## EXECUTIVE SUMMARY

2004 was a successful year for the California Department of Food and Agriculture (CDFA) Hydrilla (*Hydrilla verticillata*) Eradication Program in terms of both eradication progress and detection of new infestations. The quarantine zones in both Shasta and Imperial counties were reduced in area. For the first time since hydrilla was first detected in Clear Lake in 1994, no hydrilla was detected in the lake in 2004, and for the second year in a row, no hydrilla was detected anywhere in the Eastman Lake/Chowchilla River system. In contrast, one new infestation was found in Nevada County, which seems to be contained to one pond. In addition, hydrilla was detected in two aquatic plant nurseries in the state.

The CDFA is the lead agency in California for the eradication of hydrilla (California Food and Agricultural Code, Sections 4068 and 7271). In 1977, after the first California hydrilla find, the California Legislature authorized the CDFA Secretary to initiate a survey and detection program for hydrilla, and to eradicate hydrilla wherever feasible (California Food and Agricultural Code, Section 4068). In 1985, after hydrilla was found in Redding, near the Sacramento River, the Governor of the State of California declared a “State of Emergency” to eradicate hydrilla. In 1994, the CDFA Secretary proclaimed an “emergency situation” in regards to the hydrilla infestation discovered in that year in Clear Lake. Similar declarations have been issued for most of the current hydrilla infestations. In 2004, CDFA Secretary Kawamura proclaimed the latest emergency project after hydrilla was detected in Nevada County.

Though the CDFA is the lead agency for hydrilla eradication, the CDFA administers the Hydrilla Eradication Program with the cooperation and support of the local county agricultural commissioners and other federal, state, county, and local agencies, Native American tribes, and other entities and individuals. In 2004, the CDFA received financial support, manpower, regulatory support, and/or technical assistance from the following: the California Department of Boating and Waterways, Center for Spatial Technologies and Remote Sensing, California Department of Water Resources, United States Army Corps of Engineers, United States Department of the Interior-Bureau of Reclamation, United States Department of Agriculture-Animal and Plant Health Inspection Service, United States Department of Agriculture-Agricultural Research Service-Exotic and Invasive Weed Research Unit, Yolo County Flood Control and Water Conservation District, Lake County Department of Public Works, Imperial Irrigation District, Nevada County Transfer Facility, and Alameda, Calaveras, Contra Costa, Imperial, Lake, Los Angeles, Madera, Mariposa, Nevada, Orange, San Joaquin, Santa Barbara, Shasta, Tulare, Ventura and Yuba County agricultural commissioners. In addition, many other agricultural commissioners assist by identifying weed samples submitted by the public and forwarding those suspected to be hydrilla to the CDFA Botany Laboratory.

The CDFA is committed to an "early detection and rapid response" strategy for the eradication of hydrilla. Detecting hydrilla in an "incipient" stage of invasion allows for the eradication process to proceed with less overall cost and less environmental impact than would be the case if hydrilla were detected in later stages of invasion. "Rapid response" involves bringing the most effective eradication methods that are appropriate to a given site and situation to bear in a timely manner.

**2004 Highlights by County**

In **Alameda County**, CDFA and county biologists detected hydrilla in shipments of shrimp from an overseas supplier to a local wholesaler. The CDFA Pest Exclusion Branch and county biologists have worked with the wholesaler and supplier to discontinue the shipments.

In **Calaveras County**, hydrilla has only been detected in one of eleven previously infested areas along Bear Creek since 1999. In 2004, only two isolated plants were found and hand removed. In addition, a few hydrilla plants continue to be detected every year in a stock pond near Mokelumne Hill.

In **Imperial County** in 2004, the southeastern third of the previously infested area was removed from the quarantine zone because no hydrilla has been detected there in over ten years. The only hydrilla detection in Imperial County in 2004 was in the Wildcat Drain. CDFA, Imperial County Department of Agriculture and Imperial Irrigation District biologists surveyed the drain in November and mapped the infestation using Global Positioning System/Geographic Information System technology, and are preparing an eradication plan to eliminate this last vestige of hydrilla from the county. In addition, the Imperial Irrigation District continued to produce and release the triploid grass carp in its canals for control of hydrilla and other aquatic vegetation.

In **Lake County**, for the first year since hydrilla was detected in Clear Lake in 1994, no hydrilla was detected in Clear Lake in 2004. Aquatic herbicide treatments continue in areas where hydrilla was detected in 2001, 2002 and 2003. Though there are almost certainly tubers and small plants still in Clear Lake, this first year with no detections represents an important milestone in the eradication of hydrilla from Clear Lake.

In **Los Angeles County**, CDFA Pest Exclusion Branch and county biologists detected hydrilla growing in water lily pots and tubs in a retail aquatic nursery. CDFA Integrated Pest Control Branch and Pest Exclusion Branch biologists and county biologists inspected the infested water lily pots, tubs, plants and roots and removed any hydrilla plant parts detected. CDFA Pest Exclusion Branch biologists and county biologists conducted trace forwards in Los Angeles, Santa Barbara, Ventura and Orange counties to determine if hydrilla had spread through retail trade. No hydrilla was found in these trace forwards. The previously infested pots and tubs are now under quarantine and observation to determine if they are hydrilla free.

In **Madera and Mariposa counties**, there have been no hydrilla detections in two years in the previously infested portion of the Chowchilla River. No hydrilla has been detected in Eastman Lake since 1993. Though recurrent drought in the area may be contributing to the results, CDFA and county biologists are hopeful that they will be able to declare eradication in this lake/river system within a few years.

In **Nevada County** in 2004, CDFA and Nevada County biologists confirmed the presence of hydrilla in the county for the first time ever, following a lead from a private aquatic pest control representative who had attended presentations on hydrilla given by CDFA personnel. The infested waterway is a fire control pond at a waste disposal facility near Grass Valley. CDFA and Nevada County biologists responded rapidly and an eradication plan was prepared within a few weeks. CDFA biologists then treated the pond with fluridone and copper aquatic herbicides, with excellent initial results.

In **Shasta County** in 2004, two previously infested ponds in Anderson were removed from the quarantine zone, leaving only the four ponds around the Riverview Golf Course in the quarantine zone. The two ponds were removed from quarantine because there has not been any hydrilla detected in these ponds for the past six years. In addition, hydrilla plant counts continue to decline at the golf course.

In **Tulare County**, CDFA biologists continue to survey and treat infested ponds at a private fishing resort near Springville. In the largest pond on the site, hydrilla has not been detected in three years. In 2004, hydrilla was detected in only one of the previously eight infested ponds. In addition, the hydrilla infestation has been contained to the original infested properties, and has not spread into adjacent rivers or ponds.

In **Yuba County** in 2004, progress to eradicate hydrilla from infested ponds continues near Oregon House and from an infested section of the Yuba County Water District Canal. Of the fourteen infested ponds, three have now gone three years without hydrilla being detected. Eleven of the ponds had no hydrilla detected last year. In the canal, the hydrilla infestation has been reduced to several "hotspots." In 2004, CDFA biologists cooperated with scientists from the United States Department of Agriculture-Agricultural Research Service to test an experimental, but highly promising, acetic acid treatment to directly control hydrilla tubers in the hydrosoil. The acetic acid treatment was made to several of these "hotspots." If this experimental treatment is successful, it could greatly accelerate the eradication of hydrilla from the canal.

In conclusion, the CDFA Hydrilla Eradication Program continues to protect California's waterways from this noxious weed. Though new infestations are being discovered, the overall population of hydrilla in the state continues to decline. Several previously infested areas were removed from quarantine zones in 2004, and project biologists project continued success in the future in eradicating hydrilla from remaining infested areas.