEETLES, *Ips* spp.

Pine engraver mortality was nearly undetectable in northeastern California in 2003. One exception was in an area one to two miles east of Susanville where scattered top-kill in ponderosa and Jeffrey pine caused by *Ips pini* was evident at low levels. *I. pini* also was found infesting windthrown ponderosa and lodgepole pines on the Eagle Lake District, Lassen National Forest.

The California fivespined engraver, the pinyon ips, the pine engraver and other *Ips* species were epidemic in the San Bernardino Mountains and the Peninsular Ranges. Mortality in *P. californiarum* attacked by *I. confusus* exceeded 80% in some areas of the Santa Rosa Mountains. Mortality in singleleaf pinyon associated with the pinyon ips occurred in many parts of host's range along the north slopes of the Transverse Ranges. Near Lake Baldwin in the San Bernardino Mountains, black stain root disease was associated with dramatically higher mortality than that of 2002, which was considered normal. In other species of pine, pine engravers generally attacked smaller diameter trees, tops, and large branches. However, various pine engravers, often in conjunction with the California flatheaded borer, often attacked and killed mature Jeffrey pines. These *Ips* also were involved in high, drought-related mortality in various pine plantations in the San Gabriel Mountains, such as at Chilao. Monterey-knobcone hybrid pines were killed in Applewhite Campground, Lytle Creek, by the California fivespined engraver.

RED TURPENTINE BEETLE, *Dendroctonus valens*

The red turpentine beetle was reported from two areas in Siskiyou County. Mortality of pole-size ponderosa pine reoccurred in the Ponderosa Burn plantation, but at a lower level than in the previous three years. Thinning operations, which contributed to the build-up of the beetle in fresh stumps, have nearly come to an end. Red turpentine beetle and the Monterey pine ips were found attacking older knobcone pine near the Mount Shasta Ski Park at McCloud (M261D).

Activity of red turpentine beetle was found in association with other bark beetles and/or with fire-injured trees throughout northeastern California. Areas with elevated rates of red turpentine beetle attack were in the Swain's Hole underburn and in the Cone Fire, Eagle Lake Ranger District, Lassen National Forest (M261D).

The red turpentine beetle, often in association with other bark beetle species, attacked Jeffrey and ponderosa pines on rocky, south-facing slopes along the I-80 corridor from Blue Canyon east to the Sierra Front (M261E).

Light to moderate levels of red turpentine beetle activity occurred in the southern part of M261E on trees injured to varying degrees by wildfire and prescribed burns. Low levels of red turpentine beetle activity also continued in the Diamond-O Campground, Groveland District, Stanislaus National. The red turpentine beetles were abundant in many parts of southern California, particularly where the trees were drought stressed. At the Bear Mountain Ski Area in Big Bear, property managers extricated the beetles manually in an attempt to protect old growth Jeffrey pines growing in a parking lot.

WESTERN PINE BEETLE, *Dendroctonus brevicomis*

Both as individual trees and small spots, ponderosa pine mortality caused by western pine beetle has increased in northwestern California. Although precipitation was favorable during the winter of 2002-2003, it was obvious that trees were still under drought stress. Some of the more conspicuous concentrations of mortality were on the McCloud Flats, Shasta-Trinity National Forest (M261D), and the north end of the middle Eel-Yolla Bolla Widlerness (M261A). Small mortality groups of ponderosa pine were also found upslope of Hwy 36 from Platina west to the Trinity National Forest boundary,

Shasta County (M261A). The mortality is occurring in a transitional zone between mixed conifer forest and areas of chaparral and gray pine.

An outbreak of western pine beetle in fire-damaged ponderosa pine was inspected in late fall of 2002 in the Doggett Creek area, Siskiyou County (M261A). Trees were damaged in July of 2000 during the Bark Fire. Trees under current western pine beetle attack had little or no crown damage from the fire, but did have moderate to severe cambial damage (25-30% girdling). Many of the cambial-damaged trees were killed by western pine beetle in 2002, but other trees had green crowns and were infested or were expected to be infested by western pine beetle in 2003. Tree mortality is ongoing. No beetle activity was found in adjacent, unburned areas.

Scattered individual ponderosa pines and small groups of trees were killed by the western pine beetle in the Shingletown area, Shasta County (M261D) and at various locations in Butte County (M261D,E,F). Mortality began in 2001 and apparently is drought-related. Although precipitation was above normal this past winter and spring, elevated beetle populations emerged in the spring and resulted in continued mortality. If precipitation remains above normal, beetle populations and tree mortality are expected to return to endemic levels.

Several areas of ponderosa pine mortality were recorded for the Lassen National Forest (M261D,E,G). Low levels of western pine beetle caused mortality were noted near the Swain's Hole Reservoir area and along the Hwy 44 corridor near Poison Lake. Areas of medium to high levels of mortality were noted just south of Pegleg Mountain, along Butt Creek (T27N, R6E, Sec 19,30), along Deer Creek on Hwy 32 between Potato Patch Campground and FS Rd 27N28, and south of Hole in the Ground Campground near Mill Creek. A few areas that encompassed high levels of mortality over 1,000 acres included the area south of Lassen Volcanic National Park between Feather River Meadows north to Blue Lake and west to Patricia Lake, near Huckleberry Mountain (just east of Latour State Forest), between Duden Butte and Dutch Flat (just north of the Hat Creek Work Center) and around Negro Camp Mountain on County Road 111 (north of Jelly Camp Campground).

Low levels of mortality caused by western pine beetle were detected in ponderosa pine on the Foresthill Ranger District, Tahoe National Forest (M261E). Mortality occurred in the recreational area east of Sugar Pine Reservoir between Shirttail Creek and Morning Star Campgrounds and a large area of low mortality was noted along Tadpole Creek (north of Skunk Springs off of Foresthill Road).

Western pine beetle activity continued in the southern Sierra Nevada (M261E) in 2003 with much of the activity occurring in scattered, small mortality groups. Continued activity was evident in the vicinity of Bass Lake, on the east side of Goat Mountain and in the Miami Creek Basin on the Bass Lake District, Sierra National Forest and on Breckenridge Mountain, Greenhorn District, Sequoia National Forest. Mortality caused by the western pine beetle also occurred in the Wawona area of Yosemite National Park.

Populations were at epidemic levels in the San Bernardino and San Jacinto Mountains, and in the mountains of San Diego County (Figs. 1, 2) The mortality acreage in the former two mountain ranges rose from about 6,000 acres in 2001 to nearly 500,000 acres in 2003. Mortality of pines in some areas, such as the mixed stands of black oak and Coulter and ponderosa pines adjacent to communities on the north shore of Lake Arrowhead, exceeded 90 percent. "Dry hits" – attacks where no resin is extruded – were observed in May in Skyforest, a symptom of how drought stressed the trees still were after a winter of average precipitation. The western pine beetle also decimated Coulter and ponderosa pines at Charlton Flat in the San Gabriel Mountains, where populations of western pine beetle and pine



Figure 1. Pine mortality at Lake Arrowhead, San Bernardino Mountains, Southern California.



Figure 2. Pine mortality on the San Bernardino National Forest adjacent to the Lake Arrowhead north shore community, May 2003.

engravers were so high in August that visitors had to brush frass off the picnic tables. The nearby War Memorial Plantation had been thinned a few years previously and mortality there was low. Western pine beetle also killed Coulter pines at Chilao (San Gabriel Mountains) and on Palomar Mountain, Hot Springs Mountain, and Laguna Mountain in San Diego County.

WESTERN OAK BARK BEETLE, *Pseudopityophthorus pubipennis*

Many tanoaks dying from *Armillaria* root disease were attacked by this beetle in scattered areas of Mendocino County. The root-diseased trees were often on downhill sides of rural roads where cast road berms covered the root zones.

WOOD BORERS, *Semanotus* sp.

Semanotus sp. continued attacking juniper along Hwy 395 south of Red Rock Road in 2003. Attacks resulted in mostly top kills or large branch kills (341D).

DEFOLIATORS

CALIFORNIA BUDWORM, *Choristoneura carnana californica*

Defoliation of Douglas-fir was extremely difficult to find on the east side of Trinity Lake (M261A), an area where populations have been highly variable over the past 20 years.

CALIFORNIA OAKWORM, *Phryganidia californica*

Individual coast live oak sustained defoliation in several areas of Monterey and Santa Cruz Counties. Defoliation was also observed in parts of San Luis Obispo County – Nipomo, Los Osos, Cambria (combined estimate of 500 coast live oaks) and around Lake Nacimiento (about 500 coast live and blue oaks). Tanoak defoliation in Mendocino County was observed in several dozen trees in the Smithe Grove near Piercy and on about 6 acres near Comptche.

DOUGLAS-FIR TUSSOCK MOTH, *Orgyia pseudotsugata*

Average trap catches for 2003 showed increases in many plots compared to 2002 catches (see Surveys and Evaluations). Data were collected for 163 plots (5 traps/plot) during 2003. There were 106 (65%) plots with an average of <25 males per trap and 57 plots (35%) that averaged 25 or more moths per trap. In 2002, only 4 % of the plots averaged >25 males moths per trap. Plots that averaged >25 moths per

trap for 2003 were located on the following Ranger Districts: Amador, Placerville, and Pacific (Eldorado NF), Hat Creek (Lassen NF), Beckwourth and Mt. Hough (Plumas) Greenhorn and Tule River (Sequoia NF), Bass Lake (Sierra NF), Calaveras, Miwok and Summit (Stanislaus NF) and Downieville, Foresthill and Nevada City (Tahoe NF). In addition to these plots monitored on National Forest lands, there were three plots that exceeded 25 moths/trap on lands of other ownerships. One plot was located in Yosemite National Park, 1 on Bureau of Land Management land near Widow Mountain, west of Bieber in Lassen County, and 1 plot monitored by the California Department of Forestry near Hilton, Modoc County.

Catches of male moths increased for all plots on private land in Lassen, Modoc, and Shasta Counties. It was the third highest catch for this set of plots in the past 16 years. A plot in the CalPines subdivision, Modoc County (M261G) had an average catch of 31 moths per monitoring trap. Thus, monitoring on both private and public lands indicate a potential surge in activity by the Douglas-fir tussock moth in 2004.

FALL WEBWORM, *Hyphantria cunea*

Defoliation of madrones by the fall webworm was not noticeable in the Klamath and Trinity River drainages (M261A) in 2003. Most madrones have responded to the abundant precipitation from the previous winter and appear very healthy. However, there are madrones dying from a combination of insect and fungal leaf spot defoliation, a canker disease and the effects of recent drought.

Conversely, defoliation of madrone by the fall webworm was reported to have increased at various locations on the Foresthill Divide, Placer County (M261E). Defoliation was particularly noticeable in the vicinities of Michigan Bluff and Sugar Pine Reservoir. To the south across the Middle Fork of the American River, scattered light to moderate defoliation of madrone was present in localized areas along the Georgetown Divide in Eldorado County (M261E).

FRUITTREE LEAFROLLER, *Archypis argyrospila*

Defoliation by *Archypis argyrospila* continued for what may be an unprecedented fifth year in the San Bernardino Mountains. Defoliation was heavy in the same areas infested for the past four years (25,000 to 30,000 total acres).

GYPSY MOTH, *Lymantria dispar*

The California Department of Food and Agriculture (CDFA) trapped six male moths as of August 20, 2003 – by county: Los Angeles 2, Riverside 1, San Bernardino 1, San Mateo 1, Santa Cruz 1. This is three more than captured in 2002.

The first capture of an Asian gypsy moth in California occurred in Los Angeles on July 9, 2003 at a site along South Avalon Boulevard. This area is considered a high risk area for introduction of Asian gypsy moth and the GM/Delta trap density in the area was at 10 traps per square mile. The CDFA has increased the trap density to 25 traps per square mile in a nine square mile area around the find (California Department of Food and Agriculture. 2003. Detection Advisory PD23-03, July 24, 1 p.)

LODGEPOLE PINE NEEDLEMINDER, *Coleotechnites milleri*

The lodgepole needleminder outbreak in Yosemite National Park that started with the 1992-94 generation continued at moderate to high levels in 2003 (M261E). Aerial survey delimited 32,000 acres of defoliation. High levels of defoliation with a relatively low rate of tree mortality occurred throughout previously infested areas. The outbreak extended somewhat in the southern part of the infestation area southwest into the Sunrise and Echo Creek drainages of the upper Merced River watershed. Moderate

tree mortality continued in and around the Sunrise High Sierra Camp following continued heavy defoliation.

PANDORA MOTH, *Coloradia pandora*

The pandora moth outbreak, first detected in June 2002, continued on the Mammoth and Mono Lake Districts, Inyo National Forest (M261E). Adult flight and egg deposition were observed from late-June to mid-August. Early stage larvae and light feeding injury/defoliation on Jeffrey and lodgepole pines were observed over about 40,000 acres. Locations involved include the Crestview Roadside Rest area, an area west of Hwy 395 between the Mammoth Scenic Loop Road north to the Obsidian Dome and Hartley Springs area, south and east of Lookout Mountain, south and east of Dry Creek, and east of Hwy 395 from Wilson Butte around the Bald Mountain Road toward the Indiana Summit Research Natural Area. Moderate to heavy defoliation is expected in the spring and early summer of 2004. Pandora moth outbreaks usually last for three to four generations and pandora moth activity is anticipated at least through 2006-2007.

PINE SAWFLY, *Neodiprion fulviceps*

Defoliation was not readily apparent in a large area of ponderosa pine defoliated for the past several consecutive years near the Military Pass Road on the Shasta-Trinity National Forest (M261A).



Figure 3. *Neodiprion* sp. on knobcone pine at the edge of the Red Butte Wilderness, Klamath National Forest.

PINE SAWFLY, *Neodiprion* sp.

Stands of knobcone pine that ranged up to a section in size were defoliated in 2002 and 2003 by a sawfly in the upper drainage of Seiad Creek on the Klamath National Forest (M261A).

SAWFLY, species unknown

An unknown species of sawfly defoliated small patches of mountain alder in a few eastside riparian areas on the Eagle Lake District, Lassen National Forest.

WHITE FIR SAWFLY, *Neodiprion abietis*

White fir defoliation was not visible along the Pomeroy Road in the vicinity of Deer Mountain., Goosenest District, Klamath National Forest (M261D). The infestation that was present for several years appears to have collapsed.

OTHER INSECTS

AFRICANIZED HONEY BEE, *Apis mellifera scutellata*

The Africanized honey bee was found for the first time near Hanford and Corcoran, CA. The area now considered within the range of the bee is 62,220 square miles. Kings, Tulare and Inyo are now the northern most counties infested.

ALDER FLEA BEETLE, *Altica ambiens*

Several alders along Gold Run Creek and the East Fork of the Susan River were skeletonized by alder flea beetle larvae. Both areas are in the vicinity of Susanville.

CONEWORM, *Dioryctria* sp.

Tip dieback of lower branches was observed in white fir plantations in Placer County and in true fir Christmas tree plantations in El Dorado County. The white fir plantation had been a former Christmas tree plantation that had been abandoned. Coneworm damage was not observed in nearby true fir stands. Damage was minimal with only a loss of some branch growth.

COOLEY SPRUCE GALL APHID, *Adelges cooleyi*

Galls were visible on Brewers spruce near Paynes Lake and Little Duck Lake in the Russian Wilderness on the Klamath National Forest (M261A).

DOUGLAS-FIR TWIG WEEVIL, *Cylindrocopturus furnissi*

Scattered Douglas-fir twig mortality was noted on several pole-size trees near Garberville, Humboldt County.



Figure 4. Elm leaf beetle on elms at Fruit Growers Park, Susanville, CA.

ELM LEAF BEETLE, *Pyrrhalta luteola*

Larvae skeletonized the leaves on several elms in Susanville (Fig. 4). The leaves on several of the trees around town have dried, turned brown, and prematurely dropped.

GOUTY PITCH MIDGE, *Cecidomyia piniinopsis*

The gouty pitch midge infested branch tips on many ponderosa pines in a plantation near the Shasta Forest subdivision northeast of McCloud (M261D).

HACKBERRY WOOLY ADELGID, *Shivaphis celti*

Normally found in the Central Valley, this pest was noted on common hackberry in Santa Rosa.

HONEY LOCUST POD GALL MIDGE, *Dasineura gleditchae*

Dieback of honey locust was noted in Sonoma County.

LEAF BEETLES, *Chrysomela* sp.

Hybrid poplars in a dry landscape setting within the Susanville Indian Rancheria sustained foliage damage in early summer from an unknown species of leaf beetle (*Chrysomela* sp.)



Figure 5. Maple leaf scorch in the Feather River Canyon, 2003.

MAPLE LEAFHOPPER SCORCH, unknown leafhopper(s)

Studies have shown a high correlation between leafhopper populations and scorch symptoms (Fig. 5), and these symptoms were present in many river and creek drainages in Shasta, Siskiyou, and Trinity Counties (M261A). The area from Dinsmores to Carlotta on the Van Duzen River and from Rio Dell to Leggett on the Eel River also had conspicuous symptoms (M261B). In the northern Sierra Nevada (M261E), Indian Creek, Meadow Valley, the Feather

River Canyon in Plumas County, and the North Yuba River in Sierra County had high levels of maple leaf scorch again this year. Leaf scorch was also detected in the Deer Creek area along Hwy 32.

Several years of leaf scorch appear to be contributing to branch kill and maple mortality in some areas of northern California. However, this “scorch” looks different on these bigleaf maples; there is a black zone line that outlines the shape of the leaf about 0.25 inch in from the leaf edge. These trees have the same symptoms year after year, and the cause probably is an agent other than leafhoppers.

NEEDLEMINERS, *Coleotechnites* sp.

Low numbers of pine needles with evidence of needle miner infestation were found on recently dead *P. californiarum* along the Cactus Spring Trail between Horsethief Canyon and Cactus Springs in the Santa Rosa Mountains. In 1974, a *Coleotechnites* sp. was reported mining pinyon needles on Santa Rosa Mountain.

PINE NEEDLE SCALE, *Chionaspis pinifoliae*

A minor infestation was noted on a redwood in Redwood Valley in Mendocino County.

PIÑON NEEDLE SCALE, *Matsucoccus acalyptus*

The outbreak of the piñon needle scale in the Cuddy and Lockwood Valleys on the Los Padres National Forest continued in the same areas reported in 2002. Pinyons were examined at Ozena Fire Station, where the needle scale was found in a past outbreak, but no scales were found on the trees examined. If the scale is present there numbers are very low. During the last week in May, 2003, large numbers of predatory coccinellids were observed flying through the area of the outbreak. They appeared to be feeding on the scales, though direct capture and consumption of prey was not observed.

PITCH NODULE MOTH, *Petrova* sp.

A pitch nodule moth, possibly *Petrova monophylliana*, was found in singleleaf pinyons near Onyx Peak in the San Bernardino Mountains.

RED GUM LERP PSYLLID, *Glycaspis brimblecombei*

Declining red gums were found along the Hwy 101 corridor from Ventura County north through San Luis Obispo County, and widespread mortality was observed in areas of Sonoma County.

SPIDER MITE, *Oligonychus subnudus*

In 2002 feeding by this spider mite caused injury to 2-0 ponderosa pine seedlings at the Forest Service Placerville Nursery. The feeding injury caused extensive foliage discoloration in a substantial number of seedlings. Some of these seedlings were planted on the Modoc and Mendocino National Forests in the spring of 2003. A sample of these were marked and measured in September. These will be examined over the next several years for survival and growth.

SEQUOIA PITCH MOTH, *Vespa mima sequoiae*

Pitch moths are becoming an increasing problem on planted Monterey pine in the Sacramento Valley. The landscape trees are mostly older and lacking vigor. Pitch moths were also observed in permanent plots for monitoring pitch canker in coastal counties.

SPRUCE APHID, *Elatobium abietinum*

Sitka spruce continues to show thinned crowns from repeated feeding by this aphid in north coastal Humboldt County.

WESTERN PINESHOOT BORER, *Eucosma sonomana*

The western pineshoot borer continues to damage plantation ponderosa pine near Potosi, Siskiyou and Shasta Counties (M261D) and north of Lookout, Modoc County (M261G). Damage in the form of stunted terminals varies widely across plantations, but exceeds 50% in some areas. Shoot damage is also beginning to appear in plantation ponderosa pine at the southern edge of the Fountain Fire in the upper reaches of Montgomery Creek, Shasta County.

WOOLLY OAK APHID, *Stegophylla quercicola*

An outbreak of woolly oak aphid occurred on a California black oak in August in the community of Running Springs, San Bernardino Mountains. A pest control operator had sprayed the foliage of the tree during the summer to protect it from the fruittree leafroller. The aphids were living in galls and freely on the leaf, and were confined to the sprayed tree, suggesting that the pesticide application had caused the outbreak. Other trees in the neighborhood – which had presumably not been treated – had neither the aphids nor fruittree leafrollers. This example illustrates the benefit of monitoring for the presence of a pest prior to treating for it, and of using more specific pesticides, such as those containing *Bacillus thuringiensis*.



Figure 6. Black oak leaf with woolly oak aphid.