# **AERIAL DETECTION SURVEY: 2022 SUMMARY REPORT**

Report Date

Flight Dates

Area Flown

Acres Surveyed

than mortality

Acres with Mortality

Acres with tree damage other

Primary agents of non-mortality

tree damage (does not include

bears, fire, herbicide damage)

Estimated number of dead trees

**Summary for 2022 Season Aerial Detection Survey** 

December 2022

39.6 million

2.6 million

36.3 million

25,000

July 18th to Oct 7th

California, state-wide

drought, Douglas-fir

canker, needleminers

tussock moth, Cytospora

Information below is based on data recorded and shared by the USDA Forest Service, R5 State & Private Forestry, Aerial Detection Survey (ADS) program.

Surveys are conducted to provide annual estimates of tree mortality and damage and depict broad mortality trends. Most of California's forested areas were surveyed in 2022.

#### Highlights from this year's survey

- Total tree mortality increased significantly both in acres affected and particularly in estimated trees killed from 2021.
   Average severity of mortality was also significantly higher.
- Mortality consisted primarily of true fir which comprised over 77% of the total and was the largest tally ever recorded by R5 ADS. Mortality was particularly severe and widespread in the central Sierra Nevada Range.
- Mortality was particularly severe and widespread in the north interior in several conifer species where drought conditions were most exceptional.
- Mortality attributed to mountain pine beetle (*Dendroctonus ponderosae*) remained steady with an estimated 380,000 dead trees across 44,000 acres in 2021 to approximately 390,000 dead trees across 40,000 acres in 2022. Within this group, whitebark pine accounted for most of the mortality occurring throughout its range.
- Douglas-fir mortality (not attributed to damage by bears) increased most dramatically. However, mortality in 2021 was relatively
  small. 2022 Mortality was common throughout the host range but was particularly concentrated north and west of the Redding
  area.
- Pinyon pine mortality attributed to *Ips* sp. increased from an estimated 60,000 dead trees across 8,400 acres in 2021 to ~220,000 dead trees across 16,000 acres in 2022 mostly in the White Mountains of far eastern CA.
- Incense cedar mortality was quite common and is underrepresented by aerial survey based on field reports as these trees were typically smaller size class and thus hard to see from a distance.
- Tanoak mortality attributed to sudden oak death (*Phytophthora ramorum*) decreased substantially since dry spring weather inhibits the spread of this invasive disease.
- Oak mortality attributed to goldspotted oak borer (*Agrilus auroguttatus*) decreased significantly and was again concentrated primarily in and around the Palomar Ranger District, Cleveland National Forest in San Diego County.
- Oak discoloration, early leaf-drop, possible dieback and mortality was common throughout interior areas of the state. Actual mortality is difficult to detect from a distance, but significant oak mortality is possible over large areas.

| Tree Species   |           | 2022                          |         | 2021                          | ]     | Percent Change                |
|----------------|-----------|-------------------------------|---------|-------------------------------|-------|-------------------------------|
| (Groups)       | Acres     | <b>Estimated Trees Killed</b> | Acres   | <b>Estimated Trees Killed</b> | Acres | <b>Estimated Trees Killed</b> |
| Red Fir        | 890,000   | 15,200,000                    | 490,000 | 4,500,000                     | 80%   | 242%                          |
| White Fir      | 1,500,000 | 12,800,000                    | 290,000 | 1,600,000                     | 266%  | 691%                          |
| Yellow Pines   | 340,000   | 3,800,000                     | 330,000 | 2,200,000                     | 4%    | 73%                           |
| 5 Needle Pines | 26,000    | 310,000                       | 32,000  | 280,000                       | -18%  | 11%                           |
| Douglas-Fir    | 190,000   | 3,000,000                     | 18,000  | 170,000                       | 973%  | 1650%                         |
| Other Pines    | 39,000    | 570,000                       | 34,000  | 320,000                       | 15%   | 79%                           |
| Other Conifer  | 3,300     | 18,000                        | 1,000   | 11,000                        | 231%  | 74%                           |
| Oaks           | 16,000    | 110,000                       | 26,000  | 160,000                       | -39%  | -31%                          |

Online resources:

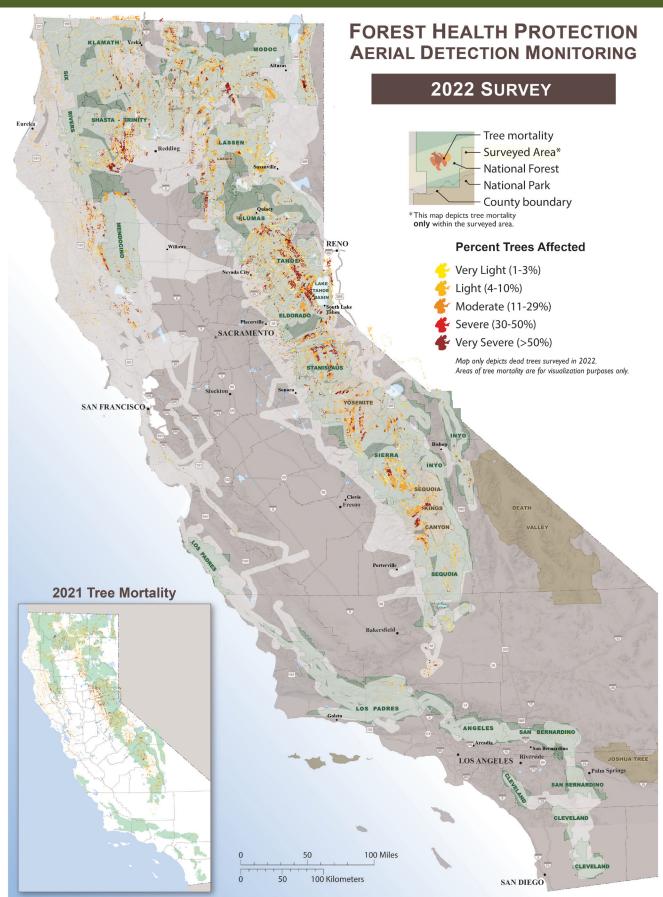
Pacific Southwest Aerial Detection Program

https://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3 046696

Scan QR code to visit the program web page for reports, maps, and more information about the Aerial Detection Survey program.









## **RESULTS BY COUNTY – 2022**

| Alameda         2         86           Alpine         62,000         1,20,000           Amador         20,000         310,000           Butte         15,000         160,000           Calaveras         28,000         390,000           Colusa         5,400         68,000           Contra Costa         20         120           Del Norte         19,000         130,000           El Dorado         78,000         1,400,000           Fresno         200,000         1,900,000           Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Lassen         120,000         840,000           Lassen         120,000         9,200           Madra         44,000         580,000           Marin         160         1,400           Marin         160         1,400           Marine         160         1,400           Marin <th< th=""><th>County</th><th>Estimated Number of Acres with Mortality</th><th>Estimated Number of<br/>Dead Trees</th></th<>   | County         | Estimated Number of Acres with Mortality | Estimated Number of<br>Dead Trees |
|---|----------------|--|-----------------------------------|
| Amador         20,000         310,000           Bute         15,000         160,000           Calaveras         28,000         39,000           Colusa         5,400         68,000           Contra Costa         20         120           Del Norte         19,000         130,000           El Dorado         78,000         1,400,000           Glenn         2,000         28,000           Humboldt         46,000         28,000           Humboldt         46,000         28,000           Kern         32,000         270,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Mariposa         60,000         970,000           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           More         170,000         2,400,000           Mone         31,000         9,000           Mone         31,000         9,000           <   | Alameda        | 2  | 86                                |
| Butte         15,000         160,000           Calaveras         28,000         390,000           Colusa         5,400         68,000           Contra Costa         20         120           Del Norte         19,000         130,000           El Dorado         78,000         1,400,000           Fresno         200,000         28,000           Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lase         31,000         590,000           Lase         31,000         590,000           Lasen         120,000         840,000           Los Angeles         1,000         9,200           Madcra         44,000         580,000           Marin         160         1,400           Marinosa         60,000         970,000           Mendocino         98,000         1,300,000           Mondoc         170,000         3,000,000           Mondoc         31,000         300,000           Mondoc         31,000         300,000  | Alpine         | 62,000                                   | 1,200,000                         |
| Calaveras         28,000         390,000           Colusa         5,400         68,000           Contra Costa         20         120           Del Norte         19,000         130,000           El Dorado         78,000         1,400,000           Fresno         200,000         1,900,000           Glenn         2,000         28,000           Humboltd         46,000         250,000           Image of the contraction | Amador         | 20,000                                   | 310,000                           |
| Colusa         5,400         68,000           Contra Costa         20         120           Del Norte         19,000         130,000           El Dorado         78,000         1,400,000           Fresno         200,000         1,900,000           Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         84,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mendocino         98,000         1,300,000           Mendocino         98,000         1,300,000           Mendocino         31,000         9,700,000           Monterey         650         6,300           Monterey         650         6,300           Nevada         79,000         1,400,000           Orange         13         100           Plumas         9,000         1,400,000 <th< td=""><td>Butte</td><td>15,000</td><td>160,000</td></th<>  | Butte          | 15,000                                   | 160,000                           |
| Contra Costa         20         120           Del Norte         19,000         130,000           El Dorado         78,000         1,400,000           Fresno         20,000         28,000           Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Marinposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Monerey         650         6,300           Monerey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Plumas         97,000         1,300,000           Riverside </td <td>Calaveras</td> <td>28,000</td> <td>390,000</td>  | Calaveras      | 28,000                                   | 390,000                           |
| Del Norte         19,000         130,000           El Dorado         78,000         1,400,000           Fresno         20,000         1,900,000           Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Mono         31,000         2,400,000           Mono         31,000         2,400,000           Mono         31,000         30,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Plumas         97,000         1,300,000           Riversi   | Colusa         | 5,400                                    | 68,000                            |
| El Dorado         78,000         1,400,000           Fresno         200,000         1,900,000           Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kem         32,000         270,000           Lake         31,000         590,000           Lasen         120,000         840,000           Lassen         120,000         840,000           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Riverside         1,000         1,900           San Benito         61         61           San Benito <td>Contra Costa</td> <td>20</td> <td>120</td>   | Contra Costa   | 20                                       | 120                               |
| Fresno         200,000         1,900,000           Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Mono         31,000         300,000           Monterey         650         6,300           Mapa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plums         97,000         1,300,000           Riverside         1,00         1,900           San Benito         61         61           San Benito         61         61           San Benito   | Del Norte      | 19,000                                   | 130,000                           |
| Glenn         2,000         28,000           Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Mono         31,000         300,000           Monerey         650         6,300           Morrey         650         6,300           Nevada         79,000         1,40,000           Orange         3         100           Placer         140,000         3,000,000           Plums         97,000         1,300,000           Riverside         1,000         1,300,000           San Benito         61         61           San Benito         61         61           San Benito         1         2           San Diego         1,8  | El Dorado      | 78,000                                   | 1,400,000                         |
| Humboldt         46,000         250,000           Inyo         17,000         300,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mone         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Plumas         97,000         1,300,000           Plumas         97,000         1,900           San Benito         61         61           San Benito         61         61           San Diego         1,800         9,400           San Luis Obispo         1         2           San Luis Obispo   | Fresno         | 200,000                                  | 1,900,000                         |
| Inyo         17,000         30,000           Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Nevada         79,000         1,400,000           Orange         3         100           Plums         97,000         1,400,000           Orange         140,000         3,000,000           Plums         97,000         1,300,000           San Benito         61         61           San Benito         61         61           San Benito         61         61           San Diego         1,800         9,400           San Luis Obispo         1         2           San Luis Obispo  | Glenn          | 2,000                                    | 28,000                            |
| Kern         32,000         270,000           Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monetery         650         6,300           Napa         2,600         47,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Benito         61         61           San Francisco         1         2           San Francisco         1         2           San Fusio Obispo         110         2,300           San Luis Obispo         110         2,300           San Mateo   | Humboldt       | 46,000                                   | 250,000                           |
| Lake         31,000         590,000           Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Nevada         79,000         1,400,000           Orange         3         100           Plucer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Errancisco         1         2           San Mateo         2,700         19,000           Santa Barbara         300         2,100           San   | Inyo           | 17,000                                   | 300,000                           |
| Lassen         120,000         840,000           Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoe         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Plucer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Deigo         1,800         9,400           San Luis Obispo         1         2           San Francisco         1         2           San Luis Obispo         1         2           San Luis Obispo         11         2           San Luis Obispo         11         2           San Mateo   | Kern           | 32,000                                   | 270,000                           |
| Los Angeles         1,000         9,200           Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,300,000           San Berito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Francisco         1         2           San Luis Obispo         110         2,300           San Mateo         2,700         19,000           Santa Barbara         3,00         2,100 <t< td=""><td>Lake</td><td>31,000</td><td>590,000</td></t<>  | Lake           | 31,000                                   | 590,000                           |
| Madera         44,000         580,000           Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Riverside         1,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Luis Obispo         110         2,300           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200   | Lassen         | 120,000                                  | 840,000                           |
| Marin         160         1,400           Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Francisco         1         2           San Luis Obispo         110         2,300           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200   | Los Angeles    | 1,000                                    | 9,200                             |
| Mariposa         60,000         970,000           Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Francisco         1         2           San Luis Obispo         110         2,300           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200   | Madera         | 44,000                                   | 580,000                           |
| Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Francisco         1         2           San Luis Obispo         110         2,300           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200   | Marin          | 160                                      | 1,400                             |
| Mendocino         98,000         1,300,000           Modoc         170,000         2,400,000           Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Luis Obispo         1         2           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200   | Mariposa       | 60,000                                   | 970,000                           |
| Mono         31,000         300,000           Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Luis Obispo         1         2           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200  | Mendocino      | 98,000                                   | 1,300,000                         |
| Monterey         650         6,300           Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Luis Obispo         11         2           San Luis Obispo         110         2,300           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200   | Modoc          | 170,000                                  | 2,400,000                         |
| Napa         2,600         47,000           Nevada         79,000         1,400,000           Orange         3         100           Placer         140,000         3,000,000           Plumas         97,000         1,300,000           Riverside         1,000         1,900           San Benito         61         61           San Bernardino         3,000         12,000           San Diego         1,800         9,400           San Luis Obispo         1         2           San Luis Obispo         11         2           San Luis Obispo         110         2,300           San Mateo         2,700         19,000           Santa Barbara         300         2,100           Santa Clara         2,900         8,200  | Mono           | 31,000                                   | 300,000                           |
| Nevada       79,000       1,400,000         Orange       3       100         Placer       140,000       3,000,000         Plumas       97,000       1,300,000         Riverside       1,000       1,900         San Benito       61       61         San Bernardino       3,000       12,000         San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200   | Monterey       | 650                                      | 6,300                             |
| Nevada       79,000       1,400,000         Orange       3       100         Placer       140,000       3,000,000         Plumas       97,000       1,300,000         Riverside       1,000       1,900         San Benito       61       61         San Bernardino       3,000       12,000         San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200   | Napa           | 2,600                                    | 47,000                            |
| Placer       140,000       3,000,000         Plumas       97,000       1,300,000         Riverside       1,000       1,900         San Benito       61       61         San Bernardino       3,000       12,000         San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  | Nevada         | 79,000                                   | 1,400,000                         |
| Placer       140,000       3,000,000         Plumas       97,000       1,300,000         Riverside       1,000       1,900         San Benito       61       61         San Bernardino       3,000       12,000         San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  | Orange         | 3  | 100                               |
| Riverside       1,000       1,900         San Benito       61       61         San Bernardino       3,000       12,000         San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200   | -              | 140,000                                  | 3,000,000                         |
| Riverside       1,000       1,900         San Benito       61       61         San Bernardino       3,000       12,000         San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200   | Plumas         | 97,000                                   | 1,300,000                         |
| San Bernardino       3,000       12,000         San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  | Riverside      | 1,000                                    |                                   |
| San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  | San Benito     | 61                                       | 61                                |
| San Diego       1,800       9,400         San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  | San Bernardino | 3,000                                    | 12,000                            |
| San Luis Obispo       1       2         San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  | San Diego      |  |                                   |
| San Francisco       1       2         San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  |                |  |                                   |
| San Luis Obispo       110       2,300         San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  | -              |  |                                   |
| San Mateo       2,700       19,000         Santa Barbara       300       2,100         Santa Clara       2,900       8,200  |                |  |                                   |
| Santa Barbara       300       2,100         Santa Clara       2,900       8,200   |                |  |                                   |
| Santa Clara 2,900 8,200   |                |  |                                   |
|   |                |  |                                   |
|   |                |  | 1,300                             |

Questions regarding this report should be directed to Jeff Moore at jeffrey.moore@usda.gov or 530-759-1753.

#### **RESULTS BY COUNTY – 2022**

|          | Estimated Number of Acres | Estimated Number of   |
|----------|---------------------------|-----------------------|
| County   | with Mortality            | Dead Trees            |
| Shasta   | 180,000                   | 2,800,000             |
| Sierra   | 110,000                   | 2,000,000             |
| Siskiyou | 310,000                   | 4,100,000             |
| Solano   | 1                         | 5                     |
| Sonoma   | 7,900                     | 59,000                |
| Sutter   | 1                         | 2                     |
| Tehama   | 63,000                    | 1,300,000             |
| Trinity  | 210,000                   | 3,300,000             |
| Tulare   | 120,000                   | 1,300,000             |
| Tuolumne | 120,000                   | 2,200,000             |
| Ventura  | 5,700                     | 23,000                |
| Yolo     | 17                        | 48                    |
| Yuba     | 7,500                     | 100,000               |
| Total    | 2,545,096 acres           | 36,388,524 dead trees |

## **RESULTS BY NATIONAL FOREST – 2022**

| Forest                           | Estimated Number of Acres with Mortality | Estimated Number of<br>Dead Trees |
|----------------------------------|--|-----------------------------------|
| Angeles National Forest          | 1,100                                    | 10,000                            |
| Cleveland National Forest        | 1,500                                    | 8,000                             |
| Eldorado National Forest         | 91,000                                   | 1,300,000                         |
| Humboldt-Toiyabe National Forest | 50,000                                   | 750,000                           |
| Inyo National Forest             | 78,000                                   | 880,000                           |
| Klamath National Forest          | 140,000                                  | 1,800,000                         |
| Lake Tahoe Basin Management Unit | 58,000                                   | 1,400,000                         |
| Lassen National Forest           | 170,000                                  | 1,900,000                         |
| Los Padres National Forest       | 12,000                                   | 59,000                            |
| Mendocino National Forest        | 40,000                                   | 550,000                           |
| Modoc National Forest            | 180,000                                  | 2,200,000                         |
| Plumas National Forest           | 110,000                                  | 1,600,000                         |
| San Bernardino National Forest   | 3,900                                    | 13,000                            |
| Sequoia National Forest          | 75,000                                   | 410,000                           |
| Shasta-Trinity National Forest   | 290,000                                  | 4,400,000                         |
| Sierra National Forest           | 180,000                                  | 1,700,000                         |
| Six Rivers National Forest       | 24,000                                   | 150,000                           |
| Stanislaus National Forest       | 140,000                                  | 2,600,000                         |
| Tahoe National Forest            | 260,000                                  | 5,000,000                         |
| Total                            | 1,904,500 acres                          | 26,730,000 dead trees             |